Are parents just treading water? The impact of participation in swim lessons on parents’ judgments of children’s drowning risk, swimming ability, and supervision needs

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Abstract

Drowning is a leading cause of child mortality globally. Strategies that have been suggested to reduce pediatric drowning risk include increased parental awareness of children’s swimming ability and drowning risk, improved adult supervision of child swimmers, and providing swim lessons to children. This study explored how parents’ beliefs relevant to children’s drowning risk, perception of children’s swimming ability, and judgments of supervision needs changed as children aged two through 5 years. Analyses of data from 10 weekly swim lessons suggest that parental accuracy in judging children’s swimming abilities remained relatively poor even though it improved from the beginning to the end of the swim lessons. Supervision needs were underestimated and did not vary with program or change over the course of swim lessons. Children’s ability to keep themselves from drowning was overestimated and did not change over lessons or vary with program; parents believed that children could save themselves from drowning by the age of 6.21 years. Parents who had experienced a close call for drowning showed greater awareness of children’s drowning risk and endorsed more watchful and proximal supervision. Results suggest that expanding learn-to-swim programs to include a parent-focused component that provides detailed tracking of swim skill development and delivers messaging targeting perceptions of children’s drowning risk and supervision needs may serve to maximize the drowning protection afforded by these programs. Delivering messaging in the form of ‘close-call’ drowning stories may prove especially effective to impact parents’ supervision practices in drowning risk situations.

1. Drowning injuries

Drowning is a leading cause of death and disability for children. Worldwide, drowning produces a higher rate of mortality than any other cause of injury in children less than 15 years of age (Peden and McGee, 2003). Young children under the age of five are at particular risk, suffering the highest drowning mortality rates worldwide (World Health Organization, 2003). In Canada, for example, between 1991 and 2000, 729 children under 14 years old drowned, and 50% of these incidents involved children aged 1–4 years (Canadian Red Cross, 2006; International Lifesaving Federation [ILS], 2007). Recent evidence suggests that rates may be increasing in some areas amongst children under 5 years. For example, an examination of drowning deaths occurring during the high risk summer months in 2010 in Ontario revealed a 260% increase in deaths amongst children under five compared to those reported in the preceding 2 years (Office of the Chief Coroner for Ontario, 2010). Often, toddler drowning occurs as a result of falling into open water, like pools or lakes (Browne et al., 2003; Quan and Cummings, 2003), or due to submersion in a bathtub at home (Brenner et al., 2001; ILS, 2007). Given the variety of locations in which child drowning can occur, approaches to prevention are quite varied and include environmentally focused strategies that emphasize barriers such as pool fences to prevent children’s access to water hazards (Browne et al., 2003; Cody et al., 2004; Thompson and Rivara, 1998), as well as behavior-focused strategies.
that emphasize caregiver supervision and teaching children to swim.

1.1. Parent supervision and perception of children’s drowning risk

Multiple authorities recommend that children should be under constant adult supervision when near water hazards in order to prevent drowning (Committee on Injury, Violence, and Poison Prevention, and Weiss, 2010; Brenner and the Committee on Injury, Violence, and Poison Prevention, 2003; Committee on Sports Medicine and Fitness and Committee on Injury and Poison Prevention, 2000). Evidence suggests that parents are aware that implementing safety precautions like supervision can reduce children’s drowning risk (Morrongiello and Kiriakou, 2004). Moreover, parents report that staying close and watching their children constantly are the most important components of supervising in order to prevent drowning (Petras et al., 2011). When asked about their supervision practices, many parents believe that they provide close (Moran, 2009) and adequate supervision to prevent their child from drowning (Moran, 2010). Despite these self-perceptions, however, considerable evidence indicates that parental supervision practices are often insufficient to prevent childhood drowning.

Many children who drown or experience near drowning incidences are unsupervised at the time (Kemp and Sibert, 1992). A study conducted by the Canadian Red Cross (2003) found that nearly half of those aged five to 14 were unaccompanied by an adult at the time they drowned. A 10-year study of drowning deaths found that for 80% of children who drowned in bathtubs, the caregiver was outside of the bathroom and the children were either alone at the time or with only a minor (Canadian Red Cross, 2006). Similarly, Browne et al. (2003) found that the majority of children aged zero to four who drowned had a companion on site, but this person was not within view. These findings highlight that ‘not supervising’ (i.e., not present, not watching) is a risk factor for drowning.

Surprisingly, however, drowning deaths also have been found to occur when children are reportedly being supervised. A national study of childhood drowning in the United States revealed that 88% of children were presumably being supervised at the time they drowned, with 46% having a parent as their primary supervisor (Cody et al., 2004). Nonfatal drowning incidents have also been reported when children are supervised by caregivers (Ma et al., 2010), and even among those in the care of one or both parents (Blum and Shield, 2000). While it seems contradictory for a drowning to occur while children are being supervised, it is inadequate supervision (measured by both quality of watchful supervision and relative proximity of the adult) that is most commonly associated with dangerous submersions (Quan et al., 1989).

One reason parental supervision may be inadequate is that parents seem to underestimate the level of supervision they should be providing in drowning risk situations. For example, in a study of supervision of young children on beaches, Moran (2009) found that almost 25% of parents said that they would only watch from the sand, as opposed to being in the water with their child so they could immediately reach them if necessary. Of particular concern is that 64% of caregivers with children under the age of five who expressed this opinion rated their child as a weak or non-swimmer. Similarly, lax supervision practices have been endorsed by parents of children aged 5–9 years, with over 50% of caregivers also reporting that they would watch from the beach instead of staying close to the child in the water (Petras et al., 2011).

While many parents believe that they actively and adequately supervise when their child is near water, they also report that they simultaneously engage in other behaviors that would distract their attention from supervision, including talking to other people, reading, eating, and talking on the phone (Cody et al., 2004). Distraction seems to be a significant risk factor given that drowning deaths have been reported to occur when supervision is interrupted temporarily by house or yard work, answering the phone, or engaging in social activities (Blum and Shield, 2000). Browne et al. (2003) investigated the amount of time between when children aged zero to four drowned in residential pools and when the supervisor last saw the child, and they found that nearly half (43%) of these drownings occurred when the child was reportedly out of view for as little as five minutes or less. Further, drownings also occur during short lapses in supervision when children unexpectedly gain access to water without the parent knowing (Gipson, 2011), commonly through open and unlocked doors and gates (Shields et al., 2011). Thus, while parents may believe that they are appropriately supervising their children around water, they often engage in distracting behaviors or may momentarily lose track of their child’s whereabouts, which reduces their ability to supervise effectively and substantially increases children’s risk of drowning.

In addition to underestimating the level of supervision needed to prevent drowning and overestimating how actively they are supervising, parents also have been shown to underestimate children’s drowning risk. For example, research suggests that they do not judge children aged one to four as a high-risk group for drowning and, as such, they do not apply particular prevention strategies for children in this age group (Rahman et al., 2008). Further, parents have been found not to worry about their children drowning and to even believe that there are some situations in which children do not require adult supervision, including if the child can swim (Cody et al., 2004). These findings raise questions about the impact of having children in swimming lessons on parents’ perceptions of children’s drowning risk and need for supervision.

1.2. Swimming lessons and drowning

Although the question of how swimming lessons influence children’s actual drowning risk has been debated in the literature (Committee on Sports Medicine and Fitness and Committee on Injury and Poison Prevention, 2000; Langendorfer et al., 2009; Parker and Blanksby, 1997), evidence favors the view that swimming ability serves a protective function against drowning (Brenner et al., 2003, 2009). A national study of drowning victims in the United States, for example, found that most (74%) did not know how to swim (Cody et al., 2004). Similarly, the Canadian Red Cross (2003) found that over one third of those aged 5–14 who drowned did not know how to swim or had weak swimming ability. Compelling evidence for the protective role of swimming ability and lessons for young children comes also from a case–control study in which it was found that case children (those who had died from drowning) had rarely taken swim lessons (3% of the 61 cases ages 1–4), whereas matched controls were more likely to have had formal swim lessons in the past (26% of the 134 controls ages 1–4 years) (Brenner et al., 2009).

While being able to swim may protect children from drowning, some research suggests that participation in swim lessons may produce some undesirable effects on parents’ beliefs relevant to children’s drowning risk, notably that parents may develop overly optimistic views that children are not at risk of drowning if they participate in swimming lessons. For example, Moran and Stanley (2006) found that more than half of the parents surveyed thought that swimming lessons were the best way to prevent drowning in toddlers. Compared with parents whose children were not enrolled in swim lessons, more parents with children in lessons actually thought that toddlers could “learn to save themselves if they fell into the water” (Moran and Stanley, 2006, p. 141). Further, about one third of all parents (regardless of whether their child was...
enrolled in swim lessons) believed that teaching toddlers to swim was a better approach to prevent drowning than adult supervision.

1.3. The current study

Building on past findings, the current study explored whether parents’ beliefs relevant to children’s drowning risk and the need for supervision, as well as judgments about their child’s swimming ability, change after completion of a series of swim lessons. Parents of children two through five years of age who were enrolled in learn-to-swim programs were recruited and asked to complete questionnaires at two time points, once at the beginning and again at the end of their child’s sequence of approximately 10 swim lessons. At these same time points, each child’s swim instructor was asked to report independently on the child’s actual swimming ability using the same Swim Ability Checklist that the parent completed. Further, parents’ ratings were compared across two swim schools with comparable learn-to-swim curricula, except that one included a parent-focused component (designated as swim/parent program) in which parents regularly received a sheet detailing the child’s progress in swimming ability and what skills were not yet attained, whereas the other school did not (designated as swim/only program). Assessing for program differences in parents’ beliefs related to drowning risk, supervision needs, and judgments of their child’s swimming ability was expected to provide insight into the relative merits of including such a parent-focused component in learn-to-swim programs for children.

Three research questions were addressed in this short-term longitudinal study: (1) whether parents’ beliefs related to drowning risk and children’s need for supervision in drowning risk situations vary between programs and/or change over the course of lessons; (2) if the accuracy with which parents judge their own child’s swimming ability (relative to the child’s swim instructor’s report) varies between programs and/or changes over the course of lessons; and (3) whether parents’ familiarity with a close call for drowning to themselves or someone they know personally impacts their beliefs related to children’s drowning risk and supervision needs around water. Past research indicates that experience with injuries can alert parents to children’s need for supervision and risk of injury (Morrongiello et al., 2009a). Hence, we hypothesized that near drowning experiences might function similarly and lead parents to rate children’s drowning risk and supervision needs higher than parents who have never had a near drowning experience.

2. Method

2.1. Participants

Participants included mothers and fathers of children aged two through five who were enrolled in swimming lessons at two programs. The parent who attended lessons or was most familiar with their child’s swimming ability was asked to participate in this study. Descriptive information about the sample is presented under Section 3.

2.2. Materials

Parents completed a consent form, answered some general questions about swim lesson participation, and then completed three additional measures. Swim instructors also completed one measure.

2.3. Drowning Prevention Beliefs Questionnaire

Using a 7-point scale (1 = completely disagree, 7 = completely agree), parents indicated their extent of agreement with each of five statements about children’s ability to keep themselves safe and protected from drowning (e.g., Children at this age know not to go near water if they cannot keep themselves safe; Children are good judges of their swimming abilities at this age). Internal consistency for this scale was .71.

2.4. Supervision Needs in Outdoor Drowning Risk Situations Questionnaire

Using a 3-point scale (1 = being immediately near the child and watching constantly, 2 = being nearby and watching intermittently, e.g., reading a book and looking up frequently, 3 = listening from a distance and visually checking on the child occasionally), parents indicated what level of supervision they would provide their child in 20 common outdoor water situations that posed a risk for child drowning (e.g., in-ground pool that has a shallow end that slopes to a deep end, lake, beachfront) under different social conditions (e.g., playing alone, with friends). Internal consistency was .92.

2.5. Swim Ability Checklist

The checklist comprised 26 items and was presented independently to both the child’s swim instructor and his/her parent. For each skill listed, the respondent indicated whether the child could perform the action (e.g., tread water for 20 s, float on back). These skills were selected because they were explicitly taught as part of the learn-to-swim program for children aged two through five.

2.6. Procedure

After obtaining approval from the University of Guelph Ethics Review Board, the aquatics directors at the two swim schools were recruited and items for the Swim Ability Checklist were determined. Parents of children aged two through five who were enrolled in swimming lessons were invited to participate by mailing an information letter to parents before the first class and handing out information letters at the first few classes. Those who agreed to participate completed the measures before the end of the third lesson (Time 1). Toward the end of the child’s swim lessons (after the next-to-last class and before the last class), re-consent was obtained and the measures were repeated (Time 2). Parents had the option of completing questionnaire measures online or on paper. At the same two time points that parents completed questionnaires, the swim instructors independently completed the Swim Ability Checklist to rate each child’s swim ability. All measures were completed during the fall swim lesson period in 2011. Parents received a five-dollar gift card at Time 1 and Time 2, and swim instructors received fifteen dollars in cash or as a gift card at both time points as compensation for participating.

2.7. Analytic approach

Dependent variables were examined for violations in normality and if the distribution of this data was markedly skewed, these non-normal dependent variables were transformed using square root transformations (Howell, 2007). When conducting analysis of variance (ANOVA) on the transformed scores, evaluations were performed to ensure that the residuals of the transformed scores also were normally distributed. If results are based on transformed values, means and standard deviations are reported using raw data to ease interpretation. All analyses presented herein are based on raw (i.e., non-transformed) data unless otherwise noted. Outliers were identified based on standardized Cook’s distance and participants with the greatest Cook’s distance values were removed one by one (minimum value for being removed was 3.3), with analyses being re-run each time a new outlier was removed (Howell, 2007).
It should also be noted that due to attrition over time, the number of participants, and therefore the degrees of freedom, varies somewhat when time is included as a variable in the analyses.

2.8. Variables computed

Seven variables were computed, including: (1) Value of swimming lessons, which was based on the percent of parents who endorsed one of two response options (“swim lessons are a life skill” versus “swim lessons are a recreation or leisure activity/sport”); (2) Best age to teach children to swim, which was the average age parents indicated; (3) Age at which children can keep themselves from drowning, which was the average age parents indicated; (4) Drowning Prevention Beliefs score, which was based on averaging parents’ responses for the items comprising this questionnaire and was computed at Time 1 and Time 2, with higher scores indicating greater endorsement of the belief that children could secure their own safety and prevent drowning; (5) Perception of Supervision Needs, which was based on averaging parents’ responses for the items comprising this questionnaire and was computed at Time 1 and Time 2, with lower numbers indicating more intensive supervision; (6) Children’s swim ability, which was computed as the percent of 26 items on the Swim Ability Checklist that instructors rated children as being able to perform and was calculated for Time 1 and Time 2; and (7) Percent of parent errors in rating their child’s swim ability, which was determined by computing the percentage of items on the Swim Ability Checklist that parents judged incorrectly, relative to the instructor’s ratings of the child’s swimming ability, and was computed for Time 1 and Time 2, with higher scores indicating poorer accuracy.

3. Results

3.1. Sample demographics

Table 1 provides demographic information for each swim program separately, for both Time 1 and Time 2. As shown, a total of 387 parents (84.5% mothers, 15.5% fathers) of children aged two through five (M = 4.18 years, SD = 1.15) completed the questionnaire measures at Time 1, with approximately equal numbers of parents having a son versus daughter in swim lessons. Sixty-one participants (16%) had children enrolled in swim/parent classes, and 326 (84%) had children enrolled in swim/only classes. The overall consent rate at Time 1 was approximately 23%, including 25% at the swim/parent program and 21% at the swim/only program. The majority of participants were Caucasian (93% total), had at least some university or college experience (92%), a household income of at least $60,000 (87%), and were in two-parent households (93%).

A total of 301 parents participated at Time 2, including 45 from the swim/parent program (15%) and 256 (85%) from swim/only program. Relevant demographic characteristics of the 86 parents who discontinued participation after Time 1 were examined and there were no significant statistical differences in demographics between these parents and those who participated at Time 2.

3.2. What are parents’ general beliefs about children learning to swim?

At Time 1, parents were asked a number of general questions about children learning to swim. Results indicate that parents value children learning to swim, with 96% of them judging swimming to be a life skill rather than a recreational or leisure activity. Parents felt that the best age for children to be taught how to swim is before the age of two (M = 1.83 years, SD = 1.19), and there were no differences between ratings amongst parents at the swim/parent (M = 1.87, SD = 1.17) and swim/only (M = 1.82, SD = 1.20). Parents also believed that children would be able to keep themselves from drowning by the age of 6 years (M = 6.21 years, SD = 1.99), with no differences between ratings amongst swim/parent (M = 6.08, SD = 2.06) and swim/only groups (M = 6.23, SD = 1.98).

3.2.1. Changes in parents beliefs related to drowning prevention and supervision needs as children progress through swimming lessons

Table 2 provides a summary of the ratings for the variables of interest for each swim program separately, at both Time 1 and Time 2. To examine whether parents’ beliefs relevant to children preventing themselves from drowning changed as their children progressed through swim lessons, and if this varied with swim program, a repeated-measures ANOVA was conducted using Program (2: swim/parent, swim/only) as the between-participants factor, Time as the within-participants factor (2: Time 1, Time 2), and the Drowning Prevention Beliefs score as the dependent measure. Results revealed no differences between swim program and/or changes in these beliefs over time in either program.

To examine whether parents’ perceptions of children’s supervision needs in drowning risk situations differed between programs or changed over time, a repeated-measures ANOVA was conducted, with Program (2) as the between-participants factor and Time (2) as the within-participants factor. Analyses were conducted on the averaged supervision score after a square root transformation was performed. There was a main effect of Program F(1,296) = 7.96,
p < .01, $\eta^2_p = .13$. Parents of children in the swim/only program reported closer supervisory practices compared to those in the swim/parent program ($M = 1.40$ and $SD = 0.30$ and $0.34$, respectively). There was no significant change over time in judging children’s supervision needs in drowning risk situations.

### 3.2.2. Are parents accurate judges of their children’s swim ability?

As shown in Table 2, overall, instructors rated children as being able to perform $61.40\%$ ($SD = 22.83\%$) of the $26$ swim skills at Time 1, and $71.55\%$ ($SD = 22.03\%$) at Time 2. Instructors rated children in the swim/parent program as showing significant improvements over time ($F(1,19) = 5.43, p < .05; M = 74.81, 78.08, SD = 22.75, 21.83$, for Time 1 and 2, respectively), and they did similarly for children in the swim/only program ($F(1,324) = 120.41, p < .01; M = 60.26, 71.00, SD = 22.52, 22.33$, for Time 1 and 2, respectively).

To investigate whether there were differences in the percentage of errors made by parents across program and/or over time, a repeated-measures ANOVA was conducted using Program (2) as the between-participants factor and Time (2) as the within-participants factor, with data square root transformed. Results revealed a main effect of Time $F(1,205) = 4.45, p < .05, \eta^2_p = .02$. Parents made more errors in judging their child’s swim ability at the beginning of swim lessons (Time 1) than they did at the end (Time 2) of lessons ($M = 18\%$ and $15\%, SD = 11\%$ and $12\%$, respectively). There also was a main effect of Program, $F(1,205) = 6.07, p < .05, \eta^2_p = .03$. Parents in the swim/only program made more errors than those in the swim/parent program ($M = 20\%$ and $13\%, SD = 12\%$ and $8\%$, respectively).

### 3.2.3. Does experiencing a close call for drowning sensitize parents to children’s drowning risk and supervision needs near water?

Overall, $39\%$ of parents reported having an experience with a close call for drowning, including $38\%$ of swim/parent and $39\%$ of swim/only parents. To test whether having a life experience related to drowning impacts parents’ beliefs relevant to children’s drowning risk or their judgments about children’s supervision needs, a repeated-measures ANOVA using life experience (2: did experience a close call for drowning, did not) as a between-participants factor and Time (2) as the within-participants factor was conducted separately on both the Drowning Prevention Beliefs score and Supervision Needs scores (square root transformed).

Table 3 shows Drowning Prevention Beliefs and Supervision Needs scores for close call and no close call groups, at Time 1 and Time 2. Results revealed that parents who had experienced a close call scored lower on Drowning Prevention Beliefs compared to those who had not experienced a close call ($M = 2.60$ and $2.80, SD = 0.79$ and $0.92$, respectively) $F(1,292) = 3.70, p < .05, \eta^2_p = .01$. Similarly, analyses of the Supervision Needs scores revealed a main effect of Group $F(1,292) = 4.23, p = .05, \eta^2_p = .01$. Those who had experienced a close call for drowning were more vigilant and endorsed more watchful and proximal supervision than parents who had no experience with a near drowning ($M = 1.36$ and $1.44, SD = .25$ and $.32$, respectively).

### 4. Discussion

Epidemiological data indicate that children comprise a high-risk group for drowning (World Health Organization, 2003). Having children learn to swim may be an effective strategy to reduce risk (Brenner et al., 2009). Although participating in swim lessons can positively impact children’s swimming ability, how participation impacts parents’ beliefs relevant to children’s drowning risk and the need for supervision has not previously been considered and was examined herein. The current findings reveal a number of changes that occur over the course of 10 swim lessons, and highlight how a parent’s own experience of a close call for drowning might positively impact his/her perceptions of children’s drowning risk and supervision needs. Including a parent-focused component as part of children’s learn-to-swim program was associated with both positive and worrisome effects, which suggests that changes to this component are warranted, as discussed below.

In the current study, parents had the mistaken belief that children would have sufficient swim skills to prevent drowning by 6 years of age; unfortunately, based on the swim program offered, this is not likely to be the case. Past findings reveal that some parents even think toddlers are capable of saving themselves if they fall into water over their head (Moran and Stanley, 2006), and that children as young as 6 years can take a bath by themselves and without adult supervision (Porter et al., 2007). Hence,

### Table 2

Summary data showing the Mean (SD) for key variables for each swim program (swim/parent, swim/only) at Time 1 (i.e., onset of weekly swim lessons program) and Time 2 about 10 weeks later.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Swim/parent</th>
<th>Swim/only</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
<td>Time 1</td>
</tr>
<tr>
<td>Drowning prevention beliefs*</td>
<td>2.80(0.88)</td>
<td>2.87(1.05)</td>
<td>2.69(0.96)</td>
</tr>
<tr>
<td>Supervision needs*</td>
<td>1.55(0.36)</td>
<td>1.53(0.39)</td>
<td>1.38(0.33)</td>
</tr>
<tr>
<td>Instructor: swim ability*</td>
<td>74.81(22.75)</td>
<td>78.08(21.83)</td>
<td>60.26(22.52)</td>
</tr>
<tr>
<td>Parent error: swim ability*</td>
<td>15.8(8)</td>
<td>11.8(8)</td>
<td>21.14(8)</td>
</tr>
</tbody>
</table>

* Scores can range between 1 and 7, with higher scores indicating greater belief that children can keep themselves from drowning. No significant effects emerged.

### Table 3

Summary data showing the Mean (SD) for key variables for parents who did and did not experience a close call for drowning, at Time 1 (i.e., onset of weekly swim lessons program) and Time 2 about 10 weeks later.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Close call</th>
<th>No close call</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
</tr>
<tr>
<td>Drowning prevention beliefs*</td>
<td>2.56(0.84)</td>
<td>2.65(0.92)</td>
</tr>
<tr>
<td>Supervision needs*</td>
<td>1.35(0.27)</td>
<td>1.37(0.29)</td>
</tr>
</tbody>
</table>

* Scores can range between 1 and 7, with higher scores indicating greater belief that children can keep themselves from drowning. No significant effects emerged.

* Scores can range between 1 and 3, with lower scores indicating more watchful and proximal supervision. There was a main effect of close call group.
several sources of evidence suggest that parents have unrealistic expectations about young children's ability to keep themselves from drowning (Rahman et al., 2008) and this is particularly the case if the child demonstrates some swimming ability (Cody et al., 2004).

Consistent with underestimating the age at which children can secure their own safety, parents in this study made significant errors in estimating their child's swimming abilities. Although there was improvement in estimation accuracy over swim lessons, the error rate was still nearly 20% at the end of the 10 lessons (i.e., they misjudged about five of 26 swim skills). This is a concern because misjudging their child's swimming ability is likely to lead also to misjudging the need to supervise carefully and to implement other injury prevention measures, which often predicts greater frequency of injuries to children (Morrowgiello and Kiriakou, 2004; Morrowgiello et al., 2004). Importantly, in the swim program that provided a parent-targeted component, parents made fewer errors and were able to more accurately judge their child's actual swim abilities. Hence, the addition of this type of component to learn-to-swim programs may prove beneficial to improve the accuracy of parents' appraisals of children's actual swimming abilities.

With regard to supervision, the current findings are consistent with past research indicating that parents generally underestimate the extent of supervision needed to ensure a child's safety near outside water (Moran, 2009; Petras et al., 2011). Parents did not consistently endorse constant watching and proximity (score of 1) as the level of supervision that young children need in the drowning-risk situations presented. Rather, they often endorsed more lax supervision practices that included intermittently watching from a beyond-reach distance. Endorsing lax supervision practices is even more of a concern when one considers that parents often overestimate the level of supervision they actually provide young children in drowning risk situations (Browne et al., 2003; Cody et al., 2004).

One worrisome consequence of the parent-targeted component was that these parents judged that their child needed less supervision near water than parents who did not have regular feedback and detailed tracking information showing their child's improvements in swim skills. It could be that this type of tracking led parents to be so aware of small increments in improved swimming that they became overly optimistic and developed a false sense of security in their child's ability and, as a result, came to believe that they do not need to supervise closely. It may be best, therefore, to combine the tracking program with materials that serve to enhance parents' beliefs about the importance of watchful and proximal supervision of children in drowning risk situations.

One approach that may positively influence parents' judgments of children's supervision needs is publicizing drowning and near-drowning stories involving children. In the current study, having had a close call for drowning resulted in parents endorsing better supervision practices as well as showing greater awareness of children's drowning risk. Past research also has shown that a previous experience with a child's injury can lead to increases in parental perceptions of risk, thereby 'sensitizing' parents to the potential for injury and motivating them to take greater precautions (Glik et al., 1991; Morrowgiello et al., 2009a). Interestingly, Laosee et al. (2011) found that a child's life-threatening submersion experience predicted strong swimming ability, presumably because the child developed excellent swim skills in response to the near-drowning experience and in order to prevent another such experience. Thus, just as someone may be motivated to prevent future near-drowning events by learning to swim, parents in the current study who had a close call for drowning may have been motivated to avoid similar situations for their child by being more vigilant supervisors and more cognizant of drowning risks.

One implication of these findings is that communicating to parents about children who have drowned could serve to create a 'teachable moment' (see Lawson and Flocke, 2009), resulting in increases in perceptions of children's vulnerability for drowning and improved parent supervision practices. Personal injury stories have been shown to be quite effective to positively impact parents' perceptions of their own children's vulnerability for injury and need for greater supervision (Morrowgiello et al., 2009b). Thus, assimilating these into a parent-focused component of children's learn-to-swim programs may produce the desired effect of increasing parents' perceptions of children's drowning risk and their commitment to proximal and watchful supervision at all times. Results of a recent systematic review of research on drowning prevention messages confirms that effective messaging about the value of supervision can be developed (Moran et al., 2011). Therefore, expanding children's learn-to-swim programs to comprise a parent-directed component that provides both frequent tracking of the child's specific swim skills (to improve the accuracy of parents' judgments of their child's swimming skills), as well as close-call or child drowning stories (to increase awareness of children's drowning risk and commitment to watchful and proximal supervision), may greatly enhance the ability of these learn-to-swim programs to reduce the risk of drowning for children at these young ages. Further, community wide dissemination of education materials, within swimming lesson programs, that promotes a more realistic appraisal of children's swim ability and that target parents' perceptions of the value of close supervision in drowning prevention may be particularly beneficial.

4.1. Limitations and directions for future research

Although the longitudinal nature of the current study provides several unique insights into important changes in parents' perceptions in response to their children accumulating swim lessons, there are some limitations and outstanding questions that merit consideration in designing future studies on this topic. First, the results may not be broadly generalizable because parents who have their children enrolled in swim lessons may hold different beliefs about drowning risk and supervision needs than parents who do not have their children enrolled in lessons. Second, while the sample size was fairly large (387 participants at Time 1), the overall consent rate was 28%. It is possible that those who selected to participate in this study were systematically different from those who declined in ways that are relevant to the outcomes measured (i.e., participating parents may be more involved in their child's lessons, which could impact accuracy in appraising their child's swimming skills, and, in turn supervision beliefs). Third, self-report measures were taken for supervision indices. Although studies have demonstrated the validity of self-report measures of supervision, including in a drowning risk context (Morrowgiello and House, 2004; Petras et al., 2011), there is always the possibility that what is reported does not correspond to how parents would actually supervise. Incorporating an observation component in future research could address issues of measurement validity. Finally, although this study examined changes over a 10 week period, extending this research to track over longer periods of swim lessons would provide greater insight into the nature and scope of changes in parent perceptions of drowning risk, children's swim ability, and supervision needs. One might expect greater changes in children's level of swimming across multiple lesson periods over time and, therefore, greater impact on parents' perceptions of children's drowning risk and need for supervision. Extending this research to assess for changes over a greater number of swim lessons is a logical next step and may reveal additional patterns in parental beliefs that have important implications for improving the design and scope of children's learn-to-swim programs.
5. Conclusions

The current study revealed several important findings related to parents’ perceptions of children’s swimming ability, supervision needs, and drowning risk. Parents with children enrolled in a swim program that provided regular and detailed feedback on their child’s progress in lessons were found to be more accurate judges of their child’s swimming skills compared to parents with children in a program that did not provide such feedback. However, the parents receiving program feedback also reported less vigilant supervision beliefs compared to parents in the program without feedback. While parents in both programs increased in accuracy over time when appraising their child’s swimming skills, the error rate was still over 15% at the end of the study. Further, parents who reported a close call for drowning demonstrated greater awareness of drowning risk and greater supervision needs of children near water. Together, these results have implications for children’s learn-to-swim programming. While a parent feedback component may be beneficial in promoting a realistic appraisal of their child’s swimming ability, it also appears important to provide parents with information about the value of supervision in preventing drowning to counter the possibility of them developing a false sense of security in their child’s ability to keep themselves from drowning. Given the findings that those with a near drowning experience had enhanced awareness of drowning risk and the need for close supervision, communicating information to parents using injury stories may be beneficial in targeting these beliefs.

References


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