



Accuracy of interpreting vital signs in simulation: An empirical study of conformity between medical and nursing students



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ABSTRACT

Background: Given the ubiquity of collaborative practice in health care, it is critical to examine how interprofessional group members make diagnostic decisions.

Purpose: This study investigated whether peer pressure leads to inaccurate interpretations and clinical decisions about patient care.

Methods: An experimental research design was used to examine whether 3rd year nursing students ($n = 44$), and 2nd year medical students ($n = 60$) students report incorrect diagnoses and vital signs that correspond to incorrect vital signs reported by confederates using a patient simulator.

Discussion: Students who reported the same incorrect vital signs they heard from confederates were likely to select a diagnosis that corresponded to these values. Qualitative analyses showed that primary reasons for conforming differed between nursing and medical students.

Conclusions: In practice, peer pressure may directly impact interprofessional decision making and patient safety.

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Introduction

Patient care is a complex activity that requires effective teamwork and communication skills among health care providers to assure patient safety and mitigate adverse events.^{1,2} One source of these medical errors is described as communication errors within health care teams. It has been reported that miscommunication may be responsible for as many as 37% of all medical errors.³ Practical experience in many high stakes professions such as aviation and military, including those in health care, has shown that optimal and efficient team communication are essential to reducing human error.^{4,5} Failure of members of the health care team to collaborate

and communicate can result in negative health outcomes and safety concerns.¹ For example, to maintain “collaborative” relationships, health professionals reportedly do not “speak-up,” in an effort to avoid confrontation. Maxfield, Grenny, McMillan, Patterson, and Switzler (2005)⁶ conducted surveys, focus groups, interviews, and ethnographic observations with more than 1700 nurses, physicians, clinical-care staff and administrators in 2004 in urban, suburban and rural hospital in the United States. The researchers found that more than half of the health care workers had witnessed their coworkers break rules, cut corners, make mistakes and show incompetence in their patient care, which resulted in injurious consequences. These accounts, along with reports that one in five physicians has seen harm come to patients,⁶ clearly establish the need to examine reasons for these unsafe behaviors. Inaccurate reporting of information and subjective normative pressure may be several of the communication challenges associated with unsafe behaviors in interprofessional care. The main purpose of this research is to investigate one particular reason for inaccurate interpretation of reported vital signs – namely, peer pressure to conform

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to inaccurate information communicated by members of a health care team.

Background

One of the challenges of effective teamwork and communication is the unequal hierarchical relationships that exist in health care. The everyday practice of dominance and authority has been part and parcel of how nursing and medicine were historically constructed in relation to one another.⁷ A problem long recognized within sociological understandings of patient safety is that those in inferior positions may have critical information, yet are unable to persuade those in more senior positions of the credibility of their knowledge or relevance of their opinions.⁸ A nurse's relationship with a patient creates an advantageous position of strength in relation to the doctor who may be unaware of any changes in the patient's condition.⁹ Yet, nurses are in a disadvantageous position within existing hierarchical relations of power and knowledge that may limit their contribution to patient care.¹⁰ Despite some smoothing of the hierarchical relations between doctors and nurses in recent years,¹¹ traditional relations still hold power; those lower in the hierarchy are submissive to those higher up.^{7,12,13}

In spite of general agreement about the importance of inter-professional teamwork and collaboration in the delivery of quality patient care,^{14–16} these critical skills are not typically emphasized in undergraduate health professional education. The curricular emphasis is on dynamics within each of the individual respective uniprofessional teams (example between registered nurses and licensed practical nurses). In most universities, education programs for nursing and medicine exist separately, with little opportunity for crossover. Creating effectual teams entails interactive educational experiences early in a student's career within a system that values the diversity of professional knowledge and emphasizes the breakdown of traditional hierarchies and gender roles.^{17–19} Throughout each of the years of training within nursing and medical school, students are learning the cultural norms, attitudes, and values that will affect their future roles in interdisciplinary teams.^{20–22} Thus, by exposing students to these early interdisciplinary educational experiences, it is anticipated that they will gain improvements in knowledge, skills, attitudes, and beliefs to enable them to work successfully within their collaborative practice environment.^{22–24}

Conformity to peer pressure

One factor that may directly interfere with the ability to communicate effectively and make clinical decisions within a health care team is peer pressure. The ubiquitous human need to belong to social groupings may motivate an individual to imitate the behavior of the group.^{25,26} In fact, previous experimental research in social psychology has demonstrated that a group can exert pressure on an individual to conform, even to information that the individual knows is incorrect.^{27–30} This is coupled with research from the cognitive psychology literature that suggests that individuals may not even be consciously aware of how they reach these decisions.^{31,32} Furthermore, researchers found that conformity was influenced by social status, power and credibility of an individual, even if these factors were manipulated by the experimenter.^{33,34}

While much of the evidence of peer conformity in health professional education is anecdotal,³⁵ a recent empirical study suggests that subtle motivations and pressures from the peer group may prevent medical students from questioning inaccurate information, thereby restricting students' engagement in and contributions to collaborative learning teams.^{4,36} Having observed

that medical clerks were likely to perform a knee aspiration incorrectly if they believed other students had performed it in the same incorrect way, Beran next examined whether students in other health professions, such as psychology, would report incorrect information in an online environment upon hearing the same incorrect information from their peers.³⁷ Both studies found that students are likely to follow behaviors demonstrated by their peers even when they know these behaviors are contrary to what they have been taught. Kaba and Beran (2016)³⁸ further explore whether this phenomenon of conformity occurs when medical and nursing students interact with one another. The researchers found that these students repeated incorrect vital signs, radial pulse (RP), respiration rate (RR), systolic and diastolic blood pressure (BP), they heard from members of their interprofessional student groups. This evidence of conformity was particularly apparent among nursing students, where the majority of them reported the same incorrect vital signs they heard from medical students. This finding suggests that peer pressure may prevent nursing students from questioning information given by medical students that seems incorrect. They may have been more likely to conform because of historical embedded hierarchical relationships and power differentials that exist between nurses and physicians in practice, thereby increasing the pressure for the nursing students to state the same incorrect vital sign readings they heard from the medical students.

Given the ubiquity of collaborative practice in health care, it is critical to determine how the pressure to conform to team members, may lead health professional students to make inaccurate decisions about patient care. This study explores this possibility in three ways. First, having determined that many medical and nursing students do repeat incorrect information they hear from their peers,³⁸ we examine whether this information may impact their accuracy of interpreting these findings. In this study, we will determine whether those participants/students who repeated incorrect vital signs values they heard from other students will demonstrate conformity by also selecting the diagnostic interpretation that corresponds to those incorrect vital signs. In other words, do students who report an incorrect vital sign, make a diagnostic interpretation that matches this incorrect vital sign given by the majority group? Or, do they make a diagnostic interpretation that corresponds to the vital sign they took from the mannequin? It is possible that although they verbalized the incorrect values, they may not have believed that they were true and would not use them to make diagnostic interpretations. If incorrect information does change their decision-making, this would strengthen the importance of the role of conformity in patient care. Second, if nursing students feel greater pressure to conform to inaccurate information than do medical students,³⁸ we expected that the former would be more likely to report incorrect diagnostic interpretations of vital signs than would the latter. Our third approach to exploring how students in the health professions manage the dilemma of upholding information they believe to be accurate in the face of encountering inaccurate information was to explore reasons why they may or may not conform. This study will extend our previous findings about the high likelihood of medical and nursing students reporting incorrect vital signs in simulation, by determining whether they – actually use this information to make inaccurate clinical decisions.

Materials and methods

The complete methods have been reported in full detail in Kaba and Beran (2016).³⁸ For the full recruitment strategy, please see Kaba and Beran (2014).³⁹

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