The Accuracy of Glasgow Coma Scale Knowledge and Performance among Vietnamese Nurses

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Purpose: The purpose of this study was to investigate the accuracy of Glasgow Coma Scale (GCS) knowledge and performance among Vietnamese nurses. Methods: A cross-sectional descriptive study was conducted using a questionnaire pertaining to the nurses’ knowledge of GCS and a structured evaluation tool to measure the accuracy of their GCS scores. A total of 94 Vietnamese nurses participated in this study, all from a general hospital in Ho Chi Minh City, Vietnam. Data were analyzed by conducting a t-test, a χ² test, and ANOVA. Results: This study found that the vast majority of the nurses (>90%) responded correctly to questions regarding their GCS basic knowledge; however, 52.1% of the nurses answered incorrectly questions related to clinical scenarios requiring the application of the basic knowledge. Regarding the GCS performance, the nurses demonstrated acceptable accuracy rates for each component of GCS, but those who scored well in all three components accounted for only 42.6% of the subject group. These findings indicate that the Vietnamese nurses are not able to integrate their GCS knowledge into actual practice as measured by the accuracy of GCS scoring. Conclusion: This study suggests that new educational strategies should be developed for the Vietnamese nurses to improve their performance on accurate GCS scoring based on theoretical knowledge.

Key Words: Glasgow Coma Scale, Knowledge, Performance, Nurses

INTRODUCTION

Assessment of consciousness level is considered as a primary action of health care practitioners, including nurses, who care for the patients with neurological or neurosurgical problems. The assessment not only identifies the neurological problem but also detects the initial signs of complications. It can be an indicator of intervention or treatment in emergency conditions (Weir, Bradford, & Lees, 2003). The Glasgow Coma Scale (GCS), first presented by Teasdale and Jennet in 1974, is one of the most effective and reliable tools to assess the depth and duration of impaired consciousness, especially for the patient with head injuries. The high level of validity and reliability of GCS ensure its assessment accuracy in comparison with other earlier scoring systems such as the anatomical or physiological scoring system and the revised trauma score (Fisher & Mathieson, 2001; Kingston & O’Flanaga, 2000). None of the alternative methods, even the recently developed Alert, Confused, Drowsy, Unresponsive (ACDU) scale and the Alert, Response to Voice, Response to Pain, Unresponsive (AVPU) scale, have been shown to equal the capacity for reliable and practical use with GCS (McNarry & Golhill, 2004). The usefulness, reliability, and practicality of GCS have been confirmed through previous studies (Juarez & Lyons, 1995; Rowley & Fielding, 1991).

GCS consists of three components: eye opening, verbal responsiveness, and motor responsiveness. It uses numeric system to minimize variation and subjectivity in clinical assessment (Lacono & Lyons, 2005; Norwood, McAuley, Berne, Creath, & McLarty, 2002; Shah, 1999). The total score of GCS ranges from 3 to 15. Since it was developed, GCS has been world-widely used because it
enhances communication among health care practitioners through a common reporting language, despite its simple appearance. Because of the apparent simplicity of GCS, a lot of health care practitioners have used it in an inappropriate way without careful referring to the GCS instruction. Previous studies reported a variety of health care providers used GCS inaccurately and ineffectively in their clinical practice (Bazarian, Eirich, & Salhanick, 2003; Lankova, 2006; Zuercher, Ummenhofer, Baltussen & Walder, 2009).

Because inaccurate performance of GCS scoring may lead to deteriorate a patient’s outcome, it is crucial to ensure complete practice of GCS. There are a few factors that affect accuracy of GCS scoring. Heron, Davie, Gillies & Courtey (2001) compared GCS scorings among nurses working in different units. They reported that the nurses with a specific qualification from critical care training performed GCS accurately. Unstable condition of patients and inadequate GCS knowledge and experience of physicians and nurses also had an effect on the accuracy of GCS scoring (Holdgate, Ching & Angonese, 2006). These findings indicate the positive relationship of GCS knowledge with accurate GCS scoring. However, previous studies have merely investigated either knowledge of GCS in health care professionals (Heim, Schoettker, Gilliard, & Spahn, 2009; Riechers et al., 2005) or inter-reliability of GCS in practice between different health care professionals (Arbabi et al., 2004; Holdgate et al., 2006; Menegazzi, Davis & Paris, 1993; Rowley & Feilding, 1991). Very few studies are known to measure the relationship of GCS knowledge and performance among nurses, especially no studies in Vietnam.

GCS is also widely used in Vietnam like other countries in the world to assess their patients’ consciousness level. However, the Vietnamese nurses generally have no preparations for using the assessment tool. GCS is simply introduced as a tool for level of consciousness in most of the Vietnamese nursing schools. Similarly, in clinical settings, new nurses receive GCS-related information via words of experienced nurses. There is no well-structured education on GCS for these nurses. Most Vietnamese nurses practice GCS scoring by depending on their own understanding. Therefore, this study will make a significant contribution by exploring the accuracy of GCS usage in Vietnamese nurses. Consequently, it could stimulate both nursing schools and hospitals to develop a comprehensive GCS education program so that nurses have satisfactory preparations to provide a high quality of care.

**Purpose of study**

The purpose of this study was to determine the accuracy of GCS knowledge and performance among Vietnamese nurses. The specific aims of the study were: 1) to identify the accuracy of knowledge on GCS; 2) to identify the accuracy of GCS performance; 3) to examine the difference in knowledge on GCS between the groups with incorrect and correct performance; and 4) to examine the difference in knowledge and performance of GCS scoring by general characteristics.

**METHODS**

1. **Study design**

This was a cross-sectional descriptive study identifying the GCS knowledge and performance among the Vietnamese nurses.

2. **Participants of the study**

The convenience sampling method was used to recruit the study’s participants at the neurology ward, neurosurgical department, and neurosurgery intensive care unit (NCU) in CR Hospital located in Ho Chi Minh City, Vietnam. The inclusion criteria for participants of this study were: nurses 1) working in the hospital who graduated from a two-year or longer education program; 2) caring for adult patients who suffered from head injury or neurological pathology, and were eligible for GCS scoring; and 3) volunteering to participate in this study. The exclusion criteria were: 1) nurses who graduated from a one-year educational program, 2) assistant physicians with three months of nursing education, and 3) nurses with less than one year of working experience. A total of 94 nurses who met the study criteria participated in the study.

3. **Instruments**

1) **Questionnaire on GCS Knowledge**

The questionnaire used to evaluate the knowledge of nurses regarding GCS was designed by Heim and her colleague (2009). Permission for the questionnaire was obtained from the author via e-mail. The questionnaire was originally developed to evaluate air rescuers’ knowledge of GCS scoring. It was translated to Vietnamese by the researcher and confirmed the accuracy of its translation by a nursing lecturer who was fluent in both lan-