To err is human! (Institute of Medicine, 1999). Errors have long been recognized by health care providers and the general public as one of the major public health problems in our society. The publication of the Institute of Medicine’s report, To Err is Human: Building a Safer Health System, has added impetus to examine this critical issue facing health care professionals and health care consumers. The Institute of Medicine’s report suggests that medical errors are the eighth leading cause of death in the country—higher than motor vehicle accidents, breast cancer, or AIDS. Due to the rapid growth and complexity of health care knowledge, uncertainty of patient’s prognosis, time pressure and job overload, even the best-trained and dedicated professionals in the world inevitably make errors (Wu, Folkman, McPhee, & Lo, 1991). However, the cost in human tragedy and suffering by patients and practitioners highlights the need for significant error reduction in health care service delivery.

As a first step in reducing error and improving patient safety, it is important to gain a thorough understanding of the phenomenon of health care practitioner errors. A substantial number of research studies have investigated the nature of errors in health care (e.g., Kelly, 1995; Leape, 1994; Leape et al., 1995; Levinson, Roter, Mullooly, Dull, & Frankel, 1997; Meurier, 2000; Meurier, Vincent, & Parmar, 1997; Wu, Cavanaugh, McPhee, Lo, & Micco, 1997; Wu et
A growing number of research studies have been conducted to examine errors in the field of nursing (Bates et al., 1995; Leape et al., 1995; Meurier, 2000; Meurier et al., 1997). Meurier and colleagues (1997) surveyed 129 nurses to study their perspectives on errors. The most common causes of errors found, in this study, included lack of knowledge, job overload, stressful conditions, and lack of support from senior personnel. Similar to the study by Wu et al. (1991), this study found accepting responsibilities for errors can lead to positive and constructive changes such as paying attention to detail and seeking advice. Making external responses (e.g., acting fearful of repercussions, expressing anger), however, were usually associated with defensive changes in practice such as becoming less confident in work and being less trusting of others.

Although errors have been studied in medicine, pharmacy, and nursing, little attention has been paid to practitioners in occupational therapy. During the 2-year period of this project, the investigators have conducted three extensive literature reviews to search existing literature regarding occupational therapy practice errors: At the beginning of the project, at the end of year one, and at the time of writing this manuscript. The investigators searched a number of relevant databases including CINAHL, MEDLINE, Academic Search Elite, PsychLit, and ERIC and found no research studies that exclusively examine occupational therapists’ errors. A few articles have been published in the occupational therapy literature regarding quality assurance (Packham, 1999; Voltelen, 1990), but they do not contain data about practice error. Like other health care practitioners, however, occupational therapists do make errors. Textbook cases, anecdotal practitioner testimonials, malpractice documentation, and regulatory board records reveal the fact that practice errors happen, the clearest of which is documented harm to patients (American Occupational Therapy Association [AOTA], 2001; National Board for Certification in Occupational Therapy [NBCOT], 2000; Ranke & Moriarty, 1997). Systematic research is warranted to investigate occupational therapy practice errors and develop discrete and specific strategies to prevent or reduce errors and improve patient safety. This article presents the results from the first phase of a two-phase research project that examines practice errors occurring in occupational therapy practice. During phase one of the project, focus groups were conducted to explore and understand occupational therapy practitioners’ perspectives on practice errors. Information obtained during phase one of the project was also used to aid the development of a survey questionnaire that can be used to conduct a national survey to further examine practice errors during phase two of the project. This paper reports the results of the analysis from phase one of the focus group data in physical rehabilitation settings.

Method

The purpose of the study reported here was to understand the phenomenon of practice errors from practitioners’ perspectives and from those who have experienced the phenomenon. Focus groups were the method of data collection in the study. Focus groups are particularly suited to researching the “native’s point of view” (Morse & Field, 1995; Vidich & Lyman, 1994) because they enable the researcher to explore and examine the perspectives of individuals in a permissive and non-threatening environment (Krueger, 1994; Morse & Field, 1995).

Participants

To work most effectively, participants of focus groups should consist of individuals who are similar to, but unfamiliar with, each other (Krueger, 1994; Morgan, 1993). A purposive sampling procedure was used in this study to recruit participants for the focus groups. The participant criteria for registered occupational therapists were: (a) Are currently practicing or have practiced in physical rehabilitation settings, (b) have at least 1 year practice experience, and (c) are willing to participate in the study. We limited the current study to physical rehabilitation settings because of the following considerations: First, practice settings in occupational therapy vary considerably and the investigators decided to focus on one practice setting to minimize this variability; second, physical rehabilitation represents one of
the largest areas in occupational therapy practice.

Four focus groups were conducted in the following states across the nation: Nebraska, Illinois, Texas, and California. These four states were selected due to being divergent geographic regions as well as the therapists’ willingness to participate in the study. The investigators requested cooperation from state occupational therapy associations in obtaining contact information on therapists in physical rehabilitation. These collaborative efforts resulted in the recruitment and formation of the focus groups, based on participant criteria.

A total of 35 occupational therapists participated. Among them, 32 were female and 3 were male. Nine of the participants had master’s degrees and the remaining 26 had baccalaureate degrees. The mean years of practice experience in physical rehabilitation was 8.5 (ranging from 2 to 25 years).

**Procedures**

Each focus group was conducted at a site and time that was convenient to the participants. Two focus groups were conducted during the respective state annual conferences and the other two were organized by local occupational therapists following invitations from the investigators of the study. All three investigators of the study attended each focus group. One investigator served as the facilitator of the focus groups throughout the study. Another investigator was in charge of note taking and the third was responsible for tape recording the interviews. A list of semi-structured interview questions was employed to guide the initial focus groups. This list was generated from extensive literature pertaining text units were then examined and compared with input from local occupational therapists in physical rehabilitation. This list was also pilot tested with a group of occupational therapists before it was used to guide the focus groups. The initial guiding interview questions consisted of the following:

1. Please describe an event in a physical rehabilitation setting that you consider being an occupational therapy practice error.
2. Why do you consider this to be an error?
3. In your opinion, what caused this error?
4. What did you do afterwards?

At the beginning of each focus group, the facilitator introduced the background and the purposes of the study. The participants were informed that the purpose of the focus group was to understand practitioners’ perspectives on practice errors and that findings from the discussions would be used to reduce practice errors and improve patients’ safety. The participants were also informed that this study had been approved by the university IRB office and information obtained would be kept strictly confidential. All participants were asked to complete a demographic information form. An example of practice error made by one of the investigators was described to stimulate the discussion in all focus groups. With permission from the participants, all focus groups were audio recorded. At the end of each focus group, participants were invited to ask any questions or seek clarification.

**Data Analysis**

After each focus group, recorded discussions were immediately transcribed by a professional transcriber. Two investigators independently analyzed the data before the next focus group was conducted. The field notes were shared and discussed among the investigators immediately after each focus group. Major points generated from the notes were then hand written in the margins of the transcribed interviews. Findings from each focus group were incorporated into the subsequent focus group to modify interview questions (e.g., adding, rephrasing questions, etc.). For example, occupational therapists’ hesitancy to question physicians was brought up by participants in an early focus group. This issue was further examined in the subsequent focus groups through the facilitator’s probing questions as consistent with focus group strategies (Morgan, 1993).

The data analysis was achieved using a synthesis of qualitative data analysis strategies (Bogdan & Biklen, 1992; Denzin & Lincoln, 1998; Morse & Field, 1995). Qualitative data analysis software, NUD*IST Vivo was used to aid the data analysis process. Using NUD*IST Vivo, the transcribed text was first broken into text units. Two investigators of the study independently and separately coded the transcribed text units and generated initial coding categories. Printouts of the initial categories along with pertaining text units were then examined and compared between the two investigators. When discrepancies were found, the two investigators met to reexamine the data and discussed the coding until a consensus was reached. Next, the agreed-upon coding was examined and categorized to generate initial categories. These initial categories were then contrasted, expanded, condensed, or refined to yield the final coding categories. The relationships among these categories were further examined to yield themes of the study (Bogdan & Biklen, 1992; Morse & Field, 1995). For instance, when coding the data regarding the concept of practice error (why do therapists consider an incident as practice error), the two investigators had a number of initial codes including: Causing physical harm to the patients, delaying patients’ discharge, creating unrealistic treatment or prognosis expectations or both, providing unneeded services, and failure to provide needed services. This coding
was then refined and condensed into two major categories: Physical error and psychosocial error. The theme abstracted from these two categories regarding the concept of practice error was: Concept of practice error: It is against our standards.

Trustworthiness of the Study

Trustworthiness of the study is a significant concern in qualitative research (Krefting, 1991; Lincoln & Guba, 1985, Morse & Field, 1995). Several measures were taken to enhance the credibility, transferability, dependability, and confirmability of the study. Two investigators of the study simultaneously, but independently, coded and analyzed the data. These two people participated in regular weekly meetings to share, compare, and discuss findings. When discrepancies were found, the investigators reexamined the data and discussed the analysis until a consensus was reached. Peer examination was also implemented. A senior researcher at the university who had qualitative research experience served as an outside reviewer. During monthly meetings, the investigators kept the reviewer informed about the progress of the study and asked for feedback and comments about the approaches and procedures undertaken. Finally, the draft of this manuscript was sent to several selected participants to solicit their comments and feedback. All the selected participants agreed on the accuracy of the generated themes, but provided feedback on the wording and grammar used in the manuscript. Such feedback was reviewed by the investigators and incorporated into the revision of the manuscript.

Results

Five themes were generated from the data analysis of the study: (1) Concept of practice error: It is against our standards; (2) Perceived causes of practice error: Not just an individual matter; (3) Emotional responses: I felt horrible; (4) Impact on practice: Doing things differently; and, (5) Management of practice error: Being honest and taking initiative. These themes are described and exemplified in the following sections using direct quotations from focus group participants.

Concept of Practice Error: It Is Against Our Standards

Descriptions of practice errors ranged from minor harm to more major harm. Examples of minor harm to patients included ripping of patients’ fingernails, causing patient fatigue, and skin scratches. Examples of major physical harms included causing falls, blisters, burns, tendon tears, dislocation of joints, bone fractures, back flow of urine, unintended (bone) pin or intravenous tube removal, or even contributing to the death of a patient. In addition to the errors that caused physical harm, participants also reported psychosocial errors including creating unrealistic expectations for patient prognosis, showing lack of confidence in front of patients, and withholding information about patients’ prognosis. A considerable number of participants expressed concerns regarding psychosocial errors. One participant reported the frustration of withholding information from a patient, “I think that has been really hard, you know, telling patients that they can’t go home from rehabilitation. Especially right now, I work with mostly our stroke patients and we have 3 weeks with them [because of] Medicare laws.”

Another therapist expressed the similar concern recalling a patient who kept coming back to therapy. She and the physical therapist needed courage “…we need[ed] to say…[to the patient], this is probably it.”

Several participants considered lack of providing needed therapies or availability of needed equipment as practice errors. One participant mentioned “…I see that as a concern as well because we’re not doing the patient any service…” Participants also perceived offering unneeded therapies as errors. One participant voiced “…maybe a patient getting too much therapy…what we were just fulfilling was an insurance requirement.” Another participant questioned “how are other people getting therapy when therapy is given to a patient who is really not a candidate for rehabilitation?” When asked in what way these incidents were considered as errors, participants replied that they were “against our standards” (i.e., the Standards of Practice for Occupational Therapy [American Occupational Therapy Association Commission on Practice, 1998] and the Occupational Therapy Code of Ethics [AOTA, 2000]).

Perceived Causes of Practice Error:
Not Just an Individual Matter

Occupational therapists described a variety of causes for practice error. The following comment made by one participant illustrates this point, “I think errors are caused sometimes because of inexperience, sometimes because we don’t listen to the patient, sometimes we are rushed, and sometimes we’re tired. Sometimes nowadays [with] HMOs, we have to do things fast and get them out.”

Lack of experience was perceived as one of the major causes of error. Some of the data included statements such as “You don’t know what to do,” “I am a new graduate,” and “I had probably only been working as a therapist for a few months.” One participant commented: “It would be interesting to know too, how many of the errors happened when we were first right out of school starting because we didn’t really learn…”

Incorrect judgment of occupational therapists was cited as another major cause of errors. One participant described...
a situation in which the patient kept telling the therapist that the pins used to stabilize one of his joints were being pulled, but the therapist ignored the patient, which led to the dislodgment of the prosthesis pins. Another participant recalled an incident of a patient's fall caused by misjudgment by the therapist. Other reports were of misjudgments pertaining to weight bearing status, patient tolerance level and understanding the comprehension level of patients. Communication breakdown, lack of attention, and lack of adequate education and training were also among the reported causes of practice errors.

In addition to practice errors for which occupational therapists were individually responsible, participants reported errors that were caused by systemic factors (flaws in the system where practice errors occur). Systems errors can be described as those that are outside of the direct control of the occupational therapist, such as: Poor technical design, incorrect equipment installation or maintenance or both, organizational barriers, and inappropriate managerial decisions (Leape et al., 1995; Reason, 1990). When a system is not designed for safety, it makes it easier for the errors to occur and not be detected or corrected before a patient is harmed (Leape et al., 1995).

Foremost, occupational therapists described system errors that originated from wrong or unclear physician orders. One participant shared an experience in which the physician had ordered an arm splint made for the wrong arm; “He wrote the wrong arm. He had written ‘right-arm splint.’” A number of participants recalled situations in which errors were made because of unclear, insufficient, or illegible documentation or communication breakdowns among service providers. One participant commented, “It was just a matter of communication again, not letting me know that was done….”

Other participants voiced the concern that many practice errors were caused by productivity pressures or demands. Participants reported this frustration by using such descriptors as too rushed, short time, so busy, and too many patients.

**Emotional Responses: I Felt Horrible but I Learned From It**

Participants reported strong emotional reactions when errors occurred. Descriptors such as horrible, terrible, guilty, scared, worried, petrified, sleepless nights, were repeatedly reported. While experiencing strong emotional feelings, occupational therapists recognized and valued the lessons they learned from the incidents. One participant commented “…[C]ertainly there was a learning situation there and learning to be much more cautious in that type of setting….” Other participants commented that after the incidents, they became more cautious, more reflective and more likely to listen to patients or take vital signs of the patients. Reports from one participant illustrated this point well: “…I learned a big lesson. I’m very careful if using heat on a patient…” Other participants reported they had used the experience of making errors themselves to educate patients and fieldwork students. One participant commented “I learned a lot from that and I teach my students about incidents like that.”

**Management of Error: Being Honest and Taking Initiative**

Many participants considered honesty as the key to managing errors. They emphasized the importance of being truthful with all parties that were involved, including physicians, patients, patients’ family members, and colleagues (occupational therapists and other service providers). One participant said, “…sometimes when we make mistakes, we can at least say to the patient, ‘I made a mistake…’”

When occupational therapists were being honest about their practice errors, reactions received from the parties involved were generally supportive. Participants reported that patients were usually understanding when they were told the truth. Occupational therapy colleagues were described as supportive to their peers, exhibiting great understanding and caring. It was reported that when errors occurred colleagues would do whatever they could to help, such as offering comforting words, being physically present, and temporarily assuming their colleague’s duties, if needed. As one participant reflected, “I think generally OTs are very supportive people…[w]e rely on each other for support.”

Generally occupational therapists in the study reported that they followed appropriate institutional procedures in their facilities such as filling out accident reports, sharing information at meetings, and reporting it to the designated parties. The majority of participants reported they felt very comfortable in following institutional procedures for reporting error. In addition, participants reported they often took initiatives after the incidents to compensate for the errors, correct errors, lessen damages caused by the errors, or prevent future errors. Reported efforts and initiatives consisted of checking patients after work hours, having others (e.g., technicians) fix equipment and devices, developing and distributing relevant information, educating physicians and others through in-service training, and using the experience to teach fieldwork students.

**Impact on Practice: Doing Things Differently**

Making errors appeared to have significant impact on the occupational therapists’ practice. Participants agreed that
since the errors occurred, they did things differently in their practices. Many participants voiced that, after the incidents, they “process[ed] things a little differently” or “tried several different things.” Changes included not leaving hot packs on too long, being careful when treating patients with pins, and heeding patient’s pain complaints. One participant commented “I have changed my approach and I haven’t had any problems…”

The ways that occupational therapists dealt with physicians’ orders also changed when they perceived that practice errors were caused by unclear or wrongful orders. Participants admitted that the relationship with physicians is “touchy.” One participant reported that “…if you’re not comfortable, call the physician and say…Then you get into the whole issue of what will the doctor say when you are questioning their diagnosis and other kinds of things…” In spite of this touchy relationship, therapists in this study learned that when they are in doubt about physicians’ orders, they must take the initiative to verify or clarify the orders before initiating treatment. One participant recalled an incident in which the physician ordered her to fabricate a right-arm splint for a patient who had bilateral upper-extremity fractures. Prior to this order, this physician had fabricated a cast on the patient’s right arm. Believing she was supposed to splint the left arm, the therapist checked the chart again, which confirmed the order for splinting the right upper extremity. In spite of her odd feeling and clear doubt, the therapist followed the order, took off the cast and fabricated the splint for the right arm after being told the physician was “not the type of physician that likes to be paged.” This participant commented:

I guess what I learned from it, is okay, now I have more experience. I’m going to call him. You page the physician. You don’t care if they are arrogant or if they don’t want you to call them. Yeah, I only have 4 years’ experience but I don’t feel right about it. Now whenever I feel like “Oh, do I want to call the doctor,” I just think about that incident and then forget it…what’s his number?

Other occupational therapists reported that when they perceive themselves as lacking experience, they now find other therapists to implement the treatment.

**Discussion**

In this study, we examined occupational therapists’ perspectives of practice errors in physical rehabilitation. Specifically, we examined occupational therapist’s understandings of the concept and causes of practice errors, their impact on occupational therapy practice, and approaches and strategies practitioners use to deal with errors. The findings of the study have important implications for occupational therapy practice as well as for current professional education and training.

Findings from this study suggest that occupational therapists define practice error in a broad sense. Occupational therapists consider not only practice that causes (or has the potential to cause) physical harm to patients as errors, but also practice that results in psychosocial concerns. It is particularly noteworthy that research on practice errors from other health care professions, such as medicine and nursing, did not identify psychosocial concerns as practice errors. This is an interesting finding that may suggest that occupational therapists are viewing patient care from a holistic perspective. It is also worth noting that occupational therapists consider practice that violates the Occupational Therapy Standards of Practice and the Occupational Therapy Code of Ethics (AOTA, 2000) as practice errors.

Several findings are worth emphasizing regarding causes of practice error. First, although the participating occupational therapists described many causes that contributed or resulted in practice errors (e.g., lack of attention, incorrect judgment, and not listening to patients), most of the mentioned causes could likely be avoided by more attentive practice. These findings may have implications for current educational training programs in occupational therapy, including clinical reasoning development related to patient safety. Utilizing case study scenarios about everyday practice that have a potential for error would be one way to address errors in an educational setting (Mattingly & Fleming, 1994). Second, in hierarchical situations in which occupational therapists worked from physician orders or were responsive to supervisor directives, a hesitancy to approach or question those in authority may have contributed to practice error. It is apparent from this study that at times it was difficult for the occupational therapists to question, even though they may have recognized that the ordered treatment or suggestion was inappropriate. This finding may suggest the need for assertiveness training focusing on in hierarchical situations in occupational therapy professional programs and continuing education. Lastly, occupational therapists in the study identified being too rushed as a cause of patient errors. This finding suggests that current attempts (e.g., on the part of third-party payers) to reduce reimbursable time spent with patients may backfire by causing even more expensive and harmful errors.

As expected, making errors has strong emotional effects on occupational therapists. This finding is congruent with findings from studies of other professions. (Meurier, 2000; Meurier et al., 1997; Wu et al., 1991). Health care professionals including occupational therapists are taught to practice perfection. The educational standards at many health
science schools neither condone errors nor tolerate practitioner fallibility. The virtue of performing faultlessly is internalized (Leape, 1994). Health care practitioners are tempted to cover their errors with a veil of secrecy. But in spite of this emphasis on perfection and the emotional distress resulting from errors, the vast majority of occupational therapists in the study appear to deal with the errors appropriately and professionally. They are usually honest about their errors and take initiatives to correct their errors and to compensate for or mitigate damages caused by the errors.

Another encouraging finding of the study was that the participating occupational therapists recognized and valued the important learning experience resulting from the errors, which in turn had considerable impact on their future practice. They made many positive changes to prevent additional errors and improve patient safety, such as becoming more assertive and reflective, researching additional information, improving documentation and communication skills, and employing discrete strategies in practice. For example, with errors in splinting, therapists reported learning to post a splint-wearing schedule and providing better staff instructions about positioning.

This study has several limitations. First, although efforts were made to achieve homogeneity of participants as recommended by many qualitative researchers (Krueger, 1994; Morgan, 1993), participants in the study varied considerably in years of experience in practice. Second, social desirability may have affected the perceptions of the participants in spite of attempts to minimize such impact. These attempts included emphasizing the purpose of the study (i.e., reducing practice errors and improving patient safety), the value of sharing and learning from peer errors and the confidentiality of the collected data. Finally, caution should be taken when readers transfer the findings of the study to other populations and practice settings (Krefting, 1991).

Conclusion

Errors inevitably happen in occupational therapy practice given the human nature of the providers. Occupational therapists in this study were sensitive to a broad scope of errors by considering both physical and psychosocial factors. The encouraging news is that most errors reported in this study are the types that can be prevented. Occupational therapists in the study valued the lessons learned from their errors, an outcome that had positive effects on their practice and important implications for education, training, and current practice.

Findings of the present study will be used to develop a survey questionnaire to further examine occupational therapists’ perceptions on practice errors from a large national sample and from different practice settings during the second phase of the project. Future studies are also needed to compare the similarities and differences among occupational therapists’ perceptions from different practice settings and examine the relationships between practice errors and practice settings. Finally, future research should also be targeted to explore and develop specific strategies and interventions to prevent or reduce practice errors and ultimately improve patients’ safety.

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References


