Review of Surgical Clerkship and Student Quality of Life

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The term "evidence-based medicine" was first coined by Sackett and colleagues[1] as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients." The key to practicing evidence-based medicine is applying the best current knowledge to decisions in individual patients. Medical knowledge is continually and rapidly expanding and it is impossible for an individual clinician to read all the medical literature. For clinicians to practice evidence-based medicine, they must have the skills to read and interpret the medical literature so that they can determine the validity, reliability, credibility and utility of individual articles. These skills are known as critical appraisal skills. Generally, critical appraisal requires that the clinician have some knowledge of biostatistics, clinical epidemiology, decision analysis, and economics as well as clinical knowledge.

The Canadian Association of General Surgeons and the American College of Surgeons jointly sponsor a program entitled "Evidence-Based Reviews in Surgery (EBRS)," supported by an educational grant from Ethicon Inc and Ethicon Endo Surgery Inc. The primary objective of this initiative is to help practicing surgeons improve their critical appraisal skills. During the academic year, eight clinical articles are chosen for review and discussion. They are selected not only for their clinical relevance to general surgeons, but also because they cover a spectrum of issues important to surgeons; for example, causation or risk factors for disease, natural history or prognosis of disease, how to quantify disease (measurement issues), diagnostic tests and the diagnosis of disease, and the effectiveness of treatment. Both methodologic and clinical reviews of the article are performed by experts in the relevant areas and posted on the EBRS website. As well, a listserve discussion is held where participants can discuss the monthly article. Fellows and candidates of the College can access Evidence Based Reviews in Surgery through the American College of Surgeons website (www.facs.org). All journal articles and reviews are available electronically through the website. Currently we have a library of 50 articles and reviews which can be accessed at any time. Each October, a new set of articles will be available each month until May. Surgeons who participate in the current (modules) packages can receive CME credits by completing a series of multiple choice questions. Additional information about EBRS is on the ACS website or by email to the administrator, Marg McKenzie at mmckenzie@mtsinai.on.ca.

In addition to making the reviews available through the ACS and CAGS websites, four of the reviews are published in condensed versions in the *Canadian Journal of Surgery* and the other four will be published in the *Journal of the American College of Surgeons* each year.

REFERENCE

1. Evidence Based Medicine Working Group. Evidence-based medicine. JAMA 1992;268:2420–2425.

SELECTED ARTICLE

Student quality-of-life declines during third year surgical clerkship

Goldin SB, Wahi MM, Farooz OS, et al. J of Surg Research 2007;143:151–157

ABSTRACT

Objective: To determine change in quality of life (QOL) of third-year medical students during an 8-week surgical clerkship, and secondly to determine if medical students who are not interested in pursuing a surgical career, women, and students who place a high priority on a controllable lifestyle would have a greater change in QOL.

Method: Medical students were asked at the start of their clerkship to complete a survey that measured QOL on an 84-point scale composed of selected questions from the Medical Outcomes Study and depression on a 40-point scale using the Harvard Dept. of Psychiatry/NDSD brief screening instrument. Demographic information was collected and students were also asked the typical number of hours they slept per night, their attitude toward a controllable lifestyle and their top three specialties of interest. On week 6 of the clerkship, stu-

ISSN 1072-7515/09/$36.00
doi:10.1016/j.jamcollsurg.2009.06.008

dents were resurveyed using the same instruments plus they were asked their average hours of sleep per night for the previous week.

Results: Mean QOL at baseline was 57.0 (SD 11.3) and at week 6 was 50.4 (SD 10.1) ($p < 0.001$). Mean depression at baseline was 14.4 (SD 3.8) and at week 6 was 15.1 (SD 3.6) ($p = 0.02$). Mean number of hours of sleep per night at baseline was 6.3/night (SD 0.9) and at week 6 was 5.7/night (SD1.2) ($p < 0.0001$). Mean differences were similar for all outcomes between men vs. women, those who ranked surgery in their top 3 career choices vs. those who did not and those who ranked controllable lifestyle as "very important" vs. all other categories.

Conclusion: Mean QOL scores and number of hours of sleep decline while mean depression scores increase significantly in third year medical students from orientation to week 6 of their clerkship.

Commentary: Goldin and colleagues assessed the effect of an eight-week surgery clerkship on medical student QOL. They hypothesized that certain subgroups such as women, students who did not place surgery among their top three career choices, and students who placed a high value on a controllable lifestyle would experience a greater drop in their QOL. However, while QOL seemed to decrease, depression increased the changes were not correlated with gender, interest in pursuing a surgical career or importance of a controllable life style.

This study is provocative given that over the last decade, surgery has become a less popular career choice among medical students and this study attempted to identify a possible cause for this decline. However, there are some aspects of the methodology and results of the study which limit its internal validity. The investigators used selected items from some version of the SF 36, 12 or 8, an instrument which was developed by the Rand Corporation to assess health related QOL in the normal population. Most clinicians are familiar with the SF 36 because it has been used to assess QOL in many clinical studies. It is a generic instrument and has been validated for use in many disease states but not in this setting. The SF 36 consists of 36 items covering eight domains including physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and mental health. Generally summary scores for each domain are presented rather than an overall score.

The authors' use of this modified instrument has departed from the usual in several ways. First, the modified version has not been validated and readers cannot even assess the face validity of this version since the authors fail to tell us what items have been omitted nor which domains have been sampled. Second, the responses were tallied into one overall summary statistic. Finally, and perhaps most importantly, one has to question whether an instrument which was designed to measure health related QOL is the appropriate one to use in this situation. The second instrument used is the Harvard Department of Psychiatry/NDSD brief screening instrument. Again, the authors failed to give any information about this instrument such as the number of items, the range of possible scores, information about its reliability and validity and in what settings that it has been used previously.

The authors found that at baseline the mean score in the QOL instrument for all students was 57.0 (SD 11.3) and decreased to 50.4 (SD 10.1), a change of 10% in the mean score, which is statistically significant. However, it is difficult to know if this difference is "clinically" significant. There are population means for the SF 36 but these are irrelevant given that the instrument was modified. It is interesting to note that those individuals who did not rate surgery in their top three career choices at both baseline had significantly lower mean scores both at baseline and at week 6! The meaning of this is uncertain, maybe those who are interested in surgery rate their QOL higher! But multiple comparisons were made and at least some of the differences may have been because of chance. The mean depression score at baseline was 14.4 (SD 3.8) and decreased by 0.7 points at 6 weeks. This difference was also statistically significant, but again it is uncertain whether it is "clinically significant". The possible range of scores for the Harvard Department of Psychiatry/NDSD brief screening instrument is not given although it is stated that it is "40 points" so perhaps the scores range from 0-40.

So what is the significance of the results of this study? The obvious limitation of the study is that data were derived from a single clerkship at a single institution using a portion of an instrument that has yet to be validated. The application of these findings is further limited because of the absence of information about the structure of the clerkship and students' perception of the quality of teaching or interpersonal relationships while on the clerkship. The latter can be highly influential on a student's interest in pursuing a certain specialty and can impact on their motivation to learn specific educational content. It is possible that the length of the rotation, number of calls, nature of the assignments, and local demands could all influence students perception of QOL. Finally, one of the most important factors in choosing a career are the so-called "critical events" that occur during clerkship. For example, being praised for a good skin closure may influence a student to choose a surgical career, while being berated may have the exact opposite effect. These critical events must be explored

during a surgical clerkship through focused interviews and questionnaires which are lacking here.

Notwithstanding the limitations of the study, the authors provide evidence that QOL decreases and depression increases during a surgical clerkship, although contrary to their hypothesis, there were no particular subgroups where outcomes were worse. There is a large body of literature on student well-being. Most studies have reported similar findings as this study: that regardless of the discipline, students do experience significant amounts of stress and personal upheaval during their training. The important question is whether the decrease in QOL noted in this study had a tangible influence on career choice. It is to be noted that there are reports of an increased interest in surgery as a career choice since the institution of the 80-hour workweek and clearly this is corroborating evidence that QOL is an important variable that must be considered if we are to improve the attractiveness of surgery.

The authors are cautious not to suggest interventions based on the information presented, but suggest that these data challenge common misperceptions, and should stimulate efforts for further investigation. Third-year clerkships in general have two primary objectives. The first is to provide a learning environment in which students can complete the stated goals and objectives. The second is to provide an opportunity to try each specialty on for size, see if the sleeves are too long or the waist too tight. The focus of this article is clearly about the latter task. There is ongoing debate whether providing a more pleasant, less rigorous clerkship will really influence a student's desire to pursue a career in surgery. Studies have already evaluated this and found that while student impressions of surgeons improved, making the clerkship a "nicer" overall experience, this did not result in an increased interest in a surgical career. Students continue to report, both anecdotally and in published studies, that they feel they learn the most in situations where the expectations are high and at the same time devoid of negative interpersonal interactions. We need to continue modeling the realities of a surgical career while at the same time freely expressing our own passion for what we do. Indeed the surgery clerkship must be a fruitful learning experience for all medical students regardless of their ultimate specialty choice. Recognizing and reducing adverse experiences should be the goal of every clinical rotation throughout the entire medical school experience, and studies such as this are central to ensuring an evidence-based approach to medical education.

This study does effectively answer its original hypothesis that student QOL declines during a surgical clerkship. It is a significant study because it opens the door to a multitude of future studies looking at effects in other clerkships and other universities. If the trend is unique to surgery and is replicated in other programs and universities, then concrete measures will have to be devised to improve this decline in QOL. Certainly this study should make all surgical educators reflect on whether student experiences during medical school influence their choice of a surgical career.

THE EVIDENCE-BASED REVIEWS IN SURGERY GROUP COMPRISES: