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ADDING DEBRIEFING TO OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS TO ENHANCE DISABILITY CULTURAL SENSITIVITY IN PHARMACY STUDENTS

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by

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DISSERTATION

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DEDICATION

Soli Deo Gloria

(To the glory of God alone)

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ABSTRACT

Debriefing was added to the design of an objective structured clinical examination (OSCE) after second-year pharmacy students performed poorly at considering patient disability in planning for patient care. This mixed-methods study examines secondary data to explore whether and how the addition of a debriefing to an OSCE impacted pharmacy students' cultural sensitivity (CS). CS scores that rate students' consideration of disability in written SOAP notes improved significantly with the addition of debriefing. Overall performance of assessing the case and planning for care did not change significantly. Debriefing transcripts were examined for supplemental instruction they afforded students about patient care and CS. Segments of debriefing discussions were devoted to discussing the patient disability. Students' concerns in debriefings dealt largely with reviewing their interactions with patients, in particular the procedure of physical examinations, to improve in future practice. Surveys of students' experience with debriefings, using the Debriefing Experience Scale (Reed, 2012) had nearly full participation. Results suggest high student satisfaction with debriefing and slight improvement from fall to spring with the same students. However, survey results were weakly correlated with students' scores. Results from this study suggest that debriefing

added to OSCEs did improve students' CS performance of CS in developing care plans for disabled patients. Longitudinal studies could determine transfer from such debriefings to practice, but existing literature suggests hopeful results. Despite apparent success of adding debriefing to an OSCE, more simulated experience and performance-based assessment besides summative OSCEs are needed to develop CS and other patient-care abilities.

CONTENTS

CHAPTER ONE: INTRODUCTION

The role of the pharmacist in patient care has expanded in recent years, beyond dispensing medication products and counseling on drug use at pharmacy counters and in hospitals. Pharmacists work with other health professionals in health care teams in community and clinical settings (Bero, Mays, Barjesteh, & Bond, 2000; Nkansah et al., 2010), help patients manage outcomes of the medications they take, through medication therapy management (Barnett et al., 2009) and expand public access to disease prevention through immunization drives, wellness screenings and other health initiatives (Gatton, 2013; Goad, Taitel, Fensterheim, & Cannon, 2013; Rodis, Legg, & Casper, 2008). Accreditation standards for professional pharmacy programs in the United States (Accreditation Council for Pharmacy Education [ACPE], 2015) and associated educational outcomes (Medina et al., 2013) have adapted to address these expanding roles and responsibilities. Professional pharmacy schools are expected to produce graduates with the doctor of pharmacy (PharmD) degree who are able to provide direct patient care to a diverse population in various care settings, and to work in inter-professional healthcare teams (ACPE, 2015).

Among the dimensions of patient care that pharmacy schools are expected to develop in students is the practice of respectfully incorporating patients' cultural practices into patient care; this is known as cultural competence (Medina et al., 2013; O'Connell, Korner, Rickles, & Sias, 2007). Cultural competence encompasses caring for persons with disabilities – characteristics of body, mind or senses that affect the ability to engage in everyday life (U.S. Department of Health and Human Services [HHS], 2005). Like members of other cultural minorities, people with disabilities experience disparities in

access to or quality of care, which can be mitigated in part through education and experience (Health Resources and Services Administration [HRSA], 2000; HHS, 2005).

Changing Instruction and Assessment

Colleges of pharmacy have changed their curricula and expanded their methods of instruction and assessment to prepare students to enter the profession. This includes using simulations and practical assessments that develop and assess students' patient care skills beyond the classroom (ACPE, 2015; Zabar, Kachur, Kalet, & Hanley, 2013).

Simulation replaces real experiences with guided artificial experiences that replicate the real world in an interactive way (Gaba, 2004). Simulation affords deliberate, repeated practice on skills (McGaghie, Issenberg, Cohen, Barsuk, & Wayne, 2011). Pharmacy schools have used simulation to teach, practice and assess skills like drug compounding and patient counseling (Vyas, Bray, & Wilson, 2013), but patient simulation using mannequins and standardized patients has gained greater use in pharmacy schools (Vyas, Bhutada, & Feng, 2012; Vyas et al., 2013; Vyas, Ottis, & Caligiuri, 2011; Vyas, Wombwell, Russell, & Caligiuri, 2010).

One form of practical assessment, the objective structured clinical examination (OSCE) uses simulation and prescribed rating criteria to improve the standardization of assessing clinical skills (Harden, 1988; Harden & Gleeson, 1979; Harden, Stevenson, Downie, & Wilson, 1975). OSCEs originated in medicine, but they have seen increased use in pharmacy, given the increasing emphasis on pharmacists' role in direct patient care (ACPE, 2015; Sturpe, 2010).

Debriefing

Debriefing is an instructional method that is often used in simulation-based

training in healthcare, aviation, and military contexts to help learners evaluate their actions (Dismukes, Gaba, & Howard, 2006; Fanning & Gaba, 2007). It is meant to stimulate reflection, which can lead to deeper learning than occurs in the experience alone(Arafeh, Hansen, & Nichols, 2010; Peter Dieckmann, Friis, Lippert, & Østergaard, 2009; Dreifuerst, 2009; Fanning & Gaba, 2007; Husebø, Dieckmann, Rystedt, Søreide, & Friberg, 2013; Kihlgren, Spanager, & Dieckmann, 2014). Debriefing is considered an integral part of a simulation (Cantrell, 2008; Dismukes et al., 2006; Dreifuerst, 2009; Mayville, 2011), because it has been shown to positively impact performance on clinical skills (Dine et al., 2008; Tannenbaum & Cerasoli, 2013).

Although they are applications of simulation, debriefing is rarely found in the literature associated with OSCEs, except when they were specifically for formative use (Aeder et al., 2007; Brazeau, Boyd, & Crosson, 2002; Denson et al., 2014; Ledford, Seehusen, Canzona, & Cafferty, 2014). This study examines the addition of debriefing to the design of primarily summative OSCEs.

Context of Study

This study is set in the PharmD program in a college of pharmacy in the Southwestern United States. The professional degree for pharmacy in the United States, the PharmD typically spans four academic years, and includes didactic and experiential components (ACPE, 2015). In the study setting, each semester of the three didactic years includes a required pharmaceutical care laboratory (PCL) course. Each PCL is aligned with other courses in the same semester, providing additional instruction, practice and testing in skills such as drug compounding, patient counseling and physical assessment. PCLs are designed to prepare students for upcoming Introductory and Advanced Practical

Experiences (IPPE/APPE) and for future practice.

OSCEs are used in the PCLs to assess students in major skill areas, including patient interviewing, physical examination, cultural sensitivity (CS) and documentation of the patient case and care plan using a subjective, objective, assessment and plan (SOAP) note – a patient case documentation format used across healthcare professions (Cameron & Turtle-Song, 2002; C. Cone, personal conversation, May 2013). OSCEs in the second professional year (P2) PCL use a scenario involving a patient with a complaint that students can address at their level of training – fall OSCEs involve over-the-counter medications, and spring OSCEs involve more complex medical complaints and prescription medications. In each scenario, the patient also has a physical disability that requires problem solving by the student to prepare care recommendations. For example, one case involved a patient with a wart on one hand, a known allergy to aspirin, and loss of use of the other arm. Students needed to recommend a wart medication that does not contain salicylic acid, and ensure the patient had a way to apply a topical treatment.

The spring P2 OSCE in consecutive years has involved a patient who is status/post myocardial infarction ("heart attack") who has a significant leg impairment that restricts mobility. The patient is seeking follow-up care with a pharmacist to address his medications and health status. Students interview the patient, perform a physical assessment, review provided laboratory results and write an assessment of the case and plan for treatment, in the form of a SOAP note (C. Cone, personal conversation, May 2013). Students are to address the appropriateness of drugs and doses the patient is taking, and the patient's health condition; they are expected to consider the patient's disability when making recommendations for care. For example, lifestyle

recommendations for cardiovascular exercise to reduce future risk of heart attack and stroke should not include jogging. Students might instead recommend limited or non-weight bearing exercises or refer the patient to physical therapy (C. Cone, personal conversation, May 2013).

Statement of Problem

Second-year pharmacy students generally perform well in the spring OSCE. They demonstrate that they are competent to analyze and make appropriate care plans for the patient's conditions. However, many students ignored or disregarded the patient's physical disability in their care plans. The gap in students' disability cultural competence has persisted although students have been assigned readings, discussed disability cultural competence and took a quiz on the subject prior to the OSCE. The OSCE was close to the end of the semester, and overall OSCE grades and course grades were favorable. Therefore, few students sought feedback on their failure of the CS dimension. This raised a question of how and why students' learning of disability cultural sensitivity had failed. Seeking a way to enhance students' performance and learning of disability cultural competence, the instructor for the P2 PCL revised the design of the OSCE the following year, incorporating a facilitated debriefing (C. Cone, personal conversation, May 2013). The standard and modified designs are illustrated in Figure 1.

Debriefing is used to stimulate reflection on an experience as part of the experiential learning cycle (Brackenreg, 2004; Dreifuerst, 2009; Husebø et al., 2013; Kihlgren et al., 2014; Kolb, 2014). Debriefing is typically done soon after an experience (Arafeh et al., 2010; Fanning & Gaba, 2007). It is considered a standard, even necessary, element of simulation-based training (Dismukes, Gaba, & Howard, 2006; Fanning &

Gaba, 2007), but it is not typically used with an OSCE, probably because most OSCEs are used for primarily summative assessment (Zabar et al., 2013).

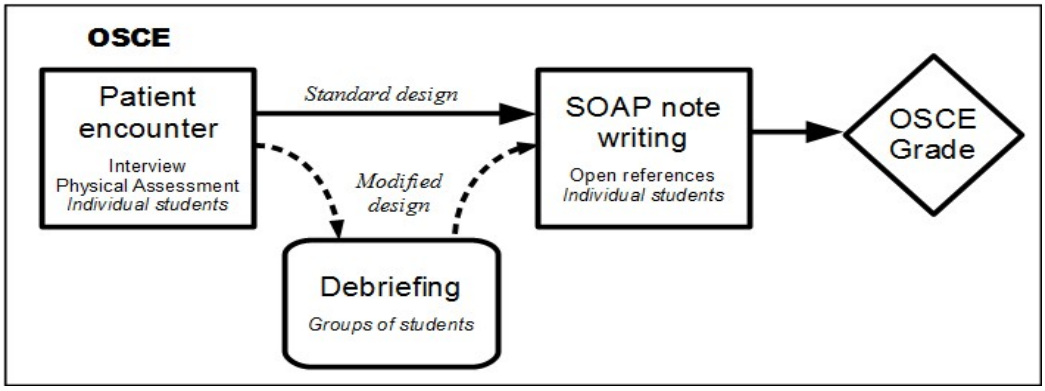

Figure 1. Standard and modified OSCE designs

Local evaluation of the OSCE with debriefing found that student scores on the SOAP notes significantly improved, and there were perceptible "learning moments" during the debriefings (Smith, Yamada, & Cone, 2015). The results of that evaluation suggest that further investigation of incorporating debriefing in an OSCE constitutes is warranted.

Scenarios for whole-case OSCE are designed to have students perform multiple related skills in realistic patient encounters (Ferrell & Thompson, 1993). Students taking an OSCE are expected to perform skills at a determined level of competency, and they are given a score on that performance. For example, pharmacy students might be expected to take a patient history, perform a physical examination, assess a patient's drug therapy using guidelines and recommend adjustments to drug therapy. Students may be expected to demonstrate other patient care abilities that are not developed to the same level of performance as skills that are the main focus of the assessment. Students in the current study were expected to demonstrate sensitivity to patients' disabilities during the

patient encounter and in their recommendations for care. These abilities may be included in the OSCE grades and also be a target for formative assessment (Black & Wiliam, 2009; Rudolph, Simon, Raemer, & Eppich, 2008; Taras, 2005).

Purpose of Study

The purpose of this study is to explore whether and how the addition of a debriefing to an OSCE impacted pharmacy students' cultural sensitivity. It compares the performances of students who received debriefing to those of a cohort of students who previously were administered the same OSCE without debriefings.

Research Questions

This study will seek to answer the research question and sub-questions:

- Does adding debriefing to the OSCE process in a PharmD program improve student learning of cultural sensitivity?
    a. Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing?
        i. What evidence is there of this relationship?
    b. How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity?
        i. What evidence addresses this?
    c. What was the response of students to the addition of debriefing, as measured with a survey?
        i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural competency scores?

Significance of Study

This study will contribute to the knowledge in instructional science on design of practical assessments. It is also intended to contribute to education and assessment practices in professional pharmacy education, particularly for the development of students' cultural sensitivity (ACPE, 2015). Because debriefings are not typically used in summative OSCEs, this suggests a new design theory for this assessment method.

Limitations

This study is limited in its scope. It considers only a few OSCEs in one college of pharmacy. It is also limited to analyzing what happened on OSCE days. Information on the context, including instruction that preceded the OSCEs depends upon information given by the PCL instructor. Also, impact of learning on the OSCE day is not examined in this study.

The data to be analyzed in this study were collected for both academic assessment and evaluation of this OSCE design. The researcher was involved in the design and conduct of the OSCEs. As a result, some limitations of using secondary data are mitigated in this study, including separation of the analyst and research questions from the original purpose for the data collection (E. Smith, 2008).

Key Terms

In this section, some key terms used throughout the study are defined.

Cultural Sensitivity

Cultural sensitivity involves understanding and respecting patients' cultural identities and determining how to appropriately incorporate the patient's cultural beliefs and practices into providing care to that patient (Medina et al., 2013, p. 6). Wells (2000)

describes multiples stages in development toward cultural competence and cultural proficiency. Among these stages are cultural awareness and cultural sensitivity. In the ACPE (2015) accreditation standards, PharmD students are expected to develop awareness by the end of the didactic curriculum, and advance to sensitivity through their APPEs (ACPE, 2015).

Debriefing

Debriefing is a discussion that revisits and evaluates an experience; it is often used in simulation-based training in healthcare, aviation, and military contexts to help learners evaluate their actions in a scenario. It is meant to stimulate reflection, which can lead to deeper learning than just the experience. Debriefing is considered an integral, even necessary part of a simulation.

Disability

Disability is defined as a characteristic of "body, mind, or senses that...affect a person's ability to engage in some or all aspects of day-to-day life" (U.S. Department of Health and Human Services (HHS), 2005, p. 1). Disabilities can be physical, sensory or intellectual (Brault, 2012). A disability is not a disease (HHS, 2005). Persons with disabilities experience medical problems that may or may not be related to their disabilities (Eddey & Robey, 2005).

Formative and Summative Assessment

Summative assessment is done at the end of a period of work to determine students' progress and make judgments, as grades or certifications. Formative evaluation evaluates teaching and learning while they are occurring, to help learners and instructors discern what learning is necessary to move toward mastery (Bloom, Hastings, & Madaus,

1971, p. 61). Assessment activities do not have to exclusively be summative or formative. Rather, data collected are used for purposes that are formative or summative; data from an assessment activity can be used for both.

Objective Structured Clinical Examination (OSCE)

The OSCE is a form of performance-based assessment that allows instructors to evaluate students' patient care skills, such as diagnosis, physical examination, interpretation of lab results. It uses simulation to place examinees in essentially identical patient cases, and uses prescribed assessment standards to promote standard grading (Harden, 1988; Harden & Gleeson, 1979; Harden et al., 1975).

CHAPTER TWO: REVIEW OF LITERATURE

This chapter examines evidence, theories and research in simulation and healthcare education literature which support a design theory for objective structured clinical examinations (OSCE). The design theory proposed in this study suggests that debriefings should be included in some OSCEs to promote learning. The purpose of this literature review is to examine the theoretical and practical background of the study and the practices examined. To this end, this chapter examines literature on healthcare simulation, debriefing, OSCEs, cultural competence and sensitivity and the application of OSCEs to assessment of cultural competence. The chapter also summarizes the literature on instructional design theories.

Healthcare Simulation

According to Gaba (2004), "simulation is a technique...to replace or amplify real experiences with artificial experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner" (p. 12). Gredler (2004) describes simulations as multidimensional evolving case studies in which participants assume roles to address issues and problems. Simulations use models of real-world items or phenomenon to create scenarios designed around specific learning objectives (Gredler, 2004; Hertel & Millis, 2002).

In healthcare, like in many disciplines where lives are at risk, simulation provides safe, reliable and repeatable deliberate practice on artificial models (McGaghie et al., 2011). This affords safe failure without harm to patients or professional consequences to students or providers (Gaba, 2004; McGaghie et al., 2011; Satish & Krishnamurthy, 2008; Shemanko & Jones, 2008). Deliberate practice (DP) with simulations is often

preferable to clinical education for developing patient care skills, partly because opportunities to demonstrate and assess some competencies are limited in clinical settings (McGaghie et al., 2011). Some simulations use mechanical simulators, either models of body parts or full mannequins (Fernandez, Parker, Kalus, Miller, & Compton, 2007; Gaba, 2004; Parr & Sweeney, 2006). Other simulations employ standardized patients (SP), actors who are trained to model the behavior and complaints of particular medical complaints (Boulet & Errichetti, 2008). SPs afford students realistic patient care experiences in which they develop and demonstrate procedural and interpersonal skills, gain practice interacting with persons unknown to themselves and receive feedback about their performance from a patient's perspective (Austin, Gregory, & Tabak, 2006; Chun, Young, Honda, Belcher, & Maskarinec, 2012; Rickles, Tieu, Myers, Galal, & Chung, 2009). Interacting with SPs often has the added benefit for students of overcoming "jitters" of interacting an unfamiliar patient prior to an actual clinical patient encounter (Shemanko & Jones, 2008).

Not all healthcare simulations place provider with patient in a clinical setting. In pharmacy education, simulations afford deliberate practice and controlled assessment of skills like drug compounding and patient counseling (Bray, Schwartz, Odegard, Hammer, & Seybert, 2011; Crea, 2011; Garvey, 1971; McGaghie et al., 2011; Vyas et al., 2012, 2011).

Debriefing

Debriefing is a learner-centered reflective facilitated discussion that helps learners examine the meaning and implications of events and actions that took place in a simulated or actual experience (Decker et al., 2013). Debriefing is widely considered

essential in simulation-based instruction, because it is when meaningful learning occurs, and is made transferable to future experiences (Cantrell, 2008; Peter Dieckmann et al., 2009; Fanning & Gaba, 2007; Petranek, Corey, & Black, 1992; Stillsmoking, 2008; Zigmont, Kappus, & Sudikoff, 2011).

Debriefing has come into use in health professions education largely from the military and commercial aviation (Dismukes et al., 2006). Debriefing in the military began as reports from troops returning from combat that contributed to recording battle history and developing strategy for future missions and (Gardner, 2013; Lederman, 1984; Rudolph, Simon, Raemer, & Eppich, 2008). Leaders recognized, however, that participating in intelligence debriefings, improved learning and performance of soldiers, so debriefing was also adopted as an instructional approach (Lederman, 1984).

What does it mean for a debriefing to be learner-centered, facilitated, and reflective and a discussion for learning? The following sections break down this definition to briefly examine these key aspects of debriefing.

Learner-centered

Debriefing is meant to help learners recognize insights from an experience, which they can integrate into their understanding and transfer to future practice (Brett-Fleegler et al., 2012; Gardner, 2013; Lederman, 1984; Warrick, Hunsaker, Cook, & Altman, 1979). Debriefing has been likened to digestion of food, which is necessary to integrate nutrients into the body after eating (Dieckmann, Reddersen, Zieger, & Rall, 2008).

Debriefing allows participants in a simulation to defuse aroused emotions, leave assumed roles and transition to an analytical mode (Dieckmann, Reddersen, Zieger, & Rall, 2008; Fanning & Gaba, 2007; Flanagan, 2008; Peters & Vissers, 2004; Warrick,

Hunsaker, Cook, & Altman, 1979). Debriefing then helps participants to learn through deliberate exploration of an experience, including their actions and questions that arose. It allows participants to analyze their strengths and weaknesses in technical skills and non-technical "soft skills" (Peter Dieckmann, Reddersen, Zieger, & Rall, 2008; Flanagan, 2008).

The learning benefit of debriefing has been supported by many studies. Shinnick, Woo, Horwich and Steadman (2011) found that nursing students' knowledge of heart failure, measured with a brief multiple choice quiz, increased after simulation and debriefing. Scores of students who were quizzed without debriefing were lower than those who were debriefed. Similarly, Cicero and colleagues (Cicero et al., 2012) found that debriefing following training and a simulation experience in disaster triage improved retention and future performance on subsequent triage simulations months after the initial instruction.

Facilitated

Debriefing is typically structured and guided by a facilitator (Flanagan, 2008; Gardner, 2013; Lederman, 1984; Raemer et al., 2011). He or she provides structure and steering to the discussion, but does not determine the content. A facilitator elicits information from the participants with open-ended questions, which helps learners analyze an experience and draw conclusions through their inquiry (Peter Dieckmann et al., 2008; Dismukes, McDonnell, Jobe, & Smith, 2000; Tannenbaum & Cerasoli, 2013). A facilitator can plan for debriefing, but needs to be flexible to explore emerging issues and insights that arise because of events in the scenario (Peters & Vissers, 2004; Warrick et al., 1979). The facilitator needs to be mindful in the discussion, to ask follow-up

questions, confront muddled understandings and provide feedback (Brookfield & Preskill, 1999; Peter Dieckmann et al., 2008; Dismukes et al., 2000).

Facilitators should avoid behaviors that are domineering or make themselves the center of the discussion. A facilitator should not talk much, and should avoid interrupting, interrogating or harshly criticizing participants (Flanagan, 2008; Peters & Vissers, 2004; Rall, Manser, & Howard, 2000; Steinwachs, 1992). A facilitator should also avoid closed questions and avoid limiting discussion to a superficial, descriptive view of the experience (Peter Dieckmann et al., 2008; Rall et al., 2000).

Some research has demonstrated that self-debriefing can be effective with groups of advanced learners (Boet et al., 2011), but most debriefing examples and models reviewed involve a facilitator (Peter Dieckmann et al., 2009; Peter Dieckmann, Gaba, & Rall, 2007; P. Dieckmann, Reddersen, Wehner, & Rall, 2006; Husebø et al., 2013; Rudolph et al., 2013; Rudolph, Simon, Dufresne, & Raemer, 2006; Rudolph et al., 2008; Rudolph, Simon, Rivard, Dufresne, & Raemer, 2007; Sawyer & Deering, 2013).

Reflective

Debriefing enables participants to learn from an experience through facilitated reflection (Peter Dieckmann et al., 2008; Fanning & Gaba, 2007). Reflection is a processing stage after an occurrence, in which one "steps back" from an experience to recapture and evaluates it through lenses of past experience and personal biases (Boenink, Oderwald, De Jonge, Van Tilburg, & Smal, 2004; Boud, Keogh, & Walker, 1985a; Daudelin, 1996). When students reflect on experiences, they clarify what they know, identify deficits in their knowledge and generalize knowledge from a particular experience to use in future practice. It also helps learners take ownership of their

learning, and recognize their abilities and learning (Westberg & Jason, 2001).

Reflecting upon practice is crucial in the experiential learning process (Brett-Fleegler et al., 2012; Kolb, 2014). Learners can miss out on important insights if they move onto the next experience without taking time to examine it (Westberg & Jason, 2001). Deliberate reflection in debriefing is important, because experiential activities like games and simulations are not generally self-teaching, because they rarely afford time to reflect on activities while they are underway (Cantrell, 2008; Fanning & Gaba, 2007; Gillespie, 1973; Pearson & Smith, 1985). Rigorous reflection can help surface and resolve clinical and behavioral dilemmas and unsettled questions in a simulation experience, such as why there was a delay in starting an indicated procedure (Rudolph et al., 2007).

Some reflection occurs naturally as people pose questions and analyze their experiences, but unconscious reflective processes do not usually lead to active, aware decisions. Deliberate reflection can be enhanced through some instructional approaches (Boud, Keogh, & Walker, 1985a, 1985b; Brandes & Boskic, 2008; Daudelin, 1996). Developing a habit of reflection requires willingness and opportunities to practice. Opportunities to reflect require experiences that are worth reflecting on, because they surprise or trouble, or leave questions unanswered. Such experiences might involve learners in clinically-relevant tasks that involve problem-solving (Westberg & Jason, 2001).

Discussion

In a debriefing, learners engage in a discussion designed to lead learners in a reflective process about their experience and learning (Petranek et al., 1992). Discussion

has been defined as the effort of a group to "share views and engage in mutual and reciprocal critique" (Brookfield & Preskill, 1999, p. 6). Discussion allows parties to recognize and investigate their assumptions, which builds students' capacity for self-critique and synthesis of information, and affirms their role in creating their knowledge. Discussion can help participants reach critically informed understanding of topics, and take informed action (Brookfield & Preskill, 1999).

Group size has been found to impact discussion effectiveness and need for structure. For example, groups of up to six require little structure, while groups of more than six need more formal structuring and leadership to function well. Groups larger than twelve tend to break down into sub-groups, so are not suitable for reflective discussions (Kember et al., 2001).

Debriefing Structure

Another important aspect of debriefing is structure. It clarifies the focus of discussion and promotes efficient learning processes (Cicero et al., 2012; Dreifuerst, 2009, 2010, 2012; Mariani, Cantrell, Meakim, Prieto, & Dreifuerst, 2013; Tannenbaum & Cerasoli, 2013). Knowing what to expect can help participants be comfortable and willing to follow the direction of a facilitator (Peter Dieckmann et al., 2008). Debriefings move through introductory, analytic and summary phases (Arora et al., 2012; Peter Dieckmann et al., 2008; Fanning & Gaba, 2007; Rudolph et al., 2008; Steinwachs, 1992). In the introductory phase, a facilitator communicates ground rules and process (Peter Dieckmann et al., 2008), and participants describe their experiences and express emotional reactions (Peter Dieckmann et al., 2008; Rudolph et al., 2008; Steinwachs, 1992). In the analytic phase, participants systematically examine the experience to

understand what happened and why, including pointing out and examining gaps in performance (Rudolph et al., 2008; Sawyer & Deering, 2013; Steinwachs, 1992). In the summary phase, learners and facilitators distill lessons from the experience and their analysis, which they can apply to future performance (Rudolph et al., 2008; Steinwachs, 1992).

Multiple debriefing models have been published that provide guidance on structuring the debriefing process, including time allotment, proper focus of discussions – such as team or individual performance, technical skills or interpersonal skills – and intended learning outcomes (Bond et al., 2006; Edelson & LaFond, 2013; Fanning & Gaba, 2007; Mayville, 2011; Neill & Wotton, 2011; Tannenbaum & Cerasoli, 2013).

Some debriefing models, such as "Debriefing with Good Judgment" (DBGJ; Rudolph et al., 2006, 2007) are designed to center on the learners instead of on the facilitator. In the DBGJ model, debriefing questions and discussions explore the learners' point of view and cognitive frames that shaped their decision and actions (Rudolph et al., 2007). The debriefing process involves active sensemaking and shaping cognitive frames (Rudolph et al., 2006, 2008). Structures that were most influential in developing the debriefings in this study are summarized in Table 1.

Objective Structured Clinical Examinations (OSCE)

The OSCE is an application of simulation techniques to clinical assessment, developed in the 1970s by Harden (Harden & Gleeson, 1979; Harden, Stevenson, Downie, & Wilson, 1975). Instead of clinical assessment techniques that rely on having patients with needs that match assessment requirements, OSCEs use simulation to present consistent patient cases to students. OSCEs also use prescribed grading guidelines,

instead of raters determining their own assessment foci and standards (Branch, 2014; Harden, 1988; Harden & Gleeson, 1979; Harden et al., 1975; Issenberg & Scalese, 2007; Munoz, O'Byrne, Pugsley, & Austin, 2005).

Table 1

Selected Debriefing Structures for Healthcare Simulation

Model and Authors	Description / Steps of Process
Adapted Army After-Action Review (AAR; Sawyer & Deering, 2013, p. 390)	Define rules Explain learning objectives Performance benchmarks Review what was intended Identification of what happened Examination of why it happened Formalize learning
Debriefing with Good Judgment (Rudolph et al., 2006, 2007)	Advocacy-Inquiry approach values both facilitator and learner perspectives Focus on learners' actions and meaning-making, to realize how their understanding drove actions. Include instructor's sensemaking in discussions Draw out learners' frames through advocacy-inquiry questions. Frames lead to actions, which produce results. Debriefing changes actions by leading to new frames.

In a traditionally formatted OSCE, students move through a series of ten to fifteen minute long stations. Each station is a miniature simulated case that calls for students to demonstrate a specific skill, such as taking a patient history, performing a physical examination or interpreting lab results. The number of stations depends on assessment requirements and resources (Harden, 1988; Harden & Gleeson, 1979; Harden et al., 1975; Munoz et al., 2005; Prislin et al., 1998).

Hodges (2003) questions whether OSCEs using multiple brief stations always produce valid results. Performing a single skill in a patient encounter differs from care in most inpatient and ambulatory care contexts, and patient visits in many specialties, like

psychiatry, are longer than ten minutes. Rather than a rigid model prescribing one kind of design, Harden (1990) acknowledges that the OSCE is a flexible approach to clinical assessment, “limited only by the imagination of the examiner” (p. 261). Adaptations of the OSCE structure have been used. Harden (1990) suggests linking stations within the multi-station model, extending the time and skills students apply to the same patient case. A student would examine a patient at one station and review lab results for that case at another. Some schools use long case or whole case assessments (Ferrell & Thompson, 1993; Wass & van der Vleuten, 2004), in which students interact with one SP for about thirty minutes; they perform multiple skills, such as history taking and physical examinations.

Relationship to Other Assessments

An OSCE can be used along with other forms of assessment to gain a comprehensive picture of students' competency (Hull et al., 1995). Kirton and Kravitz (2011) suggest that written exams and OSCEs may cover similar content areas, but they address them differently. Written examinations typically address knowledge recall, but OSCEs address students' performance of skills (Glavin, 2008; Khan, Ramachandran, Gaunt, & Pushkar, 2013; Kirton & Kravitz, 2011). Prislin (Prislin, et al., 1998) found little agreement between students' performance on OSCEs and written exams, even though each addressed similar content, and each produced consistent results.

OSCEs in Pharmacy Education

Sturpe (2010) surveyed pharmacy schools in the United States about use of OSCEs. Eighty-seven (80.5%) of one hundred eight invited schools provided usable results. Thirty-two respondents (36.8%) used OSCEs. Most respondents (n=55, 63.2%)

did not use OSCEs. They cited cost, lack of faculty buy-in, lack of access to SPs, and concerns about validity. Responses are summarized in Table 2, including number, and percentage of programs that do use OSCEs.

Table 2

Use of OSCEs in U.S. Schools and Colleges of Pharmacy, 2008-2010

	Number (% of respondents)
Schools using OSCEs	32 (100%)
Level of use	
Program-level Assessment	4 (12.5%)
Assessment within courses (only)	21 (65.6%)
Both program and course	7 (21.9%)
Course Types using OSCE	
Laboratory	13 (40.6%)
Pharmacotherapeutics	4 (12.5%)
APPE	4 (12.5%)
Type of Use	
Summative Assessment	30 (93.8%)
High Stakes	8 (25%)
Students given raw scores	10 (33.3%)
No feedback	6 (18.8%)
Feedback if remediation required	4 (12.5%)
Feedback from SP or faculty	5 (15.6%)
Formative Assessment	18 (56.3%)
Students given raw scores	18 (56.3%)
Students required to view video	10 (31.3%)
Students required to meet with SP	5 (15.6%)
Students required to meet with instructor	6 (18.8%)
Scoring	
Absolute pass/fail	20 (62.5%)
Points per checklist item, no defined passing score	12 (37.5%)

Note. Adapted from text of "Objective Structured Clinical Examinations in Doctor of Pharmacy Programs in the United States" by D. Sturpe, 2010, *American Journal of Pharmaceutical Education.* Used with permission.

Formative and Summative Assessment

The OSCEs considered in this study were designed with the idea that an OSCE

can serve both formative and summative assessment functions in the education of pharmacy students' patient care abilities. This section explores definitions, connections and distinctions of formative and summative assessment. The goal is to show how these are not so distinct, and how they might be brought together.

Scriven (1967) explains that evaluation is a process of gathering evidence and comparing it to standards to answer questions about the quality and worth of something. He introduces the formative and summative labels for roles played by an evaluation and the use of its findings. Summative evaluation is a terminal or overall evaluation of the program. Formative evaluation is "outcome evaluation of an intermediate stage" in a program's development (Scriven, 1967, p. 51), which affords discovery of both deficiencies and successes in a program, and helps determine whether the criteria used are adequate.

Bloom, Hastings and Madaus (1971) apply the terms formative and summative to assessment of student work. In their view, the distinction has to do with intended uses, portion of time or material considered and expected generalizations. Summative evaluation is done at the end of a period of work, to determine students' progress and make judgments in the form of grades and certifications. Formative evaluation evaluates teaching and learning while they are underway to "help both the learner and the teacher focus upon the particular learning necessary for movement toward mastery" (Bloom et al., 1971, p. 61).

Summative assessment tends to have negative connotations because it is associated with judgment, but formative assessment is seen by many teachers and learners as an "antiseptic version of assessment" (Bloom et al., 1971; Taras, 2005, p.

469). Neither formative nor summative assessment is a judgment-free process (Rudolph et al., 2008, 2007; Taras, 2002, 2005, 2009). Judgment about a student's work and gaps between the work and a goal or standard forms the basis of feedback, which is essential to formative assessment (Popham, 2008; Rudolph et al., 2008; Taras, 2002, 2005).

Wiliam and Black (1996) say that an assessment is not formative unless it has a formative effect. What makes an assessment formative is that evidence evoked in assessment activities result in information that is used to make adjustments to learning (Wiliam, 2006). Taras (2005) regards feedback that provides actionable information on gaps between performance and criteria as essential to formative assessment.

Debriefing as Formative Assessment

Debriefing provides formative assessment in a simulation by helping participants understand how to improve future performance (Rudolph et al., 2008; Taras, 2005; Wiliam & Black, 1996). The process of debriefing is consistent with five key strategies of formative assessment listed by Black and Wiliam (2009):

- Clarifying and sharing learning intentions and criteria for success
- Engineering effective classroom discussions and other learning tasks that elicit evidence of student understandings
- Providing feedback that moves learners forward
- Activating students as instructional resources for one another
- Activating students as the owners of their own learning (p. 8).

Particular debriefing protocols, such as Rudolph's Debriefing with Good Judgment (DBGJ; Rudolph et al., 2006, 2007) are designed to involve participants in exploring gaps between actual and desired performance. These gaps may be apparent to

educators as they observe a simulation session, but observation alone may not provide sufficient information about the discrepancy to close the gap (Wiliam & Black, 1996). Debriefing, particularly in its analysis phase, explores gaps in performance through discussion of what happened and what participants were thinking and doing (Rudolph et al., 2008). For a debriefing to truly provide formative assessment, learners need to come away knowing actions that will help close their performance gap; this is the function of debriefing's summary phase (Arora et al., 2012; Peter Dieckmann et al., 2008; Fanning & Gaba, 2007; Rudolph et al., 2008; Steinwachs, 1992; Wiliam & Black, 1996).

Cultural Sensitivity

Delivering culturally and linguistically appropriate health care is a growing emphasis for health professions education in recent years (O'Connell et al., 2007; Wells, 2000). Pharmacy degree programs are expected to prepare students to "recognize social determinants of health to diminish disparities and inequities in access to quality care" (Medina et al., 2013, p. 6, Outcome 3.5). The emphasis is on reducing health disparities, which are population-specific differences in the "presence of disease, health outcomes, or access to care" (HRSA, 2000, Executive Summary, para. 6).

Competently treating patients according to their needs, including their cultural beliefs and practices, is an interpersonal skill that individuals and institutions develop in stages (Wells, 2000). Wells (2000) suggests a cultural development model to describe how students and professionals and healthcare institutions develop the ability to address cultural considerations in patient care. This model includes six stages:

- Cultural incompetence: Ignorance of "cultural implications of health behavior" (p. 192)

- Cultural knowledge: Learning how elements of culture shape and define health behavior
- Cultural awareness: Recognizing "cultural implications of behavior" (p. 193).
- Cultural sensitivity: Integrating "cultural knowledge and awareness into individual and institutional behavior" (p. 193)
- Cultural competence: "Routine application of culturally appropriate healthcare interventions and practices" (p. 193)
- Cultural proficiency: Integrating cultural competence into practice, teaching and research

Until about a decade ago, the ability to deliver culturally appropriate services, as an expectation for healthcare students, was called "cultural competency" (Assemi, Cullander, & Hudmon, 2004; Campinha-Bacote, 2002; O'Connell et al., 2007). Abilities like providing care that is consistently addressed to cultural needs of patients takes time to evolve through quantity and diversity of experience and reflection; students rarely gain the experience needed to arrive at "competency" in school (Hawala-Druy & Hill, 2012; Office of Minority Health, 2002; Wells, 2000). The latest accreditation standards for PharmD programs (ACPE, 2015) reflect the same view of progression in cultural competence as Wells (2000). Pharmacy schools are expected to develop students to a level of cultural awareness at the completion of the didactic curriculum, and cultural sensitivity is an expected learning outcome of PharmD graduates. In this document, cultural competence will be used when generally referring to the concept. Cultural awareness or sensitivity will be used when referring specifically to assessments or educational outcome expectations of PharmD students and programs.

Disability Cultural Sensitivity

Cultural sensitivity is usually associated with characteristics like gender, race, ethnicity and religion (Eddey & Robey, 2005; Robey et al., 2013). People with disabilities comprise another minority population whose members have needs associated with personal traits (Eddey & Robey, 2005). The U.S. Department of Health and Human Services (2005) defines disabilities as "characteristics of the body, mind, or senses that… affect a person's ability to engage in some or all aspects of day-to-day life" (p. 1). In 2012, more than 37.6 million people in the United States had a disability – more than 12% of the civilian non-institutionalized population. Nearly 36% of the population sixty-five years and older had a disability (U.S. Census Bureau, 2012). Disabilities occur in communicative, mental and physical domains. Not everyone with similar disabilities is affected in the same way or to the same extent (Brault, 2012). Although disabilities are diverse, persons with disabilities share beliefs and experiences, including disparities in access to and quality of health care (Eddey & Robey, 2005; Smith, Roth, Okoro, Kimberlin, & Odedina, 2011).

A major goal of the *Surgeon General's Call to Action to Improve the Health and Wellness of Persons with Disabilities 2005* (HHS, 2005) is that "health care providers have the knowledge and tools to screen, diagnose and treat the whole person with a disability with dignity" (p. 2). Sometimes providers do not look beyond a patient's disability to properly treat his or her chief complaint (HHS, 2005). Other times, they ignore or minimize patients' knowledge of their health conditions, talk around patients to caregivers instead of including them in care decisions, and applying one-size-fits-all approaches (Roscigno, 2013). Roscigno (2013) suggests that health care professionals are

often ignorant on how to appropriately care for disabled patients and their individual needs. Students need to be taught and assessed on providing care to persons with disabilities, because as professionals they will likely encounter disabled patients whose special needs must be considered (Brown, Graham, Richeson, Wu, & McDermott, 2010).

OSCEs for Cultural sensitivity and Disabilities

OSCEs have been used to assess students' and residents' progress in cultural sensitivity, including care for disabled patients. The Maimonides Medical Center in New York used a "Culture OSCE" to formatively assess pediatric residents as they negotiated cultural differences with patients (Aeder et al., 2007). Scenarios for twelve stations included discussing a child's cancer diagnosis with parents opposed to discussing serious illness, requesting consent for invasive procedures from patients with religious objections, and discussing care with patients who did not speak English. Learning objectives were explored in a debriefing to help residents understand and generalize learning to future practice. The culture OSCE was deemed being effective for students' learning, as well as for faculty members' development in teaching cultural skills.

Brown, Graham, Richeson, Wu and McDermott (2010) used OSCEs to assess medical students' treatment of disabled and non-disabled standardized patients (SP) with the same medical problems. Faculty rated students' performance of critical actions, and SPs rated them on patient care actions. In one scenario, students interviewed and examined an SP who presented with symptoms of diabetes mellitus. Half of the SPs had spinal cord injuries. Many students who saw disabled SPs failed to complete the physical exam or order the HbA1C test, which was the critical action in the exam. In the other scenario, SPs presented with hypertension. Half of the SPs had moderate intellectual

disabilities, such as Down syndrome, and were accompanied by caregiver SPs. Students interviewed and examined the patient, ordered labs and counseled the patient on specific ways to reduce blood pressure. Many students who saw disabled SPs failed to complete the exams and few covered all of the counseling points. Failing to complete the critical actions withheld important medical care, and the results showed clear disparities tied to patients' disabled status and a need to educate students on treating disabled patients (Brown et al., 2010).

Summary

This chapter has given an overview of the literature on simulations, OSCEs and debriefings to support the appropriateness of including debriefing in an OSCE as an application of simulation. The functions of a debriefing were examined to demonstrate its power as an instructional method to promote reflection and learning. Formative and summative assessments were examined, and the ability to bring together summative and formative purposes in assessment activities like OSCEs was shown. Also, cultural sensitivity and its progressive development in the education of pharmacy students was discussed, especially as it relates to medical needs and care of persons with disabilities.

CHAPTER THREE: METHODOLOGY

This chapter details the methodology for collecting and analyzing data, and reporting findings from this research on addition of debriefing to objective structured clinical examinations (OSCE). An OSCE is an assessment approach that uses simulated cases and pre-determined grading criteria, to consistently assess multiple students on particular abilities (Harden, 1988, 1990; Harden & Gleeson, 1979; Harden, Stevenson, Downie, & Wilson, 1975). Debriefing, a facilitated reflective discussion to examine the meaning and implications of an experience (Decker et al., 2013), is regularly used with simulation-based instruction, but is uncommon with simulation used in assessment, such as an OSCE.

The chapter details the rationale behind the data and methods used, how data are combined to address the research questions, and steps taken to ensure appropriate analysis of date. The contents of this chapter include:

- Restatement of study purpose and research question and sub-questions,
- Description of study context, including description of the OSCEs and the debriefing approach used.
- Description of the study methodology, including rationale, participants, data collection and data sets, and data analysis
- Tactics to generate meaning and to verify conclusions
- Summary, which serves as a transition into the results in Chapter Four.

Purpose of Study

The purpose of this study is to explore whether and how the addition of a debriefing to an OSCE impacted pharmacy students' cultural sensitivity (CS). It compares

the performances of students who received debriefing to those of a cohort of students who previously were administered the same OSCE without debriefings. This mixed-methods study explores whether and how well debriefing impacted students' patient care performance, especially care considerations for patients with disabilities.

Research Questions

This study seeks to answer the research question and sub-questions:

Does adding debriefing to the OSCE process in a PharmD program improve student learning of cultural sensitivity?

A. Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing?
   i. What evidence is there of this relationship?
B. How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity?

i. What evidence addresses this?

C. What was the response of students to the addition of debriefing, as measured with a survey?

i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural competency scores?

Context of Study

This study examines OSCEs administered as part of the second year Pharmaceutical Care Lab (PCL) courses that are part of the Doctor of Pharmacy (PharmD) curriculum in one college of pharmacy in the United States. OSCEs are

regularly used in the PCLs for summative practical assessment of students' patient care skills that have been taught that semester, in parallel with other courses in the curriculum. Each OSCE administered in the second year PCLs uses a single patient case. Fall semester OSCEs typically involve cases in which over-the-counter (OTC) medications are appropriate treatments, whereas spring OSCEs tend to use more complex patient cases, involving multiple medical problems and both prescription and OTC medications. Cases uses recent years have involved a disability that affected students' interactions with simulated patients and their recommendations for patient care.

On a designated “OSCE day” each semester of the second year PCL, students rotated through the testing center in seven groups of up to fourteen students. Students interacted with individual standardized patients (SP), actors who portrayed patients with the complaint, symptoms, and history prescribed by the patient case. Students were allowed up to 30 minutes for patient encounters, which involved interviewing the patient and performing a physical examination relevant to the case. After the simulated clinical encounter, SPs gave students feedback on their interactions from perspective of patients under their care. Then, students participated in debriefings in two groups of up to seven students, led by facilitators who were familiar with the case and the debriefing protocol (Appendix A). Debriefings were designed to last approximately 30 minutes. After the debriefings, students moved to the PCL laboratory classroom, where they wrote SOAP notes on the case.

SOAP is an acronym for subjective, objective, assessment and plan. It names and describes a format of patient care documentation used across health professions. As the name suggests, a SOAP note includes subjective information given by a patient, objective

information such as laboratory reports and vital sign measurements, assessment of the patient's condition and needs based on information and observations, and a plan based on the assessment that addresses the patient's needs.

The movement of students through the OSCE is illustrated in Figure 2.

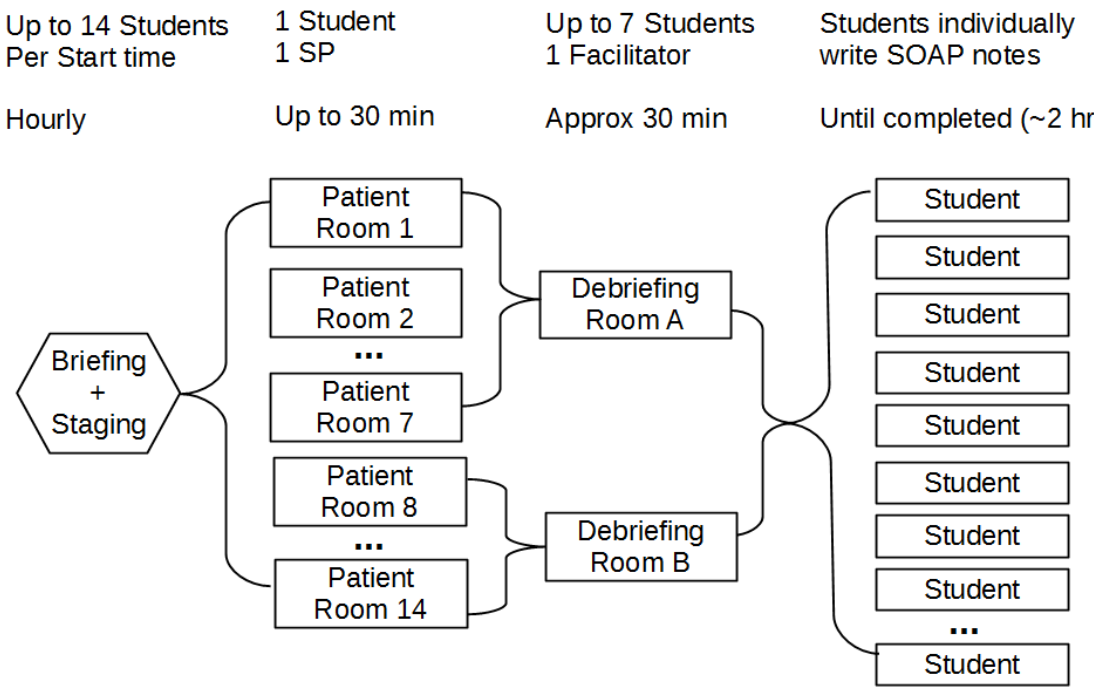

Figure 2. Logistics of each round on OSCE days in study setting.

Note. Each OSCE day had seven rounds.

OSCE Cases

Two patient cases were used in the three OSCE administrations conducted over three different semesters, from which data are used in this study (see Table 3). The same Spring OSCE case was used with two groups in consecutive years. One group had no debriefings as part of the OSCE, and the other had debriefings. In each case, the patient had a chief complaint for which they needed care from a pharmacist and a disability that

was supposed to affect how students approached treatment of the chief complaint. Students were also expected to consider how the disability affected the patient's overall health and quality of life, and how it affected the treatment plan for the patient.

Table 3

OSCE Cases Related to This Study

	Fall OSCE	**Spring OSCE**
Cohort(s)	Debriefing Group (Year 2)	Non-debriefing Group (Year 1) Debriefing Group (Year 2)
OSCE case	Self-care of common wart on left hand Known allergy to aspirin	Complex cardiovascular history Status/post MI Multiple Rx and OTC drugs
Disability	Loss of function of right arm and hand after cancer removed	Leg injury sustained in war severely limits mobility

Participants

A cohort of 84 pharmacy students were administered OSCEs that utilized debriefings in both fall and spring semesters of the second year PCL. Another cohort of 89 pharmacy students who were administered the OSCE in the spring prior to the addition of debriefing, serve as a comparison group in some analyses. Participation in OSCEs by these groups is summarized in Table 4.

Data Collection and Data Sets

All data used in this study are archival data sets, collected during, and de-identified following administration and grading of the OSCEs. The data were collected and de-identified as part of a study by the PCL instructor, which was approved by the university's Human Research Protections Office. De-identified data were provided for use in this study. The OSCEs in which the data sets originated are summarized in Table 4.

Table 4

OSCEs That Supplied Data Sets for Study

Cohort	**Fall OSCE**	**Spring OSCE**
Non-Debriefing Cohort	No data Fall OSCE for control group not considered in this study.	89 students No debriefings **Data:** SOAP note abstracts SOAP note and CS scores
Debriefing Cohort	84 students 14 debrief groups **Data:** SOAP note abstracts Debriefing transcripts SOAP note and CS scores	84 students 13 debrief groups **Data:** SOAP note abstracts Debriefing transcripts SOAP note and CS scores

Qualitative data sets include abstracts of student SOAP notes from each OSCE, and de-identified transcripts of debriefing sessions conducted with the debriefing group. Quantitative data sets include overall SOAP note scores and cultural sensitivity (CS) scores. Additional quantitative data were created by assigning magnitudes to qualitative data (Miles, Huberman, & Saldaña, 2014). Many of the data sets used relate to SOAP notes written by students as part of the assessment.

SOAP Note Abstracts

SOAP notes that students wrote as part of the OSCE, following SP encounters, were summarized into paragraph-length abstracts. The SOAP note abstracts condense what students recorded about SPs' physical activity, and how students address the disability in subjective, assessment and plan sections of the note. All necessary language were preserved from the original student SOAP notes in the SOAP note abstracts note, so that outcomes could be assesses as part of research. The advantage of the SOAP note

abstracts is de-identification of author and a condensed format that affords quantifying qualitative data for statistical analysis, such as through magnitude coding – a method that applies numeric or symbolic codes to qualitative data that indicate a value such as intensity or frequency (Miles et al., 2014; Saldaña, 2012). This method, as used in this study, is explained in the analysis methods applied to sub-question A.

Debriefing Transcripts

De-identified text transcripts were provided for each debriefing session (14 fall and 14 spring) from OSCEs in the academic year debriefing was used. Each debriefing was recorded, and recordings were transcribed into text files. Each transcript distinguishes the facilitator, and changes between speakers, but participants are not identified by name. Transcripts range from about 3000 to about 10,000 words in length.

Debriefing protocols.

Debriefings were conducted using a semi-structured protocol (Appendix A) that was developed by the second year PCL instructor, this researcher and another PCL instructor who was involved in the project. The protocol includes an introduction, main questions and suggested follow-up questions. Questions were designed to guide discussions about the case and identify transferable lessons from the experience. The intended time frame of the debriefing was approximately 30-minutes. Some of the questions used, such as asking what went well and what did not go well, are seen repeatedly in debriefing literature. Facilitators could add follow-up questions as needed to probe for participation or clarify students' responses.

Student Scores

SOAP notes were graded by the PCL instructor, using a rubric that is used for

grading SOAP notes throughout the PCL curriculum in the study setting (Appendix B). The rubric includes five sections:

1. Subjective (S) and Objective (O) sections (S/O)
2. Assessment (A) section
3. Plan (P) section
4. Citations (C)
5. Writing (W)

Students were familiar with the rubric and with expectations for SOAP notes prior to each OSCE. They had written and been graded on SOAP notes during the PCL courses. SOAP note scores reported as percentages are used in this study.

The instructor of the second year PCL assigned a CS score that was distinct from the SOAP note score, which rates the students' consideration of cultural characteristic of the case – in this context, the disability. Grading of CS followed a pattern outlined in Table 5. Students were supposed to address the disability in the assessment and plan sections of the SOAP note and address the patient's disability in a care plan. If a student failed to address the disability in these sections, but at least described it in the subjective section, he or she was assigned partial points. Also, points were deducted if a student addressed the disability but demonstrated poor reasoning in writing about it (C. Cone, personal conversation, July 2015). CS scores ranged from 0 to 60.

Student Satisfaction

Students in the debriefing cohort were invited to complete a Debriefing Experience Scale (DES; Reed, 2012) on each OSCE day. Students were given copies of the DES as they entered the classroom to write their SOAP notes. Those who participated

Table 5

CS Score Framework

Points awarded if disability addressed in SOAP note Assessment / Plan sections:	**Assessment**	**Plan**
Consideration in treatment of chief complaint	15 points	15 points
Distinct concern for patient health	15 points	15 points
Variations		
Address disability in Subjective section, omitted in Assessment and Plan sections	Up to 10 points given	
Disability addressed in Assessment / Plan, but poor reasoning demonstrated	Fewer than 15 points given per section	

turned in completed DES forms separately from their SOAP notes. Participation was voluntary, and results were confidential.

The DES was developed by Reed (2012) to gauge students' experiences during a debriefing. It includes twenty items that represent characteristics of quality debriefings. Items include, “Debriefing helped me to analyze my thoughts,” “Debriefing helped me to clarify problems” and “I had enough time to debrief thoroughly.” Based upon results of exploratory factor analysis by the instrument's creator, items are grouped in four sub-scales:

- Analyzing thoughts and feelings
- Learning and making connections
- Facilitator skill in conducting the debriefing
- Appropriate facilitator guidance

Each item is rated on two five point Likert-type scales: experience and

importance. On the experience scale, participants indicate their agreement with each statement based on their experience. On the importance scale, participants rate the dimension's importance.

Methodology, Research Design and Methods

This study employs a mixed-methods approach, which involves convergence of quantitative and qualitative data and analysis (Creswell & Clark, 2007). Specifically, this study uses a triangulation design, a one-phase design that combines the strengths of complimentary qualitative and quantitative data on the same topic to best understand a research problem.

Methodological Rationale

A mixed methods approach is used because it provides the best way to answer the research question of the study using the secondary data that were made available: student scores, debriefing transcripts and results from a survey of students' satisfaction.

By mixing quantitative and qualitative data and analysis, mixed methods research provides a better understanding of problems than either approach does on its own (Creswell & Clark, 2007). This study connects analyses of related quantitative and qualitative data-sets, to "look under the hood" of the debriefings. Data sets used in this study include de-identified grade data and abstracts of SOAP notes from cohorts of students who did and who did not receive debriefing, transcripts of debriefings from fall and spring OSCEs, and results from an instrument which students to rate their perception of the debriefing experience.

Various quantitative and qualitative data are used to address the research sub-questions, which contribute to answering the main research question of whether adding

debriefing to the OSCE process improve students learning of CS. How the data are applied the research sub-questions is represented in Figure 3.

	Quantitative	Qualitative
Sub-question A Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing? i. What evidence is there of this relationship?	OSCE Scores: SOAP note Cultural Sensitivity (CS) *Magnitude codes from SOAP note summaries*	SOAP note abstracts
Sub-question B How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity? i. What evidence addresses this?		Debriefing transcripts
Sub-question C What was the response of students to the addition of debriefing, as measured with a survey? i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural competency scores?	Debriefing Experience Scale (DES) results DES results + OSCE Scores CS Scores	

Figure 3. Data addressing each research sub-question

Data Analysis

Quantitative and qualitative data analysis methods are combined in this study. Each sub-question is addressed with particular data, as shown in Figure 3, and with particular approaches to analysis. The analysis methods used with each research sub-question are presented in the following sections. Each section serves to bring this study

closer to answering the research question, which is: Does adding debriefing to the OSCE process in a PharmD program improve student learning of cultural sensitivity?

Sub-question A

Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing?

i. What evidence is there of this relationship?

Students' scores (SOAP note and CS scores), and quantitative values derived from the SOAP note abstracts were analyzed to address sub-question A. This section describes the statistical tests used to compare the scores of the non-debriefing and debriefing groups on their spring semester OSCEs, and the performances of the debriefing group between their fall and spring OSCEs. Also, the coding method used to derive quantitative values from SOAP note abstracts is described, as well as tests used to test correlation of these values to CS scores.

Quantitative Analysis

Kruskal-Wallis analysis of variance (ANOVA) tests were used to compare non-debriefing and debriefing groups on SOAP note scores and cultural sensitivity (CS) scores in spring OSCEs, and to test for differences between students who had each facilitator in the fall and spring semesters, on both SOAP note and CS scores. In addition, chi-square tests were used to compare students in the non-debriefing and debriefing groups on CS scores and SOAP note scores. Categories for the chi-square test for the SOAP note scores were based on a 70% score (70% and greater, or less than 70%). Categories for the CS score were 40 or greater, or less than 40. Nonparametric statistical tests were used because assumptions for ANOVA – normal distribution and homogeneity

of variance – were not supported. Statistical analyses were performed using R (R core team, 2015).

Qualitative Analysis - Interrelating Data

SOAP note abstracts from spring OSCEs were coded for the type and extent of recommendation made for the patient. This was done to examine through different views, how students' SOAP notes represent practice or absence of disability CS. Codes indicating type and detail of lifestyle recommendations (for diet and/or exercise) were assigned to SOAP note abstracts from both non-debriefing and debriefing groups' spring OSCEs. A code list (Table 6) was developed based on consultation with the P2 PCL instructor (C. Cone, personal conversations), and the researcher's reading of the SOAP note abstracts. Records were then quantified based on the codes for lifestyle recommendations, using magnitude coding. Magnitude coding assigns a supplemental code to already-coded data to indicate a value such as intensity or frequency (Miles et al., 2014; Saldaña, 2012). In this use, the magnitude code indicated intensity, using codes of 0, 1 and 2, as follows:

1: Inappropriate recommendations for activity (e.g. “increase duration/intensity of exercise”) or recommendations omitted
2: Weak or limited, but not inappropriate, recommendations for activity (e.g. exercise as tolerated by pain)
3: Appropriate recommendations accommodating for disability (e.g. non-weight bearing exercises, recommends DASH diet, or refers to physician or physical therapy for specific guidance on appropriate exercises)

Table 6

Descriptive and Magnitude Codes for Spring SOAP Note Abstracts

Code List	Explanation	Magnitude Code
EXC RCMD-DETAIL	Detailed exercise recommendation, including specific non weight-bearing exercises	2
EXC RCMD-GENERAL	General recommendation to do exercises possible with disability	
REFER PT/PCP	Refer to physical therapy, occupational therapy or primary care provider	
DEVICE RCMD	Recommends device such as a cane	1
DIET RCMD	Major recommendation is reduced calorie diet (e.g. DASH diet) for weight loss	
LIMIT REC	Acknowledges disability but no / unhelpful activity recommendation	
INAP REC	Gives inappropriate activity recommendation, such as strenuous walking, without regard to disability	0
NO REC	No recommendation concerning exercise.	

Correlation of CS scores and magnitude codes was tested for each cohort and between cohorts, using Spearman rank correlation. This nonparametric test was used because the magnitude codes are ordinal in scale.

Investigation of Possible Rival Explanation

In a preliminary review of the spring SOAP note abstracts, it was observed that some reported frequent exercise by the patient, such as walking or jogging. The same notes typically reported that the disabling condition was no longer bothersome to the patient. Standardized patients were supposed to state that it was difficult to walk – much

less run – for effective cardiovascular exercise. Non-standardized enactment of a case can adversely impact the reliability of assessment in an OSCE, because students are not assessing the case based on the same patient information (Austin, Gregory, & Tabak, 2006). If low CS scores associated with non-standardized case enactments are more prevalent in either the debriefing or non-debriefing cohorts, it could represent a rival explanation to the use of debriefing for any significant differences found.

SOAP note abstracts that report daily walking or jogging for 20 minutes or more were considered not consistent with the case as it should have been presented. These were coded INCONSISTENT. The frequency of CS scores and magnitude codes for lifestyle recommendations were counted for each cohort and for the records coded as inconsistent. The Kruskal-Wallis test comparing the non-debriefing and debriefing cohorts on CS scores, and the Spearman rank correlation between CS scores and magnitude codes were re-calculated using subsets that exclude INCONSISTENT coded records.

Sub-question B

How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity?

i. What evidence addresses this?

Supplemental instruction in this study refers to how questions posed in debriefing sessions were structured, how they shape students' discussions and how the discussions apparently contribute to students' understanding of patient care. Although some direct teaching and feedback may be found in a debriefing, most of an instructor's work in this approach is in facilitation of a discussion in which participants recognize and analyze

assumptions, synthesize and integrate ideas in conversation with peers (Brookfield & Preskill, 1999).

Evidence of supplemental teaching in debriefings to improve student patient care skills was sought through coding and analysis of 28 debriefing transcripts – 14 from a fall OSCE and 14 from a spring OSCE in one academic year of P2 PCLs. Coding uses words or phrases to assign attributes to portions of qualitative data. This summarizes meaning and allows grouping and counting of data that share similar characteristics (Saldaña, 2012). Multiple coding methods were used together to identify sections and themes in the transcripts. Transcripts were coded using the R Package for Qualitative Data Analysis (RQDA; Huang, 2014).

Coding

Structural codes were used to identify and index large segments of the transcripts (Saldaña, 2012). Codes were assigned to three major debriefing phases – introductory, analysis and summary – in each transcript. Other structural codes were applied to sequences in the discussion that focused on disability, what students feel went well and did not go well. The structural codes and transcript sections grouped each code are described in Table 7.

A provisional coding (Saldaña, 2012) approach was used to identify themes and patterns in the transcripts. This approach was used to focus coding on the purpose of this sub-question: to identify how much supplemental instruction was provided by debriefing in the given setting. In this coding method, a provisional start list of codes was developed prior to coding, based on the intent of the research and the debriefing protocol and anticipated from preliminary review of the transcripts.

Table 7

Structural Codes Applied to Transcripts

Code	Definition
INTRODUCTION PHASE	First phase of a debriefing. Facilitator introduces purpose and ground rules, students outline the scenario they encountered and discuss emotional response to the case.
ANALYSIS PHASE	Second phase of a debriefing. Systematic analysis of what happened and why, important considerations of case, perceived successes and gaps in performance.
DISABILITY FOCUS	Sub-section of analysis phase including facilitator question concerning the perception of disability, and series of student statements that relate directly to patient disability in the case.
SUMMARY PHASE	Third, concluding phase of debriefing. Focuses on take-away lessons, e.g. what participants would do differently in future similar experiences, and most important things learned.

The start list of codes included:

FACILITATOR – MAIN QUESTION

FACILITATOR – FOLLOW-UP QUESTION

FACILITATOR – FOLLOW-UP COMMENT

FACILITATOR – FEEDBACK

DISABILITY – AFFECTS TREATING WARTS

DISABILITY – ASSIST PATIENT

DISABILITY – SENSITIVITY

PHYSICAL ASSESSMENT

Codes were revised or expanded as necessary during coding, to include new codes, particularly when a theme in the data was not suitably addressed in the start list

(Saldaña, 2012). As coding progressed, codes were added, revised and combined to represent patterns in discussions. Most expansions to the provisional code list were made through sub coding, which adds second-order tags to primary codes to specify detail present in the data (Miles et al., 2014; Saldaña, 2012). For example, a primary code DISABILITY has as sub-codes: AFFECTS TREATMENT, SENSITIVITY and ASSIST PATIENT. This structure of primary and sub-codes aids in identifying and analyzing major themes, while also identifying details in the discussion of the major themes.

Analysis

The analysis of coded debriefing transcripts focused on how debriefings served students' learning patient care skills, especially regarding CS. Analysis involved identifying, comparing and contrasting patterns and themes across multiple debriefing discussions. Although debriefings were facilitated using the same protocol, they were semi-structured in nature. The aim of analysis was to identify whether and where instruction and learning seemed to happen in the discussions. Analysis focused on identifying themes in the patterns and processes of the various debriefings. This was enhanced through use of matrices and network displays to structure and visualize data, as described by Miles, Huberman and Saldana (2014). In particular, displays were used that were suited for visualization of patterns and processes, and drawing meaningful conclusions about:

- Debriefing phases
- Facilitator role in discussions
- Questions
- Recurring themes in discussions

Sub-question C

What was the response of students to the addition of debriefing, as measured with a survey?

i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural competency scores?

To address this question, results from the DES (Reed, 2012) were analyzed. The DES uses Likert-type scales, which result in ordinal data. Frequencies of responses on each item were counted. Comparisons were made between DES results from fall and spring OSCEs, and among groups in each OSCE.

Relationships Among Findings

Sub-question C. i asks whether relationships may exist between students' responses on the DES and their performance on SOAP note scores and CS scores. The score data provided for analysis included a data field indicating the debriefing group associated with each record; debriefing groups are associated with one of two debriefing facilitators for each OSCE. DES results were anonymous, but forms were distributed to students with codes indicating their debriefing group and facilitator, to allow evaluation of facilitators' performance, by session. It is possible, therefore, to test for relationships between scores and DES results according to the debriefing group and facilitator, though not by individual.

SOAP note and CS score means and medians were computed by debriefing group

for fall and spring semesters. DES results were averaged for each facilitator in each semester. Means of responses on each scale (experience and importance) were calculated for each record; from those, overall mean and means by debriefing group were calculated in each OSCE (fall and spring).

Tactics to Generate Meaning

Miles, Huberman and Saldaña (2014) suggest multiple tactics for drawing meaning from data. Many of these were used throughout analysis including recognizing patterns and themes, clustering, counting and making comparisons and contrasts, all aimed at seeing what is there in the data that address, or have important meaning beyond the questions asked. These tactics and analytic processes led to building logical chains of evidence between qualitative and quantitative data used for each sub-question, and making of those findings a logical chain of evidence to answer the overall research question, which ought to have conceptual and theoretical coherence.

Testing and Verifying Findings

Ways to verify findings that are purposely used in this study include checking for representativeness, triangulation, checking for researcher effects, and checking negative evidence and rival explanations. Miles, Huberman and Saldaña (2014) suggest tactics to ensure the trustworthiness of findings from research, ensuring that the findings and conclusions fit the data. It is also vital to check for the effect of different sources of analytic bias, including personal biases held by the researcher, and a holistic fallacy – a tendency to interpret data and event as having more or better patterns or congruency than they really have.

Checking for Representativeness

There is a risk in subjective analysis of large quantities of verbal data, as with the coding and analysis of the debriefing transcripts, and coding of the SOAP note abstracts, to read in meaning, or find what one wants to find. It is possible to assume that identified themes are typical, when they are not, or to draw inferences from events and statements that are not typical but fit pre-conceived ideas. To safeguard against this, the researcher has purposely looked for contrasting cases and themes in the data, examining possible rival explanations.

Triangulation

One way to support findings is triangulation – the use of multiple different data sources and analysis methods to corroborate findings. The overall design of this study is built upon triangulation. The sub-questions and data sets considered under each provide different views of the problem.

Checking for Researcher Effects

This researcher was involved in the conceptualization, design and implementation of the debriefing as an addition to the OSCE. The researcher certainly had effects on the case by being involved in the OSCE and debriefing, and the case had an effect on him, enhancing the interest in its success. The effects of case and researcher on each other and possible impact of bias on findings need to be clarified and mitigated through the analysis. Clarifying researcher bias is accomplished in part through stating the role of the researcher in Chapter One. Going beyond clarifying the bias, to mitigating its effect, the mixed-methods approach to this study involves deliberate examination of various data sources and consideration of rival explanations for the apparent success of debriefing.

Summary

This chapter outlined the quantitative and qualitative data sets, and mixed methods approach used to analyze them, to consider how adding debriefing to OSCEs impacted second year pharmacy students' learning of CS. In this triangulation mixed-methods study, the sub-questions and data analyzed to address them, approach the overall question from multiple angles:

b. Performance on OSCEs measured by scores:
    a. Comparison of non-debriefing and debriefing cohorts
    b. Comparison of fall to spring performances of debriefing cohort
    c. Comparisons between students based on debriefing facilitators
    d. Investigation of possible rival explanation
c. Supplemental instruction and learning identified in the content of debriefings, and students' evaluation of their debriefing experiences.
    - Coding major sections of debriefings
    - Coding themes in the text of the discussions
    - Analysis for patterns in facilitator questions and statements and student responses
d. Students' evaluation of their debriefing experiences, using a survey
    a. Overall patterns in responses
    b. Comparison between fall and spring responses
    c. Comparison of responses among facilitators

The final analysis in the triangulation design will compare, contrast and interpret the findings from these analyses for whether they converge or diverge in addressing the

larger research question: Does adding debriefing to the OSCE process in a PharmD program improve student learning of CS?

CHAPTER FOUR: RESULTS

This chapter presents results from analyses to address the research question: Does adding debriefing to the OSCE process in a PharmD program improve student learning of cultural sensitivity?

a. Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing?

   i. What evidence is there of this relationship?

b. How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity?

   i. What evidence addresses this?

c. What was the response of students to the addition of debriefing, as measured with a survey?

   i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural competency scores?

This chapter presents the results of statistical tests used to consider the first and third sub-questions, descriptions and visualizations of qualitative data, and verbal description of these results. Discussion of these results and conclusions drawn from them are presented in Chapter Five.

Sub-question A

Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing? What evidence is there of this relationship?

To answer this question, comparisons were made between performances by students who had a debriefing as part of their OSCE, students who were administered the same OSCE before debriefing was included in its design. Non-parametric statistical tests were used because of the characteristics of the data. The two scores are discussed separately for clarity.

Selecting Statistical Tests

Shapiro-Wilk tests were used to test whether SOAP note scores and cultural sensitivity (CS) scores from Spring OSCEs were normally distributed – an assumption for the parametric Student's t-test and ANOVA. The tests indicated the distributions were not normal, as shown in Table 8. It was not expected that the normality assumption would be met. Data for this study come from a regularly scheduled assessment activity, not an experimental study. Also, the data come from a professional school with competitive admissions, not from a general population of students. Because this assumption for parametric statistics was not met, nonparametric tests were used.

Table 8

Results of Shapiro-Wilk Tests for Normality

	Non-debriefing Cohort	Debriefing Cohort
SOAP note scores	W=0.88*	W=0.56*
CS scores	W=0.88*	W=0.39*

* $p < 0.001$

Comparisons of SOAP Note Scores

A score on the SOAP note was one part of students' total score on the OSCE. In a SOAP note, students assess subjective information from the patient, and objective information from laboratory and other measurements, and write a plan to care for the patients' medical complaints. SOAP notes were graded by the instructor of the second year PCL, a required course in the PharmD curriculum in which the OSCE was administered, using a rubric that is used in the pharmaceutical care labs at the pharmacy school (Appendix B). The scores of the two groups are described in Table 9.

Table 9

SOAP note scores from Spring OSCEs

Statistic	No debriefing	Debriefing
N	90	82
Range	25.0 – 105.0	72.6 – 100.0
M (SD)	85.7 (18.4)	88.3 (10.5)
Md	88.3	90.0
Skewness	-1.5	-5.3
Kurtosis	6.2	40.6

Note. M = Mean, SD = Standard Deviation, Md = Mode

The mean and median of the debriefing cohort's SOAP note scores were higher than those of the non-debriefing cohort. The SOAP note scores of the debriefing cohort were negatively skewed than those of the non-debriefing cohort. Also, the kurtosis was greater for the debriefing group than for non-debriefing. As can be seen in the histograms in Figure 4, the debriefing cohort had more students scoring at and near the center, while the non-debriefing cohort had fewer students at the center and more students who received lower scores.

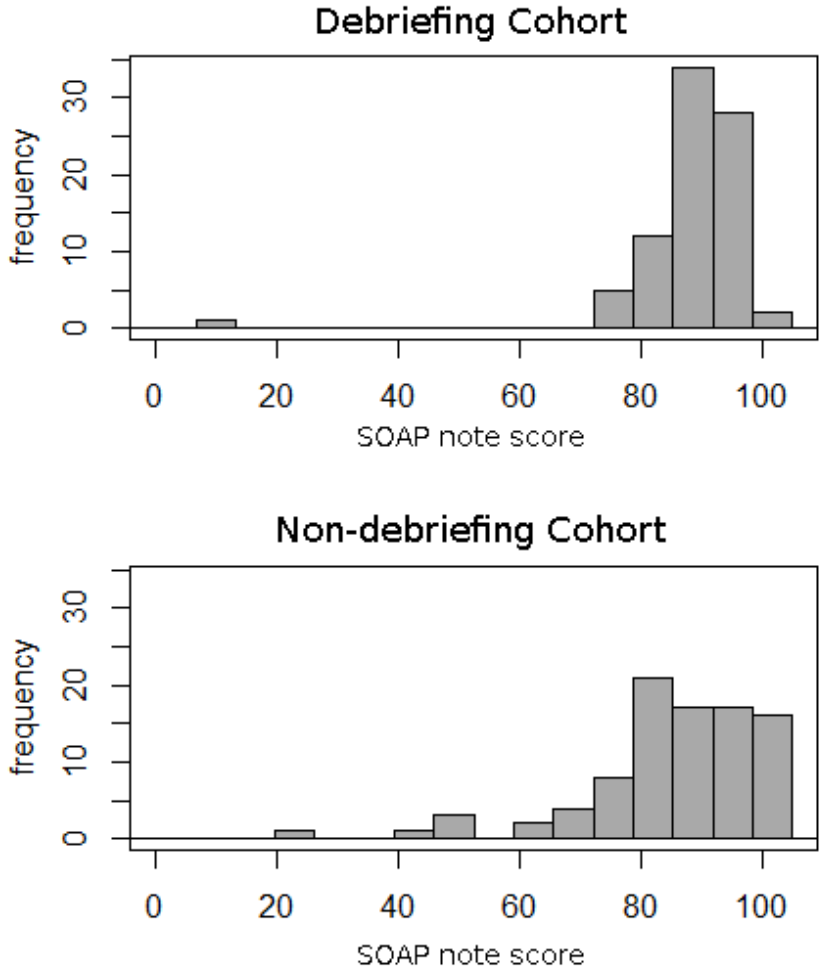

Figure 4. Spring OSCE SOAP note scores, by cohort

A Kruskal-Wallis ANOVA comparing SOAP note scores between non-debriefing and debriefing cohorts was not significant $H(1) = 0.8$, $p = 0.4$. Few students in either cohort (8 non-debriefing, 0 debriefing) received SOAP note scores of less 70%, which is considered a passing mark. A chi-square test comparing the passing and failing rates of the two cohorts was significant, χ^2 (1, N=172) = 7.6, $p = 0.005$. There were significant differences between the two cohorts in terms of how many students performed poorly on

the SOAP note score, with the debriefing group performing significantly better.

Comparisons of Cultural Sensitivity Scores

The PCL instructor assigned CS scores based on how students addressed the patient's disability in their SOAP notes. The CS score was independent of the SOAP note score. A CS score was composed of points given for addressing the patient disability in the Assessment and Plan sections of the SOAP note, relative to the chief complaint and as a health need in its own right. The grading method for CS scores is described in detail in Chapter 3 (See Table 5).

Table 10 provides descriptive statistics of the CS scores. Scores ranged from 0, which reflects no consideration of the patient disability in the SOAP note, to 60, which reflects that a student addressed the disability in all points that the PCL instructor sought. The mean CS score in the non-debriefing cohort was less than 42 (70% of maximum 60 points); the mean score in the debriefing cohort is slightly below 60. The distributions of both cohorts' scores are negatively skewed. The debriefing cohort's scores are more strongly skewed; many more students scored close to maximum points.

A Kruskal-Wallis ANOVA that compared CS scores of the debriefing and non-debriefing cohorts was significant, $H(1) = 56.6$, $p < 0.001$. Addition of debriefing, a facilitated reflective discussion of the patient encounter and considerations of the patient case, made a significant impact on CS performance. Because this performance immediately followed the debriefing, this increase may represent enhanced awareness of the disability acquired through debriefing, more than it represents learning of the skill.

Table 10

Spring OSCE CS Scores

	No debriefing (n=90)	Debriefing (n=82)
Range	0.0 – 60.0	0.0 – 60.0
<42*	60	7
≥ 42	30	76
M (SD)	36.6 (18.5)	56.2 (11.4)
Md	40.0	60.0
Skewness	-0.1	-3.2
Kurtosis	1.9	12.9

*CS score of 42 is 70% of 60 possible points

Note. M = Mean, SD = Standard Deviation, M = Mode

The CS scores of the two cohorts were also compared by passing and failing rates. CS scores were divided at 70% (42 of 60), an often-used passing mark. The non-debriefing cohort had 60 failing CS scores, 30 passing scores; 25 had perfect scores of 60. The debriefing group had seven failing CS scores and 76 passing scores; 71 had perfect CS scores. A chi-square test comparing the numbers passing and failing in the cohorts was significant, $\chi^2 = 61.0$, $p < 0.001$. Comparisons of both SOAP note scores and CS scores are summarized in Table 11.

Table 11

SOAP note and CS scores in Spring OSCEs

Score	Range of Scores	Kruskal-Wallis ANOVA	chi-square (pass/no pass)
SOAP note score	Non-Debriefing (N=90) 25.0 – 105.0 Debriefing (N=82) 72.6 – 100.0	H = 0.8 df = 1 p = 0.4	$\chi^2 = 7.6$ df = 1 p = 0.005
CS score	Non-Debriefing (N=90) 0.0 – 60.0 Debriefing (N=82) 0.0 – 60.0	H = 56.6 df = 1 p < 0.001	$\chi^2 = 61.0$ df = 1 p < 0.001

Note. H is the observed test value of the Kruskal-Wallis test.

Quantified SOAP note abstracts

Of interest in this study was whether addition of debriefing had helped students consider the disability of a patient when assessing the case and writing a care plan. The CS score assessed the demonstration of cultural sensitivity, but the score depended upon the completeness of addressing disability in the SOAP note. Another means was sought identify presence of disability cultural sensitivity – whether a student addressed it appropriately.

Abstracts of students' SOAP notes in the spring OSCEs, in both non-debriefing and debriefing cohorts, were coded based on recommendations that students made addressing the patient's disability, whether it was in the assessment (A section of SOAP note) or care plan (P section of SOAP note). Records were then quantified based on the codes for lifestyle recommendations, using magnitude coding. Magnitude coding assigns a supplemental code to already-coded data to indicate a value such as intensity or frequency (Miles et al., 2014; Saldaña, 2012). The codes are defined and associated with magnitude codes in Table 12.

A magnitude code of "2" was assigned to those records which included recommendations to exercise as able with the disability, or referral to the primary care physician or physical therapy. The expectation was that students would recognize and convey in the care plan that a person with a leg impairment can and should exercise to reduce symptoms, control weight and improve risk factors for their medical conditions (Amsterdam et al., 2014). Persons with disabilities are twice as likely as non-disabled people to be inactive (HHS, 2005), so the patient in this case would especially benefit from encouragement to exercise.

Table 12

Codes for recommendations for disability, with magnitude codes

Code List	**Explanation**	**Magnitude Code**
EXC RCMD-DETAIL	Recommends exercise possible with disability, including specific non weight-bearing exercises	2
EXC RCMD-GENERAL	General recommendation to do exercises possible with disability	
REFER PT REFER PCP	Refer to physical therapy, occupational therapy or primary care provider (can be a secondary code)	
DEVICE RCMD	Recommends device such as a cane	1
DIET RCMD	Major recommendation is reduced calorie diet (e.g. DASH diet) for weight loss	
LIMIT REC	Acknowledges disability but no / unhelpful activity recommendation	
INAP REC	Gives inappropriate activity recommendation, such as strenuous walking, without regard to disability	0
NO REC	No recommendation concerning exercise.	

A magnitude code of "1" was assigned to records that made recommendations that were limited in scope, for example, "Incorporate healthy lifestyle and exercise when able" (Record 2210, Non-debriefing cohort). Magnitude code of "1" was also assigned to records in which diet was the main lifestyle recommendation, without mention of exercise. A magnitude code of "0" was assigned to records that either made an inappropriate recommendation for exercising beyond what the patient could do with the disability, or if the student omitted a recommendation. The counts of records with each magnitude code are presented in Table 13. A chi-square test comparing cohorts based on the magnitude codes was significant, $\chi^2\,(2) = 46.6$, $p < 0.001$.

Table 13

Descriptive codes of SOAP note abstracts and Magnitude codes

Spring SOAP magnitude codes	No Debriefing	Debriefing
2: Appropriate recommendations	37	77
1: Weak/limited recommendations	28	7
0: Inappropriate/no recommendation	20	0

The correlation of CS scores and the magnitude scores were computed using Spearman's rank correlation coefficient; this test was used because the data were not normally distributed. Instructor-assigned CS scores are moderately correlated with magnitude codes ($r_s = 0.65$) considering data from both groups. The variables are moderately correlated for the non-debriefing cohort ($r_s = 0.67$), but weakly correlated for the debriefing cohort ($r_s < 0.01$).

Investigation of Possible Rival Explanation

Based on information recorded in SOAP note abstracts, 15 students (16.7%) of the non-debriefing cohort received non-standardized presentation of extent of exercise activity from their standardized patients in the spring OSCE. Records that included descriptions of patients walking daily (e.g. 30 minutes or 2 miles per day) were coded INCONSISTENT. There were 13 such records with CS scores lower than the passing mark of 42 (70%). That is 86.7% of the INCONSISTENT records and 21.7% of all CS scores below the passing mark. Two INCONSISTENT records with CS scores of 42 or greater represent only about seven percent of all passing CS scores.

Most of the records coded INCONSISTENT (60%) received CS scores of 20 points out of 60. Nearly half of the cohort (46.7%) gave inappropriate recommendations

for activity. The frequencies and percentages of all non-debriefing cohort students, and of the INCONSISTENT coded records with particular CS scores and CS-related magnitude codes, and the percentage of each score received by INCONSISTENT-coded records is shown in Table 14.

Table 14

Prevalence of Inconsistent-coded Records in Non-debriefing cohort

Category	Score/ Code	Overall Count (%)	Count (%) INCONSISTENT	Count (%) not INCONSISTENT
CS Score	0	5 (5.6%)	0 (0.0%)	5 (6.7%)
	*<42	30 (33.3%)	13 (86.7%)	47 (62.7%)
	≥42	60 (66.7%)	2 (13.3%)	28 (37.3%)
	60	25 (27.8%)	1 (6.7%)	24 (32.0%)

* 42 is 70% of maximum 60 point CS score, which was used as a passing mark.

By contrast, of the 75 students in the non-debriefing cohort who received a standardized description of the disability, nine (12%) gave inappropriate recommendations, such as to commence exercise, and six (8%) omitted exercise recommendation or other appropriate lifestyle recommendations – such as referral to physical therapy or primary physician, or suggestion to focus on diet.

It is evident that students who saw SPs that apparently reported too much exercise activity more often wrote inappropriate recommendations and received low scores. The impact of this discrepancy on the comparison between non-debriefing and debriefing cohorts was investigated. Kruskal-Wallis and chi-square tests were re-calculated with records coded INCONSISTENT and records with missing SOAP note abstracts removed. Although non-standardized reports affected students' CS scores, the two groups remain significantly different on CS scores. On SOAP note scores, the chi-square test comparing passing and failing rates was significant, but the Kruskal-Wallis test comparing the

cohorts was not significant. Re-calculated results are shown in Table 15.

Table 15

SOAP note and CS scores in Spring OSCEs, INCONSISTENT records removed

Results		Descriptive statistics by group		Kruskal-Wallis	chi-square (pass/no pass)
		No debriefing (n=70)	Debriefing (n=81)		
SOAP note score	Range M (SD) Md	25.0 – 105.0 84.3 (15.3) 87.5	72.6 – 100.0 89.2 (10.5) 90.5	H = 2.2 df = 1 p = 0.13	χ^2 = 7.0 df = 1 p = 0.008
CS score	Range M (SD) Md	0.0 – 60.0 37.3 (18.9) 40.0	0.0 – 60.0 56.1 (11.5) 60.0	H = 48.1 df = 1 p < 0.001	χ^2 = 53.7 df = 1 p < 0.001

Note. M = Mean, SD = Standard Deviation, Md = Mode (middle value). H is the observed test value of the Kruskal-Wallis test. df= degrees of freedom

Comparison of Scores in Debriefing Cohort by Facilitator

Also of interest was whether students' scores were affected by the facilitator of their debriefings. Descriptive statistics of student scores by facilitator, and results of Kruskal-Wallis ANOVA and chi-square tests comparing scores by facilitator, are shown in Table 16 (fall OSCE) and Table 17 (spring OSCE).

Summary of Sub-question A

Data were compared from two cohorts, one that took the spring OSCE with a cardiovascular case before debriefing was added, and one that had debriefing as part of the OSCE. Statistically-significant differences were not found between the groups' SOAP note scores using a Kruskal-Wallis ANOVA, but comparing passing and not passing categories using a chi-square test showed a significant difference. There were statistically significant differences between the cohorts' CS scores.

Table 16

Comparison of Scores between Facilitators, Fall OSCE

Results		Descriptive statistics by group		Kruskal-Wallis ANOVA
		Facilitator 1 (n=42)	Facilitator 3 (N=42)	
SOAP note score	Range M (SD) Md	35.0 - 100.0 81.4 (15.4) 85.0	15.0 – 100.0 84.3 (16.3) 91.0	H = 1.9 df = 1 p = 0.16
CS score	Range M (SD) Md	0 – 60 40.4 (16.0) 37.5	0 – 60 43.6 (16.4) 45.0	H = 0.9 df = 1 p = 0.34

Table 17

Comparison of Scores between Facilitators, Spring OSCE

Results		Descriptive statistics by group		Kruskal-Wallis ANOVA
		Facilitator 1 (n=38)	Facilitator 2 (N=45)	
SOAP note score	Range M (SD) Md	72.6 – 95.8 86.2 (5.2) 86.8	76.8 – 100.0 91.8 (4.6) 92.6	H = 20.7 df = 1 p < 0.001
CS score	Range M (SD) Md	0 – 60.0 55.1 (12.6) 60.0	15.0 – 60.0 56.9 (10.5) 60.0	H = 1.5 df = 1 p = 0.22

Non-standardized enactment of the case by standardized patients was examined as a possible rival explanation for differences between groups. Although non-standardized presentation apparently impacted the affected students, it did not change the significant differences between non-debriefing and debriefing cohorts.

Differences between scores of students were not significant between the two facilitators in the fall OSCE. In the spring OSCE, students had significantly different

SOAP note scores, but CS scores were not significantly different between the two facilitators.

Sub-question B

How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity?

i. What evidence addresses this?

Debriefing, as a facilitated reflective discussion, is different than traditional teaching. The contributions of debriefing to students learning patient care skills, including CS, depended upon how debriefings are conducted. Answering this sub-question involved analyzing how much time was allotted to debriefing and how that time was spent. Analysis included comparing measurable aspects of discussions, such as duration of sessions, and how many times facilitators and students spoke. That involved coding transcripts of debriefings from fall and spring OSCEs to identify patterns of what was discussed. Coding the transcripts, which included structural coding to identify major sections of discussions, and coding for themes in the discussions.

Assembling data was simplified through use of matrices to condense and organize data in order to identify and quantify patterns (Miles, Huberman, & Saldaña, 2014). A meta-matrix of various counts and identified themes that was developed from review of coded manuscripts is shown in Appendix C.

Context

Students were administered the practical assessment on a designated OSCE day late in each semester (fall and spring). Students went through each OSCE in seven rounds of as many as thirteen students. To have effective discussion groups, students in each

round were divided into two debriefing group. Debriefings were run simultaneously, so there were two facilitators each semester. Facilitator 1 (F1), a pharmacist, served in both fall and spring OSCEs. Facilitator 2 (F2), a pharmacist, served in the spring OSCE. Facilitator 3 (F3), who served in the fall OSCE was not a healthcare professional, but was experienced in healthcare simulation and debriefing. F2 replaced F3 as the second facilitator for the spring OSCE, mostly because of the complexity of the patient case.

Debriefing protocols (Appendix A) were developed for sessions to last about 30 minutes. Actual duration of each debriefing depended on student and facilitator involvement in the discussions. Spring debriefings were generally longer than fall debriefings. This was in part due to a longer introductory statement – 340 words on the spring debriefing protocol, compared to 125 words on the fall debriefing protocol. The spring debriefing protocol also had additional standard questions, such as a review of the patient's medications and discussion of the patient's medical complaints. Tables 18 and 19 list the length of each session and number of times facilitators and students (as a group) spoke in the debriefings.

Identification of Themes

Using a start list of primary codes based on themes anticipated from the debriefing purposes and the debriefing protocols (Appendix A). The code list was appended as themes were identified in the transcripts. All facilitator statements were coded under the Facilitator primary code. Other primary codes, which are based on major themes discussed, were applied to statements of student participants. The primary code list is defined in Table 20.

Table 18

Debriefing Duration and Times Facilitators and Students Spoke, Fall OSCE

	F1				F3			
Round	No. of Students	Time (m:s)	Times Facilitator Spoke	Times Students Spoke	No. of Students	Time (m:s)	Times Facilitator Spoke	Times Students Spoke
1	6	27:42	64	112	6	25:18	21	110
2	6	24:30	41	74	6	22:24	39	114
3	6	22:30	36	125	6	23:36	38	187
4	6	23:18	55	91	6	14:36	23	35
5	6	21:36	45	53	6	29:00	48	186
6	6	22:54	40	96	6	26:54	24	101
7	6	25:48	50	216	6	20:30	35	143
Mean	-	24:00	47	110	-	23:12	33	125

Table 19

Debriefing Duration and Times Facilitators and Students Spoke, Spring OSCE

	Facilitator 1				Facilitator 2			
Round	No. of Students	Time (m:s)	Times Facilitator Spoke	Times Students Spoke	No. of Students	Time (m:s)	Times Facilitator Spoke	Times Students Spoke
1	6	25:06	32	164	7	26:48	116	174
2	6	22:42	37	55	7	42:42	90	94
3	6	28:06	41	83	7	49:00	222	277
4	6	30:48	60	91	7	42:36	139	154
5	6	26:06	60	139	7	41:54	180	212
6	6	26:24	51	85	7	45:54	145	154
7	3	27:12	83	123	4	48:48	216	272
Mean	-	26:36	52	106	-	42:30	158	191

Most primary codes had sub-codes attached to them as second-order codes to identify themes in greater detail (Saldaña, 2012). For example, comments about assisting the patient during the physical examination were coded Disability-Assist Patient, while comments about exercise the patient could do were coded Disability-Exercise/Activity.

Table 20

Primary Codes Applied to Debriefing Transcripts

Primary Code	**Definition**
Facilitator	Limited to identifying questions and statements of facilitators
Disability	Concerns some aspect of patient's disability
Feedback from SP	Student relates statements made to them by SP, usually from post-encounter feedback session.
Learn from experience/mistake	Specific reference to having learned from past simulated or real experiences
Patient care	Concerned with care of patient's medical conditions
Patient info	Relates to information obtained from or about patient
Patient interaction	Concerned with interacting with patient, verbal or nonverbal communication
Prior training	Instruction received prior to OSCE, especially outside of PCL is helpful to performance
Procedure	Concerned with process of interview or physical exam.
Student feeling	Concerned with student attitude or emotion

Major sub-codes are listed in Table 21, with counts of how many instances of each code were counted in sessions led by each facilitator in fall and spring. The Facilitator primary code was limited to times when the facilitator spoke: asking questions, prompting further conversation or making comments. The other Primary codes and associated sub-codes were applied to student comments, based on the major theme of the comment. Although the facilitators' comments often addressed particular themes, the codes were only applied to student comments.

Table 21

Primary Codes and Sub-Codes with Counts of Code Use

Primary Code	Sub-code	Fall		Spring		Total
		F1	F3	F1	F2	
Facilitator	Follow-up Question	25	45	43	264	377
	Follow-up Comment	13	42	20	376	451
	Prompt for More	75	7	111	94	287
	Asks about Reasoning	9	1	9	18	37
	Clarifying Question / Statement	-	3	1	6	83
Disability	(No Sub-code)	16	30	27	16	89
	Affects treatment of complaint	15	18	6	1	40
	Coping / Living with	3	5	4	3	15
	Exercise / Activity	-	-	12	42	54
	Sensitivity / Empathy	50	28	9	12	99
	Social Customs / faux pas	13	18	-	-	31
	Treat normally	8	8	2	-	18
	Treatment / Phys Therapy	6	6	20	15	47
Patient Care	Best Treatments	2	2	8	22	34
	Medication	1	12	37	154	204
	Suggestion for Tx	-	11	7	15	33
	Whole patient	3	7	3	1	14
	Patient Comfort	8	10	4	9	31
Patient Info	Chart/Records/Labs	-	-	14	25	39
	Lifestyle/FH/SH (history)	9	9	9	26	53
	Get Complete Information	3	6	28	17	54
Patient Interaction	Explanation	6	4	3	12	25
	Patient Education	1	2	5	14	22
	Rapport	3	3	7	6	19
	Time / Speed	3	11	6	1	21
Procedure	Following Script/Form	2	-	8	6	16
	Forgot steps / parts	11	2	17	5	35
	Issue with equipment	7	14	8	10	39
	Touching	9	7	4	-	20
	Variation / Personalize	4	8	6	-	18
Student Feeling	Calm/Comfortable	8	3	3	4	18
	Confident	25	17	8	6	56
	Nervous	11	14	6	-	31

Note. Only the most frequently used sub-codes are included. Values are counts of code occurrence across multiple debriefings led by each facilitator.

Facilitator Role in Discussions

The amount of supplemental teaching that debriefing afforded in the OSCEs in this study depended in large part on how facilitators led the discussions through the use of prompts, follow-up questions, and comments. The debriefing protocol (Appendix A) used with each OSCE had a list of standard questions that facilitators asked students. These provided the major structure for discussions.

Every debriefing was a unique discussion, but facilitators' contributions to discussions, including follow-up questions and comments, contributed to the uniqueness of each session. There were also notable discrepancies between sessions led by different facilitators.

Follow-up questions.

The debriefing protocols included lists of possible follow-up questions. Facilitators also added follow-up questions. The facilitator's role in shaping each session was through follow-up questions and prompts for further comments.

Questions that were coded as follow-up questions were most often used for probing for an explanation, or for course correction. Three major instructive purposes were identified in follow-up questions:

- Have a student better explain a statement he or she just made
- Clarify or examine reasoning behind actions during patient encounter
- Critically examine the clinical or therapeutic reasoning in conversation

Many follow-up questions that were used for these ends were condensed from the coded transcripts into the meta-matrix (Appendix C). Examples of the follow-up questions for each of these purposes are provided in Table 22.

Table 22

Examples of Follow-Up Questions by Instructional Purpose

Purpose	Questions	Facilitator
Explain statement	You said you thought it would be a normal patient encounter. Why did you think this?	3
	Why do you think that's kind of important?	1
Examine reason for action	Eventually did you ask the reason why he didn't do that?	1
	So did anybody ask if he had had a stent?	2
Therapeutic reasoning	Did what you thought change during the scenario?	1
	But status/post MI would you care? Would it matter? *(details of family history that don't pertain since patient has had an event)*	2

Discrepancies between facilitators.

The amount of supplemental teaching afforded by debriefings in these OSCEs depended on how facilitators led the discussions. There were some differences of session length and number of times the facilitator spoke in the fall OSCE debriefings. There were much greater differences in the spring OSCE debriefings. Sessions led by F2 were as much as 20 minutes longer than F1's debriefing sessions. F2 spoke as much as three times more than F1, and This discrepancy is probably associated with the significant difference in SOAP note scores discovered under Sub-question A.

There were differences in follow-up questions between the facilitators in the spring. F1 mostly used follow-up questions to draw out more information from students. For example, in a discussion of the patient's disability, F1 used simple follow-up questions, based on student comments, to ask students for more detail than they had

volunteered:

Student: I asked a lot of questions [laughing].

Student: I was like I was in room... and war all that so like we had a big old conversation like the army and shrapnel and so yeah [laughing].

Facilitator: *So what kind of questions did you ask?*

Student: I asked him questions about mobility, I asked if he had any help at home anybody to help him like put things that he couldn't do, I asked him about work if he had any limitations at work because he was a stocker, I asked him like how we getting like, he did get around the store like how does he go shopping like I asked him a lot of questions.

Facilitator: *Do you think that was helpful?*

Student: I thought so because like by the time I finished I was – I asked him a lot about you know if he was doing rehabilitation still, does he still flex you know exercise his knee at all because he said he was having trouble like exercising in general and that's what it like finally draw out that he was like looking to like start rehab or start doing something to like get mobility of his knee but before like he really wasn't like it was like yes or no answers and then by the time I got to like my last two questions; "Yeah I kind of like you know to move around a little bit better" like it kind of gotten more, him more thinking about more I guess I felt.

(Spring Debriefing 3-6 Transcript)

F2 often used follow-up questions and follow-up comments together to probe for specific responses, and to affirm or correct misconceptions. For

example, in a discussion on monitoring a patient prescribed a drug.

Facilitator: ...*When we are talking about this Lisinopril what kinds of things are we thinking about with it? What do you monitor?***

Student: Kidney function.

Facilitator: Kidney function *which is what two labs?*

Student: Potassium and…

Facilitator: Well that's not kidney function.

Student: Oh no I'm just kidding [chuckle] I'm looking at it.

Student: Bun

Facilitator: BUN, so don't say "bun" Say "B-U-N" just so save yourself some trouble on rotation if you say "bun" they'll laugh

Student: Okay.

Facilitator: So BUN. BUN and creatinine that helps you to determine what's going on in the kidneys and then you also said something that's really important with ACE inhibitors.

Student: Monitor their potassium.

Facilitator: Yeah, so that's the other thing you have to clearly monitor with your ACE inhibitors. *What else like more generally?*

Student: The race.

Facilitator: *Race, oh okay all right, but status post MI would you care?*

Student: If they are I mean, to make sure they are on an ARB or, whatever....

(Spring Debriefing 11-1 Transcript)

Another example of F2 using follow-up questions to probe for a specific answer is:

> **Facilitator:** But you did mention that he is on one antiplatelet which is aspirin and you said something about the dose
>
> **Student:** It's a wrong dose
>
> **Facilitator:** Wrong dose. *Okay and where would you find the information about what the proper dose is?*
>
> **Student:** In the guidelines...
>
> (Spring Debriefing 13-1 Transcript)

F1 and F2 took somewhat different approaches to debriefing. F1's approach was more typical of debriefing facilitation: allowing students to talk most, using questions to probe for what students were thinking. F2's approach to debriefing was more teaching oriented. The facilitator's role in a debriefing is more to guide a discussion than to teach. However, teaching in a debriefing is sometimes appropriate to correct misconceptions (Dismukes, McDonnell, Jobe, & Smith, 2000).

Differences between the facilitators' sessions are apparent in the quantities of themes. F2's debriefings included more instances of students discussing the patient's medications than F1's debriefings, for example. Students in F1's sessions spoke more often than students in F2's sessions about procedure, such as forgotten steps and the need to get more information out of patient interviews. These differences were driven both by what students talked about in response to questions, and facilitators' probing for deeper discussion, and by directed follow-up questions asked by facilitators.

Debriefing Phases

The debriefing protocols used with each OSCE steered the discussions through three major phases: introduction, analysis and summary. The phases were identified in each debriefing using structural coding (Saldaña, 2012). Structural codes were also used to identify comparable sections in debriefings that were focused on the patient's disability. Structural codes are listed and defined in Table 23.

Table 23

Structural Codes Identifying Debriefing Phases and Focused Discussion Segments

Code	Definition
INTRODUCTION PHASE	First phase of a debriefing. Facilitator introduces purpose and ground rules, students outline the scenario they encountered and discuss emotional response to the case.
ANALYSIS PHASE	Second phase of a debriefing. Systematic analysis of what happened and why, important considerations of case, perceived successes and gaps in performance.
DISABILITY FOCUS	Sub-section of analysis phase including facilitator question concerning the perception of disability, and series of student statements that relate directly to patient disability in the case.
SUMMARY PHASE	Third, concluding phase of debriefing. Focuses on take-away lessons, e.g. what participants would do differently in future similar experiences, and most important things learned.

Patterns of discussion that represent teaching and learning were identified in the coded debriefing transcripts. Each phase of a debriefing session serves learning goals, and particular patterns were prevalent in each of the three phases of the debriefings.

Introduction phase.

The first phase of a debriefing communicates ground rules and reviews the facts of the experience. In the debriefings examined in this study, students described the

patient case; the description was usually made by one student, and typically included the first identification of the patient's disability. The introductory phases prepared participants for discussion and learning opportunities that followed in the analysis and summary phases.

Analysis phase.

The analysis phase of debriefings in the fall and spring OSCEs involve reflection on what students did and what they observed during their patient encounters. In the fall, standard questions in the debriefing protocol that formed the analysis phase were focused on student reaction to the patient's disability, discussion of what went well and did not go well for the students, and reflection on how the best outcomes can be achieved. The spring debriefing protocol included many of these same questions. However, it was expanded with questions about the patient's medications and medical problems.

Part of the analysis phase in each debriefing in both fall and spring semesters focused the discussion on the patient's disability, to prompt student reflective discussion about their perceptions of the disability and their thoughts about implications of the disability for treatment. These discussions were prefaced by specific questions asked in each debriefing session:

Fall:

- The patient you saw had lost the use of his/her arm. What did you think when you noticed that the patient had this physical disability?
- What needed to happen for the best outcome in this situation?

Spring:

- The patient you saw had lost the use of his/her leg. When you saw the patient’s

physical disability, what did you think about it?

- What needs to happen for the best outcome regarding his/her disability in this situation?

Discussions about the patient's disability and its impact on the case differed between the fall and spring debriefings. Fall discussions of disability focused mostly on impact on treating the chief complaint – a wart on the left hand, to which the patient could not apply a topical ointment because he or she had completely lost use of the right arm. Discussions also involved the patient encounter itself, including how they had to vary social customs like shaking hands, and assisting the patient in the HEENT physical exam. Spring debriefing discussions of disability dealt more with what the patient could do, and needed to do, for physical activity and to support living as a disabled person.

Summary phase.

The summary phase of debriefings involved students discussing what they would do differently in future patient encounters and identifying their most important take-away lessons. These responses provide information on what is most important or prominent for debriefing participants. Table 24 summarizes frequent themes in responses to these questions. A fuller list of themes is found in the meta-matrix (Appendix C).

Patient interview and physical examination procedures were prominent themes identified by students as lessons learned in the summary section. There were few mentions of disability of it in response to the question of the most important thing learned.

Table 24

Repeated Themes in Summary Question Responses

Question	Frequent responses	Category
Knowing what you know now, what would you do differently in a future patient encounter?	Make patient more relaxed More eye contact with patient	Relate to patient
	Ask more / more specific questions Be more confident Help patient down from exam table Practice more Read door chart more carefully Slow down Wash hands after touching patient	Process
	Address disability directly Be mindful of disability	Disability
What is the most important thing you learned from the experience today?	Ask open-ended questions Okay to touch someone Explain what / why I'm doing a test	Relate to patient
	It will get easier with practice Slow down, don't be rushed	Process

Summary of Sub-Question B

There is not a straightforward numerical answer to the question of how much supplemental instruction was afforded by debriefings added to the OSCE. The debriefing sessions for each OSCE It is more complex than measuring the length of a lecture or a training session on administering injections. It is not a question for which there is a straightforward numerical answer. The debriefings conducted as part of fall and spring OSCEs afforded second year pharmacy students opportunities for critical reflection on their actions with standardized patient and exploration of the patient case. Although the

patient disability, the particular focus of assessment of CS in the OSCE, was an element in each debriefing discussion, the focus of the debriefings, in design and practice, was for students to develop in their ability to "treat the whole person with a disability with dignity" (HHS, 2005).

Sub-question C

What was the response of students to the addition of debriefing, as measured with a survey?

i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural competency scores?

After the fall and spring OSCEs in which debriefing was used, students were invited to complete the DES (Reed, 2012). The instrument is shown in Appendix D. Each of the questionnaire's 20 items is rated on two five-point Likert-type scales: Experience and Importance. Respondents rate their experience of each dimension and how important each dimension is to them.

The same group of students completed the DES twice. There was 100% participation in the fall semester, and 97.6% participation in the spring. Table 25 presents the demographic information that was reported by those completing the survey.

Table 25

Respondents to DES, by OSCE

Demographics	Fall OSCE	Spring OSCE
Responses	84 of 84 (100%)	83 of 85 (97.6%)
Male	34 (40.5%)	35 (42.2%)
Female	48 (57.1%)	46 (55.4%)
Age range	20-44	21-43
Mean Age	25.9	26.2

Note. Gender counts are from 82 responses (fall) and 81 responses (spring). Age information are from 81 responses (fall) and 77 responses (spring).

Table 26 presents the results of the DES from the fall OSCE. Responses were predominantly “Agree” / “Important” (4) or “Strongly Agree” / “Very Important” (5), though there is some variation based on the facilitators students had for their debriefings. For example item 17, “The debriefing session facilitator was an expert in the content area,” had a statistically significant difference in responses between facilitator groups in the fall OSCE on the Experience Scale, $H(1) = 23.2$, $p < 0.001$. Table 27 reports the results of the DES from the spring OSCE. As with the fall OSCE results, responses were predominantly “Agree” / “Important” (4) or “Strongly Agree” / “Very Important” (5).

Table 28 represents the Coefficient alpha values, indicating the reliability of the DES scales overall and the instrument's items on each scale. The reliability values for the scale with each item removed are consistently greater than 0.9.

Table 26

DES Results - Spring OSCE

Question	Experience Scale				Importance Scale			
	N	Md	M	SD	N	Md	M	SD
1. Debriefing helped me to analyze my thoughts	83	4.0	4.2	0.8	80	4.0	4.1	0.7
2. The facilitator reinforced aspects of the health care team's behavior	82	4.0	4.0	0.9	80	4.0	3.9	0.8
3. The debriefing environment was physically comfortable	83	5.0	4.6	0.7	80	4.0	4.1	0.9
4. Unsettled feelings from the simulation were resolved by debriefing	78	4.0	4.0	0.9	80	4.0	4.1	0.8
5. Debriefing helped me to make connections in my learning	83	4.0	4.2	0.7	79	4.0	4.2	0.8
6. Debriefing was helpful in processing the simulation experience	83	4.0	4.5	0.8	79	4.0	4.1	0.8
7. Debriefing provided me with a learning opportunity	83	4.0	4.2	0.9	79	4.0	4.1	0.9
8. Debriefing helped me to find meaning in the simulation	82	4.0	3.9	1.0	79	4.0	3.9	0.8
9. My questions from the simulation were answered by debriefing	75	4.0	3.9	1.0	79	4.0	3.9	0.9
10. I became more aware of myself during the debriefing session	82	4.0	3.9	1.0	79	4.0	4.0	0.9
11. Debriefing helped me to clarify problems	81	4.0	4.0	0.9	78	4.0	4.1	0.8
12. Debriefing helped me to make connections between theory and real-life situations	82	4.0	4.2	0.9	79	4.0	4.2	0.8
13. The facilitator allowed me enough time to verbalize my feelings before commenting	83	5.0	4.7	0.7	79	4.0	4.3	0.9
14. The debriefing session facilitator talked the right amount during debriefing	83	5.0	4.6	0.7	79	4.0	4.2	0.8
15. Debriefing provided a means for me to reflect on my actions during the simulation	83	4.0	4.5	0.8	79	4.0	4.3	0.9
16. I had enough time to debrief thoroughly	83	5.0	4.5	0.8	78	4.0	4.2	0.9
17. The debriefing session facilitator was an expert in the content area	82	4.0	3.7	1.1	78	4.0	4.0	0.9
18. The facilitator taught the right amount during the debriefing session	79	4.0	4.0	0.9	76	4.0	4.0	0.8
19. The facilitator provided constructive evaluation of the simulation during debriefing	78	4.0	3.9	1.0	76	4.0	4.0	0.8
20. The facilitator provided adequate guidance during the debriefing	81	4.0	4.3	0.8	77	4.0	4.2	0.8

Note. M = Mean, SD = Standard Deviation, Md = Mode

Table 27

DES Results – Spring OSCE

Question	Experience Scale				Importance Scale			
	N	Md	M	SD	N	Md	M	SD
1. Debriefing helped me to analyze my thoughts	80	5.0	4.5	0.7	73	5.0	4.5	0.7
2. The facilitator reinforced aspects of the health care team's behavior	80	5.0	4.5	0.8	68	4.0	4.3	0.7
3. The debriefing environment was physically comfortable	80	5.0	4.6	0.7	70	5.0	4.4	0.8
4. Unsettled feelings from the simulation were resolved by debriefing	76	4.0	4.3	0.8	70	4.0	4.4	0.7
5. Debriefing helped me to make connections in my learning	81	5.0	4.5	0.7	78	5.0	4.5	0.5
6. Debriefing was helpful in processing the simulation experience	81	5.0	4.6	0.6	74	5.0	4.5	0.6
7. Debriefing provided me with a learning opportunity	81	5.0	4.6	0.6	74	5.0	4.5	0.6
8. Debriefing helped me to find meaning in the simulation	81	4.0	4.2	0.8	61	4.5	4.2	0.9
9. My questions from the simulation were answered by debriefing	76	4.0	4.4	0.7	72	5.0	4.5	0.7
10. I became more aware of myself during the debriefing session	71	4.0	4.2	1.0	65	4.0	4.3	0.8
11. Debriefing helped me to clarify problems	79	5.0	4.3	0.8	70	5.0	4.5	0.7
12. Debriefing helped me to make connections between theory and real-life situations	71	4.0	4.3	0.8	74	5.0	4.6	0.6
13. The facilitator allowed me enough time to verbalize my feelings before commenting	71	5.0	4.8	0.4	69	5.0	4.5	0.7
14. The debriefing session facilitator talked the right amount during debriefing	71	5.0	4.6	0.6	71	5.0	4.5	0.7
15. Debriefing provided a means for me to reflect on my actions during the simulation	71	5.0	4.6	0.6	69	5.0	4.4	0.8
16. I had enough time to debrief thoroughly	71	5.0	4.7	0.5	69	5.0	4.5	0.7
17. The debriefing session facilitator was an expert in the content area	80	5.0	4.6	0.6	68	5.0	4.5	0.8
18. The facilitator taught the right amount during the debriefing session	77	5.0	4.4	0.7	67	4.5	4.4	0.7
19. The facilitator provided constructive evaluation of the simulation during debriefing	77	5.0	4.5	0.7	71	5.0	4.5	0.6
20. The facilitator provided adequate guidance during the debriefing	79	5.0	4.6	0.6	72	5.0	4.5	0.6

Table 28

Reliability of DES Items – Fall OSCE

Question	Experience			Importance		
	α[a]	Std.α[b]	r[c]	α[a]	Std.α[b]	r[c]
Overall Scale	**0.932**	**0.932**		**0.957**	**0.958**	
1. Debriefing helped me to analyze my thoughts	0.928	0.929	0.647	0.956	0.958	0.585
2. The facilitator reinforced aspects of the health care team's behavior	0.925	0.926	0.789	0.954	0.955	0.775
3. The debriefing environment was physically comfortable	0.931	0.931	0.509	0.957	0.958	0.568
4. Unsettled feelings from the simulation were resolved by debriefing	0.930	0.930	0.560	0.958	0.959	0.496
5. Debriefing helped me to make connections in my learning	0.927	0.928	0.684	0.956	0.957	0.641
6. Debriefing was helpful in processing the simulation experience	0.929	0.929	0.616	0.954	0.956	0.740
7. Debriefing provided me with a learning opportunity	0.929	0.929	0.607	0.954	0.955	0.776
8. Debriefing helped me to find meaning in the simulation	0.928	0.928	0.661	0.955	0.956	0.748
9. My questions from the simulation were answered by debriefing	0.928	0.928	0.659	0.955	0.956	0.718
10. I became more aware of myself during the debriefing session	0.931	0.930	0.564	0.954	0.956	0.734
11. Debriefing helped me to clarify problems	0.926	0.927	0.747	0.955	0.956	0.684
12. Debriefing helped me to make connections between theory and real-life situations	0.929	0.929	0.616	0.955	0.956	0.712
13. The facilitator allowed me enough time to verbalize my feelings before commenting	0.934	0.936	0.239	0.953	0.955	0.816
14. The debriefing session facilitator talked the right amount during debriefing	0.930	0.929	0.573	0.955	0.957	0.685
15. Debriefing provided a means for me to reflect on my actions during the simulation	0.928	0.928	0.679	0.953	0.955	0.825
16. I had enough time to debrief thoroughly	0.931	0.931	0.500	0.953	0.954	0.839
17. The debriefing session facilitator was an expert in the content area	0.929	0.929	0.620	0.954	0.955	0.769
18. The facilitator taught the right amount during the debriefing session	0.928	0.928	0.674	0.956	0.957	0.658
19. The facilitator provided constructive evaluation of the simulation during debriefing	0.927	0.927	0.703	0.955	0.956	0.705
20. The facilitator provided adequate guidance during the debriefing	0.928	0.928	0.680	0.954	0.955	0.820

a. α: Coefficient alpha for the scale with each item deleted in turn.
b. Std. α: standardized alpha for the scale with each item deleted in turn.
c. r: correlation between each item and sum of the other items

Relationship of Student Scores and Satisfaction

Sub-question “C. i.” asks whether relationships may exist between students' responses on the DES and their performance on SOAP note scores and CS scores. In the score data provided for analysis are records indicating the debriefing facilitator associated with each record. DES results were anonymous, but forms were distributed to students with codes indicating their debriefing facilitator, to allow evaluation of facilitators' performance as rated by students. It is possible, therefore, to test for relationships between scores and DES results according to the debriefing facilitator, not by individual. Strong correlations were found between SOAP note and CS scores (r_s=0.75, p = 0.002) However, there were weak correlations between SOAP note scores and mean DES responses, by debriefing group, on both scales.

There were also weak correlations between CS scores and mean DES responses by debriefing group. The results of the Spearman tests for correlation in Table 29.

Table 29

Correlations Between Student Scores and DES Results

DES Scale	SOAP note score	CS Score
Experience	r_s= -0.25, p = 0.40	r_s = -0.19, p = 0.50
Importance	r_s = 0.28, p = 0.33	r_s = 0.02, p = 0.002

Summary of Chapter

In this chapter, a combination of quantitative and qualitative data was analyzed to address three related questions, which are sub-questions to the overall research question in this study. In response to the first sub-question, significant differences were found between CS scores of students who participated in an OSCE without debriefing and those

who had the same OSCE with debriefing. Differences between the two groups were not significant, but chi-square tests comparing groups with passing and failing scores were significantly different. In response to the second sub-question, patterns were identified in debriefing transcripts that represent learning of patient care skills. In response to the third sub-question, results of the DES indicate that students overall had positive responses to participation in the debriefing. There were some differences between responses by the same group following fall and spring OSCEs. Also, some items differed significantly between students who had different facilitators of their debriefings in the same semester.

CHAPTER FIVE: DISCUSSION AND CONCLUSIONS

Pharmaceutical care labs (PCL) provide instruction and practice on skills such as drug compounding and patient counseling throughout a college of pharmacy's three-year professional doctor of pharmacy (PharmD) curriculum. Elements of patient care such as interprofessional collaboration, problem solving and cultural sensitivity (CS; ACPE, 2015) are interwoven with teaching and testing of technical skills. Among the forms of assessment used in PCLs are objective structured clinical examinations (OSCE), which are used to assess performance of patient care skills, including patient interactions and assessment of a patient case to develop a care plan.

In recent years, students' CS has been a focus in the second year PCL, with a particular emphasis on disability cultural sensitivity (Eddey & Robey, 2005; Smith et al., 2011). Instruction included readings and discussion of treating patients with disabilities, and patient characteristics in OSCE cases included disabilities that should affect how students interacted with the patient and planned for the care of the patient's chief complaint. In consecutive years, pharmacy students performed generally well in the spring OSCE, which involved a patient with a leg impairment that limited physical activity. Most students demonstrated good patient interaction and knowledge of the drug therapy regimen. However, many students received low marks on a specific CS dimension of scoring because they did not account for the leg impairment when recommending exercise as part of lifestyle recommendations. In response to this, the instructor added debriefings to the OSCE as a way to promote student learning and performance of disability CS.

Using secondary data from administrations of OSCEs in that college of pharmacy,

this study applied mixed research methods in a triangulation design that considered student scores, the content of debriefing transcripts and results of a student satisfaction survey using the Reed's (2012) DES to address the following research question and associated sub-questions:

Does adding debriefing to the OSCE process in a PharmD program improve student learning of cultural sensitivity?

a. Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing?

    i. What evidence is there of this relationship?

b. How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity?

    i. What evidence addresses this?

c. What was the response of students to the addition of debriefing, as measured with a survey?

    i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural sensitivity scores?

In the following sections, results from each sub-question are discussed in sequence. Those findings are then discussed in terms of triangulation to address the main research question. Also in this chapter, limitations of the study are presented, along with implications for practice in educational technology and pharmacy education. A few recommendations are made for future research, and lastly, conclusions are presented.

Sub-question A

Does the addition of debriefing suggest that student SOAP note and cultural sensitivity scores improved as a result of debriefing?

i. What evidence is there of this relationship?

To address this question, the researcher compared the performances of two cohorts of students. One cohort (debriefing cohort) had debriefing as part of their OSCE. The other cohort (non-debriefing cohort), which served as a comparison group, had been administered the same OSCE prior to the addition of debriefing.

Scores on SOAP notes students wrote on the patient case, following the patient encounter, were compared between the non-debriefing cohort and the debriefing cohort. The SOAP notes were scored for completeness and correctness using a standard rubric in the college. SOAP note scores were not significantly different between non-debriefing and debriefing cohorts. SOAP note scores in both cohorts were fairly high, with means greater than 85%. However, the numbers of students who received passing or failing SOAP note scores (passing mark of 70%), differed significantly between the cohorts.

It is not surprising that the groups were not significantly different. The skills of assessing a patient case and developing a care plan, which are part of writing a SOAP note, were skills that students had practice and should have developed prior to the OSCE. Addition of debriefing did not significantly impact the overall performance of most of the cohort. However, debriefing apparently contributed to narrowing the gap in students' performance on this measure. The minimum SOAP note score increased from 25% in the non-debriefing cohort to 72.6% in the debriefing cohort. No student in the debriefing

cohort had a failing SOAP note score, less than 70%.

Debriefing after an experience such as a simulated patient encounter affords students to de-role and to reflect on the patient case prior to moving on to another experience or onto other training or practice. In this case, the next experience was writing the SOAP note. Whereas most students were already prepared to assess the case effectively and write a SOAP note, debriefing probably helped lower-performing students to reflect on the case and to engage cognitive processes they needed to achieve acceptable outcomes on the SOAP notes (Biggs & Tang, 2011).

Cultural Sensitivity (CS) Scores

CS scores of up to 60 points were given by the PCL instructor based on how students addressed the patient's disability in their SOAP notes. Points were mostly based on what students wrote in the assessment and plan sections – the CS score grading structure is described in detail in Chapter 3.

Students in the debriefing cohort had significantly better CS scores than did the non-debriefing cohort. There was also a significant difference between the passing and failing rates of the two cohorts, based on a passing mark of 70% (42 of 60 points). Only 7 students (8.4%) in the debriefing cohort had failing CS scores, whereas 60 (66.7%) of the non-debriefing cohort had failing CS scores. Addition of debriefing significantly impacted students' demonstration of CS in their SOAP notes.

Enhancing CS in the form of appropriate lifestyle recommendations for a disabled patient post-heart attack was a primary reason the debriefings were added to the OSCEs. Debriefings allowed students to review and reflect on their experience overall, but there were questions intended specifically to stimulate reflection on and discussion about

perceptions of the patient's disability and how to achieve the best outcomes for the patient.

Students' performance of sensitivity to the patient's disability was apparently enhanced in the short term by the addition of debriefing between the patient encounter and their writing SOAP notes. The debriefing was timed as it was, based on suggestions in the literature that debriefings follow soon after the experience (Arafeh et al., 2010; Fanning & Gaba, 2007). Conducted as they were, debriefings had a formative effect (Wiliam & Black, 1996) on students' CS, as demonstrated by consideration of disability in patient case assessment and development of the care plan.

Magnitude Coding

The CS score was used by the PCL instructor to measure students' demonstration of cultural sensitivity in their SOAP notes. A student's score depended on how completely students addressed the disability in their SOAP notes: whether a student addressed the disability as a health concern and as a consideration in treatment of the patient's chief complaint, and whether they addressed these appropriately both in the assessment (A) and in the care plan (P) sections of a SOAP note. It was possible for a student to demonstrate some sensitivity to the patient's disability but receive a failing CS score (less than 70%) by not completing all parts of this requirement.

The researcher developed a different approach to simply identify presence of CS, even if performance was not complete and received a low CS score. This approach involved coding abstracts of students' SOAP notes for recommendations made concerning the patient's disability and physical activity. For example, mention of stationary bike or water aerobics was coded as recommending exercise. Records were

assigned magnitude codes of 0, 1 or 2 based on appropriateness of the recommendation. Researcher-assigned magnitude codes were moderately correlated with instructor-assigned CS scores, suggesting that the two values measured performance of CS differently. There were students with failing CS scores of 40 who had magnitude codes of 2, because they had suggested "appropriate" exercise in at least one section of the SOAP note.

The magnitude coding approach was subjective, time-intensive and ultimately artificial, as a way to identify CS. The approach did not meet its initial goal of identifying simple demonstration of cultural awareness; statements acknowledging the patient's disability did not result in a code; only recommendations did. A simpler approach would have been to count a low CS scores as acknowledging the presence of CS, even if it was incomplete. An improved way to assess cultural awareness and cultural sensitivity is needed.

Investigation of Possible Rival Explanation

Non-standardized description by SPs of the disability and its impact on physical activity was identified as a possible rival explanation to debriefing for disparity in CS scores between non-debriefing and debriefing cohorts. SOAP note abstracts from 15 students in the non-debriefing cohort recorded that the patient regularly walked (e.g. "30 minutes per day" or "two miles per day"), and, in many records, that the patient was no longer bothered by the disabling injury. Grading CS in this OSCE depended in part upon students receiving, assessing and developing plans based upon consistent information from SPs, that exercise was difficult because of a permanent severe limp. This was not the case for all students.

Assessing a patient case and making lifestyle recommendations based on a non-standardized representation of the patient's ability to do exercise caused some students to receive lower CS scores. Of 15 SOAP note abstracts with inconsistent disability information, 13 (86.7%) had failing CS scores. This is more than one fifth (21.7%) of 60 failing CS scores in the non-debriefing cohort. Receiving non-standardized reports of exercise activity negatively impacted students' CS scores. However, when comparisons of the cohorts' scores were re-calculated with inconsistent records excluded, there was still a significant difference between non-debriefing and debriefing cohorts on CS scores. Non-standardized case details given by SPs to students in the non-debriefing cohort impacted their scores, but they did not change the finding that addition of debriefing significantly improved students' students' demonstration of CS.

Comparison Between Facilitators

Also of interest was how having different facilitators affected students' SOAP note and CS scores. Students in each round of fall and spring OSCE were divided into two groups, led by two different facilitators, to have manageable discussion group sizes. In both semesters, the facilitators asked each group the same set of standard questions. Facilitators asked follow-up questions as warranted by the discussions. One facilitator served during both OSCEs. Another facilitator served during the fall OSCE debriefings, a third served during the spring OSCE, mostly because the complexity of the patient case was greater in the spring OSCE.

In the fall OSCE, students did not have significantly different SOAP note scores or CS scores based on debriefing facilitator. In the spring OSCE, students' CS scores did not differ significantly based on facilitator. However, students who had Facilitator 2 (F2)

in the spring OSCE had significantly higher SOAP scores than students who had Facilitator 1 (F1). Debriefings led by F2 somehow led to students writing better SOAP notes. Possible explanations for this were explored under Sub-question B.

Summary for Sub-question A

Comparisons of SOAP note scores and CS scores between debriefing and non-debriefing cohorts suggest that the addition of debriefing to the OSCE had its desired result. There was no significant difference in scores that can be attributed to debriefing, although the range of scores was narrower for the debriefing group. However, there was evident and statistically significant improvement in a CS score, with the addition of debriefing.

SOAP note scores graded students on how they assessed the patient case and wrote care plans. Both cohorts performed generally well on these tasks, following training and practice prior to the OSCE. There is not enough information for a thorough exploration of the change in the performance gap. A possible explanation is that debriefing helped lower-performing students write better SOAP notes after they had time to step back, reflect upon and better understand the case they had encountered.

The CS score graded a specific performance following a simulated patient encounter: written assessment of a patient's health needs with regard to the disability, and making recommendations for care based on that assessment. Part of the score was based on the student making lifestyle recommendations that were sensitive to limitations on the patient's physical activity, balanced with benefits of physical activity given the patient's health status. The score did not address the student's clinical interaction with the SP. A single CS score may not indicate how well students will incorporate cultural knowledge

into practice (Wells, 2000) in every future encounter with a patient with a disability. More evidence, such as a series of CS scores based on consistent criteria, over time from various scenarios, is needed to assess how the pharmacy students progressively learn this aspect of care. However, the significant change in CS scores from the non-debriefing cohort to the debriefing cohort indicates that more students who had debriefing considered the disability in this case, and a student's practice in each case contributes to development of habits, good or bad.

An alternative way of identifying CS -- more likely, identifying cultural awareness – was developed by the researcher as an alternative to the CS score. This approach did not prove to be any better at identifying the skills than the one used by the PCL instructor, in part because it used abstracts of SOAP notes, removed from the context and analyzed without the expertise in pharmacy.

Sub-question B

How much supplemental teaching does debriefing afford for improving student skills, especially with regard to cultural sensitivity?

i. What evidence addresses this?

Supplemental teaching afforded by debriefing is difficult to quantify. On a basic level, teaching is measured in the amount of time spent, as with classroom instruction. The debriefings that were considered varied from less than 15 minutes to 49 minutes in length. However, as with classroom instruction, the session's duration is not a complete indicator of how much useful teaching was afforded. Answering this question also depends on considering how time was spent. In debriefings of a simulated patient encounter, time is spent discussing an experience, what participants recognized as

successes and failures, and implications for future patient care.

The instruction in debriefings was considered "supplemental," because it was provided in addition to instruction during PCL class time – and it was not afforded to previous cohorts of students as part of their OSCEs. It was also considered supplemental, because it followed a realistic experience. Both student cohorts had been assigned readings about caring for patients with disabilities and discussed those articles in PCL. However, an encounter with a standardized patient who portrayed having a disability, whose needs the students needed to address, was an experience that re-formed students' ideas about disabilities and about themselves (Kolb, 2014). The fact that the simulated encounter was an assessment did not change the learning benefit that could be expected from a debriefing (Rudolph et al., 2008).

The flow of discussion was shaped by standard questions asked in each session. Those questions were intended to provide equivalent debriefings to all students. The specific currents of each debriefing session were shaped by students' answers to the standard questions, and by follow-up questions that facilitators asked. The researcher identified three kinds of instructional purposes in follow-up questions used in the debriefings:

- Have a student better explain a statement he or she just made
- Clarify or examine reasoning behind actions during patient encounter
- Critically examine the clinical or therapeutic reasoning in conversation

Facilitators also used follow-up comments to supplement information students received during the patient encounter. This might include correcting inconsistent subjective information from standardized patients, or apprehending something that they

had missed in discussion.

Phases of Debriefings

Each debriefing had three phases – introduction, analysis and summary – with distinct but natural transitions between them. Most of what was considered supplemental instruction was found in the analytical and summary phases. Discussion in the analysis phase revolved around what had happened – what students did, what they observed, what went well and what did not. Discussion in the summary phase had mostly to do with what participants recognized as key take-away lessons and implications for future practice.

Part of the analysis phase in each discussion addressed perceptions and implications of the patient's disability, including what needed to happen for the patient to have the best health outcome. This included talking about how to approach the case, which may have directly influenced how students recalled and analyzed the case as they wrote their SOAP notes. This may have impacted the OSCE as a summative assessment, it may have served a formative purpose by helping facilitators and students see what was needed to move the pharmacy students toward mastery (Bloom et al., 1971) of disability cultural sensitivity, and of the pharmacist's patient care process (Joint Commission of Pharmacy Practitioners, 2014), more generally.

The facilitator's participation in the discussion was through prompting students to continue discussion, or through Socratic questioning. Follow-up questions such as "Why do you say that is important?" and "Why does that matter in this case?" helped students examine what they had just said and expand upon their comments.

The summary phase elicited students' take-away lessons and future improvements. Despite discussions of the patient case, students generally answered the

questions, “What will you do differently in the future?” and, “What was the most important thing you learned in your encounter today?” by discussing how they did specific procedures, or how they interacted with the patient in general. In the fall, many take-away messages followed earlier discussions of what had not gone well, such as trying to shake the hand of a patient who had lost the use of her right arm. Both semesters, students talked about the need to assist the patient both getting onto and getting down from the exam table, given the disability. Many spoke about establishing rapport with the patient and asking more questions to get the information needed to fully assess the case.

Differences Among Facilitators

Facilitators in the fall and spring differed somewhat in their approaches to the task. In the fall debriefings, Facilitator 1 (F1) spoke more times than Facilitator 3 (F3) did, though most of those were prompts for students to speak up. As a pharmacist, F1 had more insight into what students were saying, and was better able to ask follow-up questions and probe for more involved answers.

In the spring semester, Facilitator 2 (F2) took the place of F3, because of the greater complexity of the case. An observation that was supported by a F2 tended to draw more information from students about their interaction with the patients. The facilitator was careful not to convey answers, but tried to get students to draw conclusions based on what they should know from their studies.

Summary of Sub-question B

This sub-question sought to measure the teaching that was afforded by debriefing. It was possible to quantify some aspects of the debriefings from transcripts, such as

duration of debriefing sessions, the numbers of times that facilitators and students spoke, and how many times various themes were mentioned. These were interesting aspects of the debriefings to consider, but in these numbers, the researcher did not find a sure way to measure how much teaching they represented. It was evident, though that debriefings did afford supplemental instructional time, though more of it was focused on patient interaction process than directly on the cultural sensitivity element, and most of it was through a mode of facilitation rather than what is traditionally thought of as teaching (Dismukes et al., 2000).

Sub-question C

What was the response of students to the addition of debriefing, as measured with a survey?

i. Are there potential relationships between student rating of their debriefing experience, and student performance as demonstrated by SOAP note scores and cultural sensitivity scores?

Student reaction to debriefing was measured using the Reed's (2012) DES, which asks respondents to rate 20 dimensions of debriefing – identified in literature as important aspects of debriefing experience – on two five-point Likert-type scales: Experience and Importance. Results from fall and spring suggest that, overall, students were satisfied with the debriefings. Means of responses were positive (four or greater) on 13 items (65%) on the experience scale and 16 items (80%) on the importance scale in the fall. Means were positive on all items on both scales in the spring.

With strongly positive responses, items with means less than four may represent weaker aspects of the debriefings. One item that had a lower rating, "The facilitator

reinforced aspects of the health care team's behavior," did not directly apply, since the students did not operate as a team in the simulation. Most items with lower means were on three sections of the scale: "Learning and making connections," "Facilitator skill in conducting the debriefing" and "Appropriate facilitator guidance" (Reed, 2012, e216). One item, "The debriefing session facilitator was an expert in the content area," had a low average and median value in the fall. This was not surprising, as one of the two facilitators was not a healthcare professional.

Probably because of consistently high responses, reliability was high and nearly equal on all items on the DES. Also, there were weak correlations between DES scores, and SOAP note scores and CS scores. These were calculated based on debriefing groups. Students completed the DES in each OSCE immediately after writing their SOAP notes, before they knew their scores on the OSCE or grade for the course.

Triangulation – Bringing It Together

The overall question considered in this study was, "Does adding debriefing to the OSCE process in a PharmD program improve student learning of cultural sensitivity?" The study involved three related sub-questions, examining separate data sets: student scores, debriefing transcripts, and results of a 20-item form designed for evaluation of debriefings.

Significant improvement of students' CS scores, compared to a cohort of students before debriefing was used, suggests that adding debriefing improved students' performance of disability cultural sensitivity in considering the patient's disability in writing the care plan. More evidence is needed than was available in the study, to be able to say that students' performance in the future would be improved. However, almost

universally high scores by students suggest that good practices were learned, that should be reinforced.

Qualitative coding and analysis of debriefing transcripts showed that students discussed the needs of the disabled patient as part of discussing their case. Much of the discussion about the patient's disability related to how the students had interacted with the patient during the encounter, though there was discussion of the patient's care, in light of the disability. It is likely that having the opportunity to reflect on the patient case afforded by a debriefing, allowed students to understand the case and the patient's needs more clearly. However, the debriefing might have just as much impact on students' future performance during patient encounters, as on their ability to incorporate CS into future care plans.

Student satisfaction with the debriefing, demonstrated by universally high ratings on the DES (Reed, 2012) may not directly answer the question of whether the students learning of CS was improved. However, they at least suggest satisfaction with the process. However, the satisfaction of some students may have been with the possibility of gaining insight. In the end, this question did not provide a side to the triangulation toward addressing the main research question that was as strong as the other two.

Relationship to Literature

Debriefings added to OSCEs improved students' CS, demonstrated in SOAP notes they wrote about the patient case. Whether short-term improvement in performance will transfer to later practice is still in question. Cicero and colleagues (2012) found that after instruction, simulation and debriefing, residents' ability to accurately triage patients in crises months later was superior to that of patients who had not been debriefed after

initial training and simulation. This suggests that the learning benefits of debriefing have a lasting effect on performance.

Rudolph (Rudolph, Simon, Dufresne, & Raemer, 2006; Rudolph, Simon, Raemer, & Eppich, 2008; Rudolph, Simon, Rivard, Dufresne, & Raemer, 2007) advocates an approach to debriefing that widens the focus of discussion from students' actions to their reasoning and sensemaking. Although there were differences in the debriefing approaches by the two facilitators in the spring OSCE, both incorporated these ideas. Both used questions to explore students' frames about the patient's disability and other aspects of the case that were exposed in discussion.

This study considered the use of debriefing in developing students' cultural sensitivity with patients with disabilities. Disability is an area that is not often considered in the teaching and assessment of cultural sensitivity in health professions education (Eddey & Robey, 2005; Smith et al., 2011). Since more than 18% of the United States population has been identified as having a disability, and more than 50% of the population 65 and older has some form of disability (U. S. Census Bureau, 2012), it is almost certain that a pharmacist working in any setting will provide care to patients with disabilities. Incorporating disabilities into cases assigned to students, including simulations and practical assessments, can partially address the limited experience that students have during training with treating patients with disabilities, though it will still not prepare them to address the full range of needs of future patients (HHS, 2005).

Limitations of the Study

This study used secondary data to evaluate a change in an assessment practice. The researcher was involved in the development and conduct of the OSCEs, but did not

have ultimate control over the design or execution of the debriefings, and could not affect the production or collection of data, such as grading SOAP notes or CS. This limited the scope of the data available, the characteristics (such as distribution) of the data, and subsequently analyses that could be performed. Additional data, such as overall performance on the OSCE and student characteristics that were not provided – because they were not requested of the PCL instructor, and which are no longer available – would have contributed to the analysis. This study had to describe and analyze data as received, even if they were not in formats that were not ideal.

Fidelity of simulations used in the OSCEs was a possible limitation in the OSCEs considered for this study. In the fall OSCE for the debriefing cohort, the case involved a patient who had lost use of his or her right arm, who sought treatment for a common wart on the left hand. Based on discussions in debriefing transcripts, SPs varied somewhat in how they enacted the disability, and it was not clear to the researcher how realistically or clearly the lost use of arm and hand was portrayed to students.

Fidelity or standardization among SPs portrayal of case details was a possible limitation for this study. Using a whole case approach to OSCEs meant that each student encountered the same, single patient case. To accommodate all students in one OSCE day each semester, cases were presented simultaneously by as many as 14 SPs, seven times throughout the day. Variations across more than 80 performances of a case by multiple actors were very likely. The concerns with non-standardized portrayal are the degree of variation, whether variations were in presentation of important case details and how much variations affected student performance and grading.

The most obvious example of this limitation is non-standardized representations

of disability that were discovered in SOAP note abstracts from the non-debriefing cohort. The SPs representation of disability was more consistent in the spring OSCE for the debriefing cohort, according to the SOAP note abstracts. This was likely the result of improved SP training, which more clearly emphasized the patient's severely limited ability to walk or run for exercise, than did SP training in the previous year.

The scope of the study was another limitation. Many factors in the education and assessment of the students were outside the scope of this study and impossible to account for in the analysis. For example, although debriefing was the only overt change to the instruction and assessment of disability cultural sensitivity made to the second year PCL, the PCL instructor could have made subtle changes in how she led the discussion of assigned readings about disability cultural sensitivity, or how disabilities or other cultural factors were built into patient cases. Also, the PCLs are only part of a professional pharmacy curriculum, and this researcher could not account for how faculty teaching in pharmacotherapy or other courses taught content related to this assessment in each year.

Implications for Practice

The goal in the OSCEs considered in this study was to determine and develop how well pharmacy students were prepared to treat the whole person with a disability with dignity (HHS, 2005). The PCL instructor wanted second year pharmacy students to recognize and respond to the needs of disabled patients when interacting with them in a simulated counseling or clinical setting, and when assessing the case to develop a care plan. As pharmacists, these students will have an important role in patient care and education. Cultural sensitivity, including sensitivity to needs of patients with disabilities, takes time and experience for pharmacy students to develop. It is not something they

readily memorize like the top 200 prescription drugs. Incorporating cultural characteristics and disabilities into patient cases used in simulations, including OSCEs, adds to the realism and provides experiences vital to developing this ability in students.

Debriefing is widely recognized as a normal, even essential, part of simulation-based training. However, it is uncommon to see it used in simulation-based assessment like OSCEs. The findings of this study suggest that debriefing can be effectively used in an OSCE to promote student learning. Debriefing is not necessarily needed, appropriate or practical in every OSCE. Pharmacy educators should consider the space and time required to add a debriefing. Personnel needs must also be planned for, to have adequately prepared facilitators as well as others to handle technical and administrative aspects of the assessment milieu.

There is a risk that addition of debriefing to a high-stakes summative OSCE could change the nature of the assessment – that is, it could "give away the answers" and cause legitimate questions about the validity of the assessment. The debriefing protocols were developed with this in mind; standard questions about the patient case were very open-ended, allowing students to bring specific issues onto the table for discussion. If the debriefings had been conducted in an instructional context, the questions asked of students could have been more direct.

Some changes have already been made following the OSCEs in question, in the college where the OSCEs considered in this study were done. More than one Pharmacy Practice faculty member is involved in teaching and assessment in PCL courses. Students have been placed in encounters with SPs prior to the OSCE, so that the high-stakes summative assessment is not their first encounter with an unfamiliar patient actor. There

are additional plans and efforts in the college to incorporate performance-based assessments, both formative and summative in nature, throughout the curriculum (L. Welage, personal conversation, November 2015).

Recommendations for Future Research

Future studies of debriefing impact on student patient care skills would benefit from a more longitudinal approach. This study examined, through secondary data analysis, the impact on a score on something students performed immediately after the debriefing. A study such as this that followed up the OSCE to assess students it is not possible to analyze further what effect debriefing had on students' ongoing abilities or confidence in patient care.

The analysis applied to the rich qualitative data of debriefing transcripts in this study was limited in scope. Additional and deeper analysis could be performed of these data, such as a fuller discourse analysis to discover patterns in discussion. Future studies like this one involving recording of debriefings could be done in a way that would distinguish each speaker, to allow a replication of Dieckmann, Friis, Lippert and Ostergaard's (2009) creative analysis of the patterns of individuals' participation in discourse. Such an analysis, with proper protections in place for human participants of course, would then afford far more detailed analysis of the effect of participation in debriefing on student performance.

There is a need for a way to assess CS that is sensitive to demonstration of cultural awareness and sensitivity and that is geared toward formation of these abilities. The CS scores used in this study, which examined a specific CS performance, distinct from overall quality and completeness of the SOAP notes, represent a good attempt to

assess and provide feedback this aspect of care, which is emphasized across healthcare professions, including pharmacy (ACPE, 2015). Although the scoring method was evidently consistent between the two cohorts, the scoring approach was subjective and may not be reliably applied by other assessors. The researcher's attempt to develop an alternative approach to identifying CS was limited in by lack of expertise in health care. Development of an evidence-based assessment rubric that would be adaptable to aspects and expectations of cultural awareness and sensitivity would be very useful.

Conclusions

The data support an argument that students' CS scores improved significantly as a result of debriefing, but SOAP note scores did not change as a result of debriefing. This suggests that debriefing improved students' performance of CS with respect to disability in assessing a patient case and making care decisions and lifestyle recommendations. However, the summative assessment purpose of the OSCE, concerning application knowledge and patient care skills, was not compromised by the insertion of debriefing.

Based on the available data and analyses from different perspectives, it can be concluded that addition of debriefing to OSCEs did improve students' performance of CS toward disabilities. Through deliberately reflective discussions, students had a chance to analyze patient cases and their performances caring for patients. Debriefings also apparently shaped or confirmed students' frames about what patients with disabilities would need in a care plan, going forward.

Educational discussions should help participants develop critically-informed understandings, and enhance self-critique ability. For this to happen, a discussion needs to be inherently engaging and flexible (Brookfield & Preskill, 1999). There were

variations between debriefings, even with one facilitator who asked each group precisely the same questions. However, the debriefings consistently afforded students an opportunity to step back from the experience before proceeding to the writing of SOAP notes, and consider the case.

Whether debriefing is used as part of a high stakes OSCE depends upon intention of the assessment, circumstances and resources, and careful planning. Debriefing makes demands on students and personnel. It may not be appropriate or needed in the context of an OSCE administered at the end of an academic term. Effective briefing of students prior to patient encounters, detailed patient documentation and attention to fidelity in patient portrayals may be sufficient in the context of an OSCE to enhance student attention to the most important details of the case.

The debriefings considered in this study were added to the OSCE in part because of a pragmatic need for formative assessment of disability cultural sensitivity performance that did not occur during the performances. The OSCE at the end of a period of instruction would not be the first time students have a simulated patient encounter with someone besides peers or family members. Nor should it be the first opportunity students have been afforded, through debriefing, to reflect upon and assess their performance. Colleges of pharmacy are allowed and encouraged by ACPE (2015) to utilize simulation to give students realistic patient care experiences for instruction and assessment. Simulation and debriefing should be used as parts of instruction, practice and performance-based assessment to help pharmacy students develop into pharmacists who are ready to enter practice.

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APPENDICES

APPENDIX A: DEBRIEFING PROTOCOLS

Fall Debriefing Protocol

My name is _____. I am here this (morning / afternoon) to facilitate a discussion about your encounters with standardized patients during your OSCE. I will be asking questions, but I'll let you do most of the talking. The purpose is to help you understand and perhaps learn even more from your patient encounters today.

A few ground rules:
There are no wrong or right answers.
What you say will not be graded; your participation will not affect your OSCE or PCL grade.
Please wait until the person talking has finished to start talking.
I would like everyone to contribute, but you do not have to respond to every question.
I will be recording this to help evaluate the debriefing.
This session will last about 30 minutes.

Main Question	**Follow-up / Clarifying Question**
Will someone walk us through the scenario?	What did you observe about the patient? What did you do for / recommend to the patient?
Overall, how did you feel during the activity?	
The patient you saw had lost the use of his/her arm. What did you think when you noticed that thie patient had this physical disability?	Did what you thought change during the scenario? How? Why?
What needed to happen for the best outcome in this situation?	Why?
When you recall what you did during encounter, What went well?	What did you feel confident about?What did you find easy? Why do you think it went well?
When you recall what you did during encounter, What did not go well?	What was challenging / difficult?Why did it not go well?
What skills/ knowledge **could / did** you use during this encounter for better patient care?	
Do you think the skills / knowledge you used during this encounter may have changed treatment outcomes?	How? Why?
What if anything would you do differently in a similar situation in the future?	What would you do the same? Why?
What is the most important thing you learned from the experience today?	

Spring Debriefing Protocol

My name is _____. I am here this (morning / afternoon) to facilitate a discussion about your encounters with standardized patients during your OSCE.
A few ground rules:
There are no wrong or right answers.
What you say will not be graded; your participation will not affect your OSCE or PCL grade.
Please wait until the person talking has finished before you start talking.
I would like everyone to contribute, but you do not have to respond to every question.
Please focus on participating in the conversation. Keep note writing to a minimum and no recording/picture taking can be done.
I will be recording voices only as this to help evaluate the debriefing.
This session will last about 30 minutes.
I want this debriefing to be an honest professional discussion. This is not meant to be a critique of your individual performance. No one has all the information or answers, and we can all learn from each other. The point of this debriefing is not to determine success or failure. The reason we are here is to improve your performance. There are always weaknesses to improve and strengths to sustain.
I will be asking questions, but I'll let you do most of the talking. The purpose is to help you understand and perhaps learn even more from your patient encounters today. The point of this debriefing today is to: summarize and review your patient encounter to ensure that you understand the case, to help you assess and plan for patient care, to understand how disability affects patient treatment recommendations, and to be better prepared for future patient encounters. Today we wanted you to perform the cardiovascular examination including listening to the heart to detect irregular heart-beats or murmurs, checking for potential congestive heart failure complications, and ensuring proper pulses are found throughout the cardiovascular system. We also wanted you to interview your patient to collect necessary information to identify medical and medication related problems. This includes history of present illness, medication history, allergy history, past medical history, family and social history, and review of systems.

Main Question	**Follow-up / Clarifying Question**
1. Will someone walk us through the scenario?	What did you observe about the patient? Why was the patient here today?
2. When you recall what you did during the encounter, what went well?	What did you feel confident about? What did you find easy? Why do you think it went well?
3. When you recall what you did during encounter, what did not go well?	What was challenging / difficult? Why did it not go well?

4. This patient has a few medical problems. What were those?	
5. Thinking about the physical examination and interview you did today, what should you have done to ensure that you gathered all the information you need to develop proper treatment outcomes for his disease states?	What did you do? What should you have done?
6. What do you think about the medications he/she is taking for these problems?	What kinds of things do we look for in a patient record to determine if there are any medication related problems? What kinds of problems if any do you see with the medications?
7. The patient you saw had lost the use of his/her leg. When you saw the patient's physical disability, what did you think about it?	Did what you think change during the scenario? How? Why?
8. What needs to happen for the best outcome regarding his/her disability in this situation?	Why? Tell me about it….
9. What skills/knowledge will you need to write your SOAP note for better patient care?	Tell me more about it…..
10. Knowing what you know now, what would you do differently in a future patient encounter?	Why?
11. What is the most important thing you learned from the experience today?	

APPENDIX B: SOAP NOTE RUBRIC

UNM College of Pharmacy Pharmaceutical Care Labs
SOAP Note Evaluation Rubric

Student/Group Name:_____ Evaluator:_____ Score:_____/_200____ = _____% = _____/100

5: Did Not Address	6: Needs Significant Improvement • Poorly done with many errors & omissions that could impact patient care	7: Needs Improvement • Some errors/omissions that could affect patient outcome	8: Competent • Few errors/omissions that would not impact patient outcome, with some room for improvement	9: Good No errors/omissions found, however there is room for improvement	10: Excellent • No errors/omissions & no areas of improvement identified

ASSESSMENT AREA	SCORE (circle one)						Weight
Subjective (S) & Objective (O) Sections							
• Inclusion & correct placement of all pertinent S & O information in note	5	6	7	8	9	10	x1___
• Correct interpretation of and conveyance of S & O information to the A & P	5	6	7	8	9	10	x1___
Assessment (A) Section							
• Correct identification and ranking of pharmacotherapy &/or lifestyle problems	5	6	7	8	9	10	x1___
• Clinically appropriate assessment of each pharmacotherapy problem (goals & analysis of S&O)	5	6	7	8	9	10	x2___
• Assessment explains the "why" for each problem recommendation	5	6	7	8	9	10	x2___
• Assessment is concise and does not include superfluous information	5	6	7	8	9	10	x1___
Plan (P) Section							
• Correct identification & ranking of pharmacotherapy problems in plan section	5	6	7	8	9	10	x1___
• Clinically correct pharmacotherapy &/or lifestyle recommendations made for each problem	5	6	7	8	9	10	x2___
• Correct monitoring &/or follow-up parameters stated for each pharmacotherapy problem	5	6	7	8	9	10	x2___
• Plan instructions/recommendations are organized & easily understandable	5	6	7	8	9	10	x1___
Citations							
• Appropriate biomedical literature referenced for problems in assessment and plan	5	6	7	8	9	10	x2___
• Citations superscripted in note and cited correctly on reference page	5	6	7	8	9	10	x1___
Writing							
• Recommendations are concise, clear and easy to find	5	6	7	8	9	10	x1___
• Note is spelling & grammatically correct and uses appropriate terminology	5	6	7	8	9	10	x1___
• Deadlines met and instructions followed	5	6	7	8	9	10	x1___

Comments:_____

_____

_____

Total:_____/200

Note. Used with permission of UNM College of Pharmacy.

APPENDIX C: META-MATRIX FOR SUB-QUESTION B

Fall Matrix

Session	Facilitator 1									Facilitator 3								
	1	3	5	7	9	11	13	Avg		2	4	6	8	10	12	14	Avg
Students	6	6	6	6	6	6	6			6	6	6	6	6	6	6	
Length (minutes)	27.7	24.5	22.5	23.3	21.6	22.9	25.8	24.0		25.3	22.4	23.6	14.6	29.0	26.9	20.5	23.2
Length Intro (words)	171	160	180	181	179	161	189	174		217	223	255	210	220	200	242	224
X Facil Spoke	64	41	36	55	45	40	50	47.3		21	39	38	23	49	24	35	32.7
X Students Spoke	112	74	125	91	53	96	216	110		110	114	187	35	186	101	143	125
1st mention disability										2	2	2	2	6	2	11	
Went Well	Was professional (e.g. put on gloves) Was not nervousness Was **confident** / became confident Made patient comfortable (feedback DE pt) **Explaining what one was doing** Communication									Relating to patient **Communicating**, talking with patient Got over nervousness Following / remembering procedures Not just going through motions **Explaining what one was doing** Nice / friendly patient Being confident Washing hands Training and practice, e.g. with ROS							
Didn't go Well	Hand washing / sanitizing Touching older patient, being careful **Missed/forgot part of phys exam procedure** **issues with exam equipment** Ignored patient when taking notes Not knowing what to look/listen forgetting Patient wearing underwear Getting limited info de pt, not knowing how to probe Nervous Patient frustrated									**Repeated self – same word multiple X** **Missed/forgot part of phys exam procedure** **Unsure about washing hands** **issues with exam equipment** Difficult accommodating disability What to talk about, how to bring up topics **Time / completing everything** Order of steps in exam First time / new at this – nervous/awkward Uncomfortable touching patient Awareness of being assessed. Tall patient							

	Facilitator 1		Facilitator 3	
Re. Disability	Observed / Told by Pt: Has hobbies **Spouse helps with daily activities** Surgery 1y ago that caused disability Pt only concerned about wart (chief complaint)	Interaction: Should have asked more about disability Should have done more to help Asked / talked about disability but didn't dwell. More eye contact than look at arm. Treated same as anyone else Over-compensated for D Have to bring up disability with patient.	Observed / Told by Pt: **Patient frank about sarcoma + disability** Patient comfortable w/ disability Pt irritated by disability **Not treating differently b/c of disability** **How SP portrayed arm** – suspension of disbelief Had info on chart that pt has non-functional arm	Interaction: **Social custom / faux pas – handshake** **Pt shook hands with left hand** **Ask qns about treatment** Checked on support system **Offer assistance (exam table, doing exam)** Asked qns to make sure it was treated Not dwell on disability Sensitivity in doing physical exam
	Considerations: Difficulty with physical exam e.g. covering eye **Ability to apply topical medication** Is patient in PT/OT? Concerned about how pt is dealing / living with disability	Recommendation: Sling Spouse help with applying medicine for wart	Considerations: **Whether / how to bring up/ask Qs about disability** Might have to help pt onto exam table. Thought about pt holistically Pain/ numb/sensation? Need for best outcome: Communication Attention to detail Address patient's concerns **Treatments for CC pt can do easily**	Recommendation: Possibility of OT to learn to do things w/1 arm Have someone else (spouse) apply medication Sling to immobilize arm

	Facilitator 1	Facilitator 3
Would do differently	Be more gentle **More eye contact** More confident – inspire patient's trust in you Explain better what I am doing Not be so overtly conscious of disability Offer to assist patient Felt encumbered by script; act differently with patient, ask what you need / want to **Talk with patient more about disability**	Be prepared for patient with disability Similar to other cultural competence e.g. language Sensitive to people's differences; Empathy; Open-minded Smoother transition from introduction to questions **More practice;** Wish had more practice prior to OSCE **More aware of differences eg unable shake hand** **Eye contact;** Heads up when talking with patient. SP told me to keep explaining what I am doing Would mention things noticed on SP that were NOT “normal” (as in the case) Feel more confident and able to adjust sequence of exam. - find rhythm to procedure. More open-ended questions **Wish knew more what they were looking/feeling in physical exam.** Be confident in what you say Look at patient as a whole, look at whole case. **Slow down** Don't be all serious. Read door chart before going in. <u>Need to learn:</u> Open-ended questions; Ask the questions, don't be afraid to ask.
Learned	Not just stick to the procedure. Go with what the patient needs, accommodate needs. Be confident and in control of situation Able to be more sensitive to person with disability How you frame questions will determine kind of answers you get. - e.g asking about eating, or about allergies (drug allergies vs seasonal) **Importance of open-ended questions** Okay to adjust order of physical examination Realize that I focus on making sure I do all the steps Focus more on patient Skills will come with repeated experience	Real-life situations different than lab, real patient different than paper case. Have to be creative, not just go by rules. Situation makes you choose best actions No standard patient – tailor treatment. Learned how I can show sympathy but not be too sensitive about it. Would like to review physical exam again, be more confident Be comfortable, casual, be able to communicate Follow procedure so you don't miss something's Balance between being systematic and natural Find personal connection “nugget” to build rapport **Have much to learn** **It is okay to touch someone in clinical setting** Importance of experience with unknown person, different from practicing with a friend. Importance of eye contact. How to treat patient and do exam when pt has disability. Disability was new.

	Facilitator 1	Facilitator 3
F/U Questions	And what did you do with the patient, except shaking hands? What do you think about that? *(redirects student question about addressing something in note)* Did you remember patient's chief complaint? Okay. How about your communication skill with the patient? *(asks more specific Q after open-ended)* Concerning patient disability what would you like to do in the future? We talked about that his chief complaint is...what? Did what you thought change during the scenario? So what was the challenging or difficult thing?	Do you think that [disability] affects how you address the patient's chief complaint today? What else might have been challenging in physical exam? **Did your thinking change regarding the disability?** What did you feel confident about? Have you had hostile patients before? **Any major things you think you need to learn?** Did you do anything to build rapport with patient? you said you thought it would be a normal patient encounter. Why did you think this? Why do you think it went well? That's what they are to see you for right? Do you think that affects how you address the patient's chief complaint today?

Spring Matrix	Facilitator 1								Facilitator 2							
Session	2	4	6	8	10	12	14	Avg	1	3	5	7	9	11	13	Avg
Students	6	6	6	6	6	6	3		7	7	7	7	7	7	4	
Length (minutes)	25.1	22.7	28.1	30.8	26.1	26.4	27.2	26.6	26.8	42.7	49	42.6	41.9	45.9	48.8	42.5
Length Intro (words)	402	388	399	406	437	443	418	413								
X Spoke (Facil)	32	37	41	60	60	51	83	52	116	90	222	139	180	145	216	158
X Spoke (Students)	164	55	83	91	139	85	123	106	174	94	277	154	212	154	272	191

Went Well	**Patient Interaction / communication** **Establish rapport / trust with patient** Taking history Felt comfortable doing procedure – having practiced Remember procedure **Getting easier/more natural with practice.** Less nervous than last time Helped to have form to follow	Understand patient **Communication / talking with patient** **Confidence** Taking time doing procedures (phys exam) Comfortable with patient Moving smoothly, not shaking More able to spot things wrong with medications
Didn't go Well	Patient Hx form – missing information – realism **Missed/forgot part of phys exam procedure** Robotic about doing steps (Pt feedback) Awkward order of steps **Patient uncomfortable during exam**	Asking open-ended questions **Knowing when - Open-ended vs direct questions** Patient reluctant to answer questions **Patient gown / draping** **Unsure how to address disability + help Pt** **Repeated self – same word multiple X** **Patient uncomfortable during exam** instructing patient on what to do during exam Patient not telling about complaint (HA) **Missed/forgot part of phys exam procedure**

Spring	Facilitator 1		Facilitator 2	
Re. Disability	Observed or told by pt: Injured in war – little pain, limp since injury **No pain** **PT recommended** **Willing to try exercise/PT** **Wants to improve health, be able to walk** **Cannot get around well** Pt was limping, not complete function of leg Does strength training MI inspired to improve health	Interaction: **Assisted pt on / off table** Asked if need help Asked if pt had pain **Asked Qs re disability, what done about it** Asked if doing PT – said no. Respectful about disability Wish had asked more Qs	Observed or told by pt: **Could still get around – short distances** **Cannot get around well** Pt says cannot exercise Interferes with activities **No pain** / stiff Has sensation **Willingness to exercise – willing to try** **PT was recommended but did not go / went to PT but stopped** **Wasn't a big deal** Was long time ago Holds him back Hard to exercise	Interaction: Assisted pt on / off table **Asked Qs re disability, what done about it** Delicate in asking Qs Did not ask questions SP didn't really have disability (Susp of Disblf)
	Considerations: How it affects health Ability to exercise Other service-related issues eg PTSD Needs to be active. Exercise student's main concern Ability to bend knee for part of phys exam **Age time since injury / nature of PT at time of injury** Extent to bring up disability	Recommendations: **Swimming** Focus on diet, with limited mobility Meds for pain e.g. ASA 325 mg, no other NSAID Will consider limp when recommending exercises Some exercise (eg weights) > none Not giving excessive meds for pain **Start PT / Rehab** Specific exercise Optimal Drug therapy	Considerations: Did not want to “baby” patient Limited exercise Should have asked more Qs Does pt have support at home?	Recommendations: Physical therapy **Swimming** Stationary exercises – bands, arm exercises **Stationary bike** **Physical Therapy**

	Facilitator 1	Facilitator 2
Do differently	Draping patient during exam Would not leave patient sitting on table **Wash hands after touching patient.** Take more time to talk to patient **Make pt feel comfortable and relaxed** **Would practice more / wld like more practice** Get more confident/comfortable doing pt exam Push patient to get more information **Be more mindful of disability** **Slow down, Not feel so rushed.,** think specifically about what I know, what I'm hearing. **Help patient off exam table** Read over script / form twice, make sure covered everything. Would say goodbye better: shake hand, state plans for what to look into. Just be myself **Ask more / better / more specific questions**	**Ask clear, concise, specific questions** **Ask about symptoms and what they had done.** Know what you are asking – get info you want. Pull out step / leg rest on exam table Prepare student / help student prepare for examination **Eye contact with patient** for better communcation Step through interview / exam systematically Have patient lie down for physical examination – had to go back and forth. Ask if patient wants me to retie back of gown Make sure patient has drugs he/she needs (e.g nitroglycerine) Work through answers – draw out info. Don't just go through steps and neglect patient. Establish relationship **Help patient down from exam table** Ask more about chief complaint (s/p MI) **Practice**
Learned	Relate to the patient more – build rapport It is okay to press for more information Be calm. **Will get easier with more practice** Make patients comfortable **Ask open-ended questions** Confidence goes a long way Importance of patient's problems. Important to convey confidence **Explain why doing certain procedures** Use of knowledge is important, increasing role/responsibility. We assume patients know why they are taking certain drugs. Talking about it opens doors. What patient says is important. Was more comfortable touching stranger patient.	Good to see own skills improving Intricacies of how to introduce self, say good-bye. Know better what vitals, labs mean Having conversation with patient made a lot of difference. Make patient feel comfortable – with exam, draping, gown, questions **Every encounter helps me to be better next time.** Remember patient is human – talk to them as person, not just as source of info about what is wrong. Patient may want more small talk Patient helps me learn Patient may not volunteer information that you need Another opportunity to practice what we are learning

	Facilitator 1	Facilitator 2
F/u Questions	Why do you think that's kind of important? Do you feel comfortable to take care of this type of patient in the future? Why do you think so? Why do you think like that? I just wonder why you kind of have difficulty to ask open ended question? So let's say if you have this type of patient, for example like you saw today. This patient has some medical problems and also physical disability. Do you feel comfortable to take care of this type of patient in the future? So what else did you learn? Eventually did you ask the reason why he didn't do that? High dose? So what is he taking right now? *(re ASA)* Did you ask that question? *(whether pt had surgery)* What guidelines are you going to get? So yours said that it got better with hydrochlorothiazide? *(HA; drug was supposed to have been dc'ed)* Alright, did you find anything? *(pt interview)* Did you explain about that? *(both sides of stethescope)* So what kind of things do we look for in a patient's record to determine if there are any medication related problems? So what kind of questions did you ask? *(student said had conversation w/pt regarding military service, shrapnel, injury)* What kind of resources? (for info on treatment, guidelines) Before that, what did you do during the OSCE to assist the patient?	No well a regular, what does regular mean when you see a pulse? *(discussing labs/vitals)* how can you be sure that you gather all the information that you need? What kind of things do we look for in a patient record to determine if there's any medication-related problems? What would you be thinking about? But my question back to you guys is, does it matter...? *(details of FH)* And then you guys talked about the aspirin dose. Like where would you guys find back-up for changing his dose? Where would you look? So what would you guys think about these headaches? What do you guys think about that? *(HA, after student listed as one of the pt's complaints)* But what would be an incorrect answer here? *(meds for HA, looking for NSAIDs)* … And why? what else can we do for him? Like why he's quit right now what else can you do to keep him quit? *(smoking)* **What was the most important pressing issue today to deal with?** *(asking students what is chief complaint* Where would you find that information that says 81 is better than 325. What could bolster your argument? *(ASA)* **So did anybody ask if he had had a stent?** So which one are you going to do and why. Just choose one and tell me, you're choice. Which one first? *(asking students to advocate for which problem to treat 1st)* And he is on what dose of Lipitor or atorvastatin? … so what doses would be considered high intensity? **But status/post MI would you care? Would it matter?** *(details that don't pertain since he has had an event)* At what point do we say stop with blood pressure medications? But would we give him medication? *(smoking cessation)* What else can we provide for him? what kind of resources can we offer to him? Yeah that's true but something specifically he has, they worsen what control? *(reason for no NSAIDs)* So okay what does he need to be on Status post MI? Where would you find the information about what the proper dose is? How could you do physical exam differently so it's not up-and-down...? When you -- what was the first thing you asked when you're talking about chief complaint? What did you say?

APPENDIX D: DEBRIEFING EXPERIENCE SCALE

INSTRUCTOR COMPLETE:
Institution using DES: _____
Date of use: ____

Debriefing Experience Scale

Little is known about participants' experience during debriefing following simulation. You can add to professional knowledge by giving your opinions. Please complete the survey below. Your views are very valuable. There is no right or wrong answer.

Your debriefing type(s)–Mark(x) all that apply:

___ Discussion without videotape ___ Discussion with videotape ___ Journaling ___ Blogging ___ Other (Specify)_____

Circle the number below that best reflects your opinion about your debriefing experience.

1 – Strongly disagree with the statement
2 – Disagree with the statement
3 – Undecided – you neither agree or disagree with the statement
4 – Agree with the statement
5 – Strongly Agree with the statement
NA—Not Applicable; the statement does not pertain to the debriefing activity performed

Rate each experience item based upon how important it is to you:

1 – Not Important
2 – Somewhat Important
3 – Neutral
4 – Important
5 – Very Important

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Not Applicable	NOT Important	Somewhat Important	Neutral	Important	VERY Important
Analyzing Thoughts and Feelings											
1. Debriefing helped me to analyze my thoughts	1	2	3	4	5	NA	1	2	3	4	5
2. The facilitator reinforced aspects of the health care team's behavior	1	2	3	4	5	NA	1	2	3	4	5
3. The debriefing environment was physically comfortable	1	2	3	4	5	NA	1	2	3	4	5
4. Unsettled feelings from the simulation were resolved by debriefing	1	2	3	4	5	NA	1	2	3	4	5

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Not Applicable	NOT Important	Somewhat Important	Neutral	Important	VERY Important
Learning and Making Connections											
5. Debriefing helped me to make connections in my learning	1	2	3	4	5	NA	1	2	3	4	5
6. Debriefing was helpful in processing the simulation experience	1	2	3	4	5	NA	1	2	3	4	5
7. Debriefing provided me with a learning opportunity	1	2	3	4	5	NA	1	2	3	4	5
8. Debriefing helped me to find meaning in the simulation	1	2	3	4	5	NA	1	2	3	4	5
9. My questions from the simulation were answered by debriefing	1	2	3	4	5	NA	1	2	3	4	5
10. I became more aware of myself during the debriefing session	1	2	3	4	5	NA	1	2	3	4	5
11. Debriefing helped me to clarify problems	1	2	3	4	5	NA	1	2	3	4	5
12. Debriefing helped me to make connections between theory and real-life situations	1	2	3	4	5	NA	1	2	3	4	5
Facilitator Skill in Conducting the Debriefing											
13. The facilitator allowed me enough time to verbalize my feelings before commenting	1	2	3	4	5	NA	1	2	3	4	5
14. The debriefing session facilitator talked the right amount during debriefing	1	2	3	4	5	NA	1	2	3	4	5
15. Debriefing provided a means for me to reflect on my actions during the simulation	1	2	3	4	5	NA	1	2	3	4	5
16. I had enough time to debrief thoroughly	1	2	3	4	5	NA	1	2	3	4	5
17. The debriefing session facilitator was an expert in the content area	1	2	3	4	5	NA	1	2	3	4	5

	Strongly Disagree	Disagree	Undeci-ded	Agree	Strongly Agree	Not Appli-cable	NOT Import-ant	Some-what Import-ant	Neutral	Import-ant	VERY Import-ant
Appropriate Facilitator Guidance											
18. The facilitator taught the right amount during the debriefing session	1	2	3	4	5	NA	1	2	3	4	5
19. The facilitator provided constructive evaluation of the simulation during debriefing	1	2	3	4	5	NA	1	2	3	4	5
20. The facilitator provided adequate guidance during the debriefing	1	2	3	4	5	NA	1	2	3	4	5

Comments:

We would like to know a little more about you:

Sex: _____ Female _____ Male Your Age: _____ Ethnicity _____

Date of your debriefing: _____ Title of your course and course #: _____

Number of participants in your debriefing group: _____

Number of debriefings you have participated in previously: _____

What is your professional background (e.g. MD, RN, Pharmacist, OT or other)? _____

If you are already a licensed health professional, how many years of direct patient care have you had? _____ years

Are you a health professions student? _____ Yes _____ No

If yes, in what profession? _____

THANK YOU FOR HELPING US TO UNDERSTAND THE DEBRIEFING EXPERIENCE!

Debriefing Experience Scale, by S. J. Reed, 2012. Used with permission.

APPENDIX E: SPRING OSCE DOOR CHART

Students who were administered the OSCE in both non-debriefing and debriefing cohorts were provided the following information on a door chart prior to entering the clinical room.

There are some medical terms in this door chart:

- s/p MI means status/post Myocardial Infarction; in other words, the patient has had a heart attack in the past.
- Hyperlipidemia is high blood cholesterol.
- Hypertension is high blood pressure.
- CV exam is a cardiovascular examination

Door Chart

Your patient is here today to follow-up after being released from the hospital s/p MI. He has documented hypertension and hyperlipidemia. He was in a war and sustained an injury to his right leg such that he has a severe limp (keep this in mind as you interview him and do the physical exam as well as when writing your assessment and plan later!).

You are to interview your patient with the patient history form provided to you, do the CV exam only, thank your patient and then leave the patient room. After this is completed, you will be directed over the intercom to go back into the room to counsel your patient on the medication that is at your cubby. After this is complete, you will be directed over the intercom to re-enter the room for patient feedback. The patient will tell you what it was like to be your patient (it is not part of your grade, just feedback to help you self-improve in the future).

Good luck!

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