Abstract: Educator perceptions and ratings of pain between school-age children with and without mental retardation were investigated using written vignettes of three different pain types (acute/procedural; accidental; chronic). Diagnostic/functional information (i.e., mental retardation) was randomized across raters (N = 95). Raters were asked to consider whether the child experienced any pain (yes/no) and if so to rate its intensity on a standardized numeric rating scale. There were no significant differences between groups for the perception of pain or the rating of pain intensity by diagnostic/functional information. Additional analyses showed that participants rated pain differently across pain types (p < .05) suggesting that the written vignettes had face validity (i.e., represented different types/sources of pain). Secondary analyses between licensed special education teachers and prospective pre-licensure special education teachers found significant differences (p < .05) between ratings for acute/procedural pain. These results suggest that more experienced (i.e., licensed) teachers may be better ‘detectors’ of pain/discomfort in children with or without mental retardation than less experienced teachers. Implications of this finding are discussed. Considering the limited research in the area of pain, disability, and education further work appears warranted.

A long standing assumption suggests that individuals with mental retardation and related developmental disabilities are insensitive or indifferent to pain or discomfort (Oberlander, Symons, van Dongen, & Abu-Saad, 2003). Emerging evidence shows, however, that children with mental retardation have more frequent daily incidents associated with pain than similar aged children without mental retardation (Breau, Camfield, McGrath, & Finley, 2003), pain thresholds may actually be lower among individuals with mental retardation (Defrin, Pick, Peretz, & Carmeli, 2004) and the emotional expression of pain, at least in some conditions associated with mental retardation, is intact (Oberlander, Gilbert, Chambers, O’Donnell, & Craig, 1999). Given the likelihood that the sensation and expression of pain may be preserved among individuals with mental retardation, there are a number of pressing issues related to pain recognition, measurement, and management (LaChapelle, Hadjistavropoulos, & Craig, 1999).

Pain in children with mental retardation may be under-recognized because of issues around the definition of pain and difficulty assessing and measuring pain. The International Association for the Study of Pain (IASP) defines pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (Merskey & Bogduk, 1994). A further clause suggests that the inability to communicate verbally does not negate the possibility that an individual is experiencing pain and is in need of appropriate pain-relieving treatment. Despite this additional clause, the core definition promotes self-report of individuals as the ‘gold standard’ in terms of communicating the location, type, and source of pain. Consequently, the cognitive and communicative impairments associ-
ated with mental retardation and related conditions can create considerable ambiguity in the ability of care providers to recognize conventional signs or symptoms of pain or measure pain reliably (Oberlander et al., 2003).

It remains a relatively open question of whether and how pain among individuals with mental retardation is routinely detected and measured among health care and related providers. There is a growing interest in examining bias about pain in other populations and groups including studies of race and ethnicity (Bonham, 2001) gender and sex (Hoffman & Tarzian, 2001) and gender and race (Weisse, Sorum, & Domínguez, 2003). Overall, findings from this line of inquiry using vignettes of clinical pain scenarios suggest that physicians’ pain management decisions are influenced, in part, by patient demographic characteristics (e.g., less aggressive treatment decisions were made for black female patients versus black males and white male patients versus white females for treating kidney stone pain).

In the first work of its kind, Oberlander and O’Donnell (2001) conducted a qualitative survey on beliefs about pain among health-care professionals working with children with significant neurologic impairment and associated mental retardation. Results from their survey suggested that only 20% of the professionals believed that pain was adequately expressed and/or accurately located among children with mental retardation. Oberlander and O’Donnell also reported that more than two thirds (69%) of the professionals did not often or always perform an accurate assessment of pain even when they thought pain was present. These results suggest that pain in children with significant neurologic impairment is poorly communicated, located, and most likely inadequately treated.

There has been no similar line of inquiry among educational professionals in terms of their perceptions and ratings of pain among school-age children with mental retardation. Although direct decisions about pain and its management are outside the professional scope of teachers and allied education professionals (i.e., paraprofessionals, speech language pathologists, etc.), educators are often the initial frontline ‘detectors’ of health conditions and advocates for the students they serve. The purpose of this preliminary study was to examine teacher and allied educator perceptions and ratings of pain for children with and without mental retardation on numerical pain rating scales using written vignettes of three different pain types/sources (acute/procedural; accidental; chronic).

Method

Participants

Following Institutional Review Board approval, a convenience sample was formed with ninety-five students enrolled in a master of education program in a special education program recruited as initial participants. Seventy-six participants were female (80%). The average time spent in the field of education as a professional was 15 years (Range 1 – 30). In terms of professional categories, twenty-seven participants were pre-licensure prospective special education teachers (28%), twenty-six were licensed special education teachers (27%), nineteen were paraprofessionals (20%), six were regular education teachers (6%), four were early childhood teachers (4%), three were educational administrators (3%), one was a speech-language pathologist (1%), and nine were unknown (9%). All earned extra class credits for participating in this study.

Materials and Measures

Participants were provided with written vignettes describing scenarios of school-age children experiencing acute/procedural pain, accidental pain, and chronic pain. Each scenario presented a fictitious name of a child, gender, age, type of pain source, and description of pain the child experienced. To measure pain, participants rated each scenario by answering a question about whether the child was experiencing pain (yes/no) and rating the pain from 0 (no pain) to 10 (unbearable pain) on a numerical rating scale. The written vignettes of each type of pain were as follows.

Acute/procedural pain

Sam is a 10-year-old boy attending Lincoln Elementary School. Today is the school’s vaccination day. Sam does not like to get
needles and has to get vaccinated. In the line to see the school nurse, he appears very anxious, rocking back and forth on his feet. During the injection, Sam closes his eyes tightly, winces, and clenches his hands into fists. After the injection, Sam relaxes and the nurse tells him he was very brave and gives him a lollipop.

**Accidental pain**

Nancy is a 14-year-old girl at Washington Middle School. During a class change while walking down a hallway with a friend, Nancy was knocked down, lost her balance, and hit her face against the floor. Her face was red and bruised. She started crying, but stopped soon after, and she was helped up by her friend. They then walked to see the school nurse. The nurse did a routine examination to ensure that there were no serious consequences associated with the fall. The nurse called Nancy’s mother and father to tell them what had happened but that she was fine.

**Chronic pain**

Dan is a 17-year-old boy attending Jackson High School. He also suffers from juvenile arthritis in his wrists and hands. The pain in his hands has been coming and going for more than six months. When his arthritis flares up, Dan often winces, holds his breath, and stops what he is doing. When it passes, he resumes his ongoing activity. His parents have told the school nurse that they think that Dan is often uncomfortable and this arthritis limits his ability to interact with routine activities associated with home and school.

Half of the vignettes included diagnostic/functioning information of the child in the form of an additional second sentence that read ‘Sam/Nancy/Dan is nonverbal and functions in the severe range of mental retardation’.

**Procedure**

At the beginning of scheduled class time, packets of the vignettes were provided to participants in an alternating format to randomize diagnostic/functioning information. The packet consisted of a consent form, an instruction sheet, a practice pain vignette, and the three pain study vignettes. Each vignette consisted of a paragraph describing a child and a pain scenario. On the same page, directly below the scenario, was a question of whether the child had experienced any pain (yes/no) and below that was a numeric rating scale anchored with 0 (no pain) and 10 (unbearable pain) with a written instruction to rate the amount of pain experienced by the child if the child was in pain. After vignette distribution and to increase participant understanding of the procedure, the first author stood at the front of the classroom and read aloud the example scenario to participants and asked them to answer the question about the presence/absence of pain by circling yes or no and then to rate the pain that the child experienced on the numeric rating scale. Any questions about procedure were answered. Participants were then asked to independently read the vignettes and complete the activity.

**Design and Analysis**

This study used an experimental design with the presence/absence of diagnostic/function al information of mental retardation manipulated through written vignettes. Distribution of packets of vignettes was randomized. Descriptive analyses were used to characterize the responses between groups with and without diagnostic/function al information of mental retardation (MR) and across pain types. T-tests were used to examine differences in pain rating between diagnostic/function al label (MR, non MR) and pain types/sources (acute/procedural, accidental, chronic) for each vignette. T-tests were also used to compare ratings by pre-service and already licensed special education teachers.

**Results**

There were no significant between group differences (MR, non MR) by pain type (acute/procedural, accidental, chronic) for the initial rating of the presence or absence of pain for each vignette. Across raters, 92% indicated the child experienced pain for the acute/procedural pain vignette; 99% indicated the child experienced pain for the accidental pain vignette; and 97% indicated the child experi-
enced pain for the chronic pain vignette. There were no significant between group (MR, non MR) rating differences for pain intensity for each pain type (acute/procedural, accidental, and chronic) (Table 1).

To test the face validity of the vignettes (i.e., whether pain type/source was rated differently), paired t-tests were used to test overall differences in average pain rating across the three pain types, independent of diagnostic information. Participants reliably rated pain differently with significant differences for pain types; acute/procedural pain, accidental pain, and chronic pain (Table 2).

To test for specific differences in ratings by teachers, analyses were conducted to examine relations between pain ratings for participants with special education teaching licenses (N=26) and prospective special education teachers (N = 27). There was a significant difference in pain ratings for acute/procedural pain between licensed special education teachers (M = 3.92) and pre-licensure special education teachers (M = 2.33), $t = 3.59$, $p =.02$, independent of diagnostic/functional status of the child.

Results did, however, indicate that pain was rated differently by the type/source of pain. This finding suggests at least some degree of face validity that the different vignettes as written contained enough information specific to different types/sources of pain and that raters made this discrimination (chronic pain rated > accidental pain rated > acute/procedural pain). This may also suggest that information about types/sources of pain in written vignettes was more powerful than the written description of the presence of mental retardation.

Secondary analyses specific to special education teachers revealed significant differences between licensed and pre-licensure special educators ratings of acute/procedural pain suggesting that special education teachers may be more sensitive to (i.e., better ‘detectors’ of) the possibility of pain in school-aged children under acute or procedural circumstances. Although this might be an expected outcome and seems consistent with conventional wisdom (i.e., more experience, more sensitive), the effect could certainly go the other way (i.e., more experience, less sensitive). Thus, further investigation is required for this notion be more fully substantiated.

Although emerging findings from other similar lines of work suggest health care professionals (i.e. physicians) may be influenced by race and ethnicity (Bonham, 2001), gender (Hoffman & Tarzian, 2001), and gender and race (Weisse et al., 2003) in their judgment of pain, the findings from this study suggest that mental retardation did not similarly influence.

**Discussion**

This preliminary study was designed to examine whether education professionals rated pain differently for school-age children with and without mental retardation for three different pain types/sources. Although the study was exploratory not confirmatory, the results did not provide any evidence of bias by educators toward children with mental retardation experiencing pain. In other words, the ratings of pain perception and intensity did not differ by the described diagnostic/functional status of the child.

### Table 1: Mean Ratings by Presence of Mental Retardation (MR) in Vignettes

<table>
<thead>
<tr>
<th>Vignette</th>
<th>MR</th>
<th>Non-MR</th>
<th>$t$ (93 df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vignette1</td>
<td>3.36</td>
<td>2.98</td>
<td>.98</td>
</tr>
<tr>
<td>Vignette2</td>
<td>4.78</td>
<td>4.55</td>
<td>.62</td>
</tr>
<tr>
<td>Vignette3</td>
<td>6.04</td>
<td>6.00</td>
<td>.11</td>
</tr>
</tbody>
</table>

Vignette 1 - Acute/procedural pain; Vignette 2 - Accidental pain; Vignette 3 - Chronic pain

### Table 2: Mean Differences in Pain Rating on Different Pain Types

<table>
<thead>
<tr>
<th>Pair</th>
<th>Mean Difference</th>
<th>SD</th>
<th>$t$ (93 df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vignette 1 &amp; 2</td>
<td>-1.50</td>
<td>2.15</td>
<td>-6.77*</td>
</tr>
<tr>
<td>Vignette 1 &amp; 3</td>
<td>-2.86</td>
<td>2.54</td>
<td>-10.91*</td>
</tr>
<tr>
<td>Vignette 2 &amp; 3</td>
<td>-1.36</td>
<td>2.20</td>
<td>-5.90*</td>
</tr>
</tbody>
</table>

Vignette 1 - Acute/procedural pain; Vignette 2 - Accidental pain; Vignette 3 - Chronic pain

* $p < .05$
education professionals judgments. Given the considerable heterogeneity of the study sample, however, and the single line manipulation of cognitive status, there may have been other factors overshadowing the ratings.

In terms of specific study limitations, there are several points worth making. The sample was one of convenience thus limiting the overall generality of the findings. There was considerable heterogeneity among the sample, which led to small cell sizes for some of the education professional categories thereby limiting the range of analyses possible. Although we were interested most directly in teachers and their ratings, future work could address sample heterogeneity by increasing the sample size and capitalize on the variability inherent in the heterogeneity. Although the written vignettes enabled participants to reliably rate pain differently across three pain types/sources, there is the possibility that using a different format for the vignettes (i.e., visual/video vs. written) may have led to different findings. Similarly, because each vignette differed on the child’s age and gender across pain conditions, this precluded comparing ratings across all conditions simultaneously and led to $t$-tests for each pain condition. Thus, it may be worth considering a next study that directly compares vignette format across raters using identical scales with comparable information.

Overall, it seems that further work investigating the influence of intellectual and functional status in relation to pain among school age children and the responses of educators...
may be warranted. It is an open question, for example, whether school-age children with more or less severe impairments may be rated differently for pain. Considering the role of teachers and paraprofessionals as ‘front line’ health detectors in addition to their other professional capacities, the issue and impact of pain in children with mental retardation and associated cognitive and communication impairments should be considered in educational contexts.

References


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