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RESEARCH

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Swim Instructor Beliefs About Toddler and Preschool Swimming and Water Safety Education

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To study the teacher component of the parent-teacher-learner triad in preschool aquatics and explore compatibility of instructor messages with current drowning prevention beliefs, 133 preschool aquatics instructors were surveyed. Instructors with basic swim teacher accreditation and those with a preschool/infant instructor extension (“Extension”) were compared. More Extension instructors selected “safety” as an important outcome ($\chi^2 = 7.907$, $df = 3$, $p = 0.048$). Both instructor groups considered parental education important but Extension instructors held this view more strongly. Disturbingly, more Extension instructors disagreed that increased toddler confidence following lessons necessitates greater supervision around water ($\chi^2 = 4.141$, $df = 1$, $p = 0.042$). To avoid such messages, instructor education should place even greater emphasis on close and constant adult supervision and counter the misconception that early age lessons protect children from drowning

Keywords: Toddler drowning, drowning prevention, water safety education, aquatics instructors

Drowning is a major cause of injury death in children aged 1–4 years with an average global mortality of 7.4 per 100,000 (Taneja, Van Beeck, & Brenner, 2008). In the United States, drowning accounted for 27% of all unintentional injury deaths for this age group during 2000–2005, exceeding both pedestrian (15%) and motor vehicle incidents (13%; Borse et al., 2008). New Zealand and Australia are no exception to this phenomenon, reporting this group to have the highest drowning rates of any age group, with 4.8 and 6.9 deaths per 100,000 in Australia (Kreisfeld & Henley, 2008) and New Zealand (McDonald, Taylor, Carter, & Ward, 2005), respectively.

Nonfatal drowning incidents necessitating hospitalization are a further indication of the extent of the toddler drowning problem with 18, 14, and 8 discharges per 100,000 in Australia (Kreisfeld & Henley, 2008), the United States (Borse et

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al., 2008), and New Zealand (Injury Prevention Research Unit, 2010), respectively. Because of acquired brain injury in some incidents, nonfatal child drowning has the highest average lifetime economic impact of any type of childhood injury (Taneja et al., 2008). Consequently, toddler drowning prevention interventions are a priority issue in countries such as Australia and New Zealand, where risk of exposure is great because of an aquatic lifestyle and accessibility to water.

While some parents consider toddler aquatics education, in particular swimming lessons, a worthwhile strategy to protect their child from the risk of drowning, evidence to substantiate this approach is lacking (e.g., American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention, 2003; Asher, Rivara, Felix, Vance, & Dunne, 1995; Blanksby, Parker, Bradley, & Ong, 1995; Brenner, Saluja, & Smith, 2003; Brenner, Moran, Stallman, Gilchrist, & McVan, 2006; Weiss & Committee on Injury, Violence, and Poison Prevention, 2010). Some authors have argued that the benefits derived from toddler swimming lessons may be counterproductive because they may enhance toddler inquisitiveness around water (Barss, 1995; Brenner et al., 2003; Erbaugh, 1986), while others have suggested that it may make parents overly optimistic about their toddler's ability to save themselves from drowning (Moran & Stanley, 2006a, 2006b). The American Academy of Pediatrics (2000, 2003, 2010) considers that swimming lessons cannot be relied upon for drowning prevention among children aged less than 5 years and highlights the importance of the concept of "touch supervision" (e.g., American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention, 2003, p. 437). A recent study found some protective association between swimming lessons and a reduced incidence of child drowning among 1–4 year-olds (OR 0.12, 95% CI 0.01–0.97) but the investigators acknowledged that this estimate was imprecise as evidenced by the wide confidence intervals (Brenner et al., 2009). Yang et al. (2007) also suggested that swimming lessons may be protective, but Brenner et al. (2009) cautioned parents and caregivers who enroll their children in swimming lessons that lessons alone will not prevent drowning and that even proficient swimmers can drown, a claim recently supported by Hindmarch and Melbye (2011).

Moran and Stanley (2006b) claimed that swimming lessons should be associated with parent water safety education to offer greater protection to adventurous toddlers around water, and their follow-up study indicated a positive change in parental beliefs toward water safety supervision after a swim-school-based education intervention (Moran & Stanley, 2006a). In Australia, key water safety bodies support toddler aquatics programs for children aged 1 year and over, but emphasize that their role is for water familiarization and water awareness. They highlight that such classes should be enjoyable for children and their caregivers (Royal Life Saving Society Australia, RLSSA, 1995a; Ure, 1998). Anecdotal evidence, however, suggests entrenched beliefs among some swim instructors may promote the notion that preschool children can protect themselves solely through the acquisition of swimming skills. In contrast, Austswim (whose primary role is providing swim teacher education) stresses that "irrespective of their aquatic ability, infants and pre-schoolers are never safe around water and must be under constant *adult* supervision" (Ure, 1998). Similarly, the Royal Life Saving Society—Australia (RLSSA, Australia's key advocate for water safety) states "Parents and caregivers need to remember that a water familiarization program is not a substitute for constant supervision" (RLSSA, 1995a).

To consider childhood water safety education more comprehensively, the concept of parent-teacher-child water safety triad has been proposed, recognizing the significance of children, parents, and aquatics instructors in the acquisition of early childhood water safety skills and knowledge (Moran & Stanley, 2006c). While Moran and Stanley have published research that considers the parent aspect of this triad (Moran & Stanley, 2006a, 2006b), little is known about how aquatics instructors' beliefs and perceptions of child water safety impact on toddler drowning prevention. The purpose of this study was to investigate the teacher component of the parent-teacher-learner triad, exploring the beliefs of toddler aquatics instructors to establish whether the messages they provide parents and children are consistent with current drowning prevention beliefs.

Method

Participants

Toddler aquatics instructors were invited to complete a short survey that aimed to ascertain their beliefs about the process, benefits, and outcomes of toddler aquatics programs. All swim schools ($n = 111$) listed in the 2008 Melbourne telephone directory (Victoria, Australia) were contacted by telephone to determine whether they conducted toddler aquatics lessons. Thirty-five reported that they did, and these schools were invited to take part in the survey. For each venue, the swim school coordinator provided the forenames of their toddler aquatics instructors, and a package containing a letter of invitation addressed to individual teachers, a plain language information statement, a survey, and reply paid return envelope was sent to the coordinator for distribution to instructors who agreed to complete the survey. To enhance the response rate, phone calls were made to remind the coordinator to ask teachers to return the survey.

Questionnaire

The self-complete questionnaire, anticipated to require 15–20 min for completion, contained 11 questions. One question sought information on years of experience in instructing 2–4 year olds and another asked instructors to specify any formal accreditation in swimming instruction. Readers should note that in Australia, the Austswim Teacher of Swimming and Water Safety award (Austswim TSWS) is both highly regarded and by far the most recognized swim teacher qualification. Austswim also provides a preschool extension qualification that can be undertaken following successful completion of the Austswim TSWS award. Austswim encourages all swim schools to require their teachers of preschool children hold this award, the Austswim Teacher of Infant and Preschool Aquatics.

Four forced-response questions focused on instructor beliefs about the purpose of toddler lessons, requiring instructors to choose a single response from a range of possible answers. Two questions (eight statements) sought information on instructor attitudes on the role of toddler lessons and child water safety using a five point Likert scale: *strongly agree*, *agree*, *not sure*, *disagree*, and *strongly disagree*. The final three questions sought information on instructor knowledge of

the circumstances of toddler drowning and their knowledge of child Cardio- Pulmonary Resuscitation (CPR).

Data Analysis

All data were double entered into Microsoft Excel (2004) for data cleaning. Cleaned data were transferred to PASW Version 18 for analysis. Frequency tables were generated and Chi-square analyses were used to determine significant differences between groups. Where necessary due to small cell sizes, data were recoded, collapsing groups to enable meaningful analysis. The study, participation in which was anonymous and voluntary, was approved by the University Human Research and Ethics Committee (B07–038).

Results

A total of 377 surveys were sent to preschool swimming school instructors employed in 35 swim schools in Melbourne and 133 were returned (35% response rate).

Professional Training and Experience

Most instructors (93%) reported that they were holders of the Austswim TSWS Award. In addition, 38% also held the Austswim preschool extension qualification. Almost two thirds (62%) had been teaching toddlers for 1–5 years, 13% reported 6–10 years of experience, 20% had more than 10 years, while the remaining 5% had less than one year of involvement in toddlers' aquatics. Most instructors (97%) considered that they were capable of performing CPR on a young child, although less than half (47%) correctly recalled the meaning of the acronym A-B-C (Airway-Breathing-Circulation), which at the time of the study, was used in CPR instruction. Only three-quarters (78%) correctly recalled the chest compression-to-breath ratio of 30:2.

Instructor Understanding of Toddler Aquatic Instruction

Fifty percent of those surveyed considered that less than 2 years was the best age to teach children to swim and a further 41% reported that 2–3 years was the preferred age. Only 9% deemed 4 years or older to be the most appropriate age for swimming instruction. Chi-squared analysis indicated no difference in these findings when comparing instructors who held the Austswim preschool extension with those who only held the Austswim TSWS Award.

“Safety” was considered by 61.5% of instructors as the most important reason for enrolling a toddler in lessons, while “learning to swim” or “being confident in the water” was most important for 22.3% of instructors. This response did not vary based on qualifications held ($\chi^2 = 3.882$, $df = 3$, $p = 0.275$). For the most important achievement following lessons, “safety” was again the most common response (53.8%), followed by “enjoyment and confidence in the water” (26.3%). Chi-square analysis indicated that instructors with the preschool extension were significantly more likely to select “safety” ($\chi^2 = 7.907$, $df = 3$, $p = 0.048$).

Instructor Attitudes

Table 1 shows the results for attitude questions relating to the role of the toddler aquatics instructor. For each of these questions, Chi-square analysis found significant differences between the responses of instructors with the preschool extension and those without. Participants who had undertaken the extension qualification were more likely to indicate that it was their role to educate parents ($\chi^2 = 14.899$, $df = 2$, $p = 0.001$), that this was possible during in-water lessons ($\chi^2 = 11.400$, $df = 2$, $p = 0.003$), and that teaching toddlers rules is not better than teaching the parent ($\chi^2 = 12.424$, $df = 2$, $p = 0.002$). There was no significant difference in opinions regarding the responsibility of swim schools to teach parents how to look after their children ($\chi^2 = 4.822$, $df = 2$, $p = 0.090$).

Instructor Attitudes Toward Toddler Drowning

Table 2 provides the results for the questions related to instructor attitudes toward toddler drowning. Unlike the previous question, holders of the preschool extension only differed in their attitudes to toddler drowning for one question. Those with the extension qualification were more likely to disagree/strongly disagree that increased toddler confidence after swim lessons requires greater adult supervision around water ($\chi^2 = 4.141$, $df = 1$, $p = 0.042$).

Most swim instructors (85.5%) were able to identify that swimming pools on family/friend's property were the most common site for toddler drowning. This finding did not vary with qualifications. Most participants (84%) also recognized that the most important step a parent could take to prevent a toddler drowning was to provide constant adult supervision around the water. There was no difference in this finding based on qualifications.

Discussion

The RLSSA, Australia's key advocate for water safety, recommends that all teachers who conduct "formal aquatic programs for children aged 1-4 years hold the Austswim TSWS Award and pre-school extension or Specialist Certificate or equivalent" (RLSSA, 1995b, p.1). The Austswim preschool extension focuses on aspects specific to the younger age group, and in particular, on the importance of educating the parents as well as the child. This study showed that in Melbourne, most instructors of toddler aquatics (98%) were Austswim accredited, but only 38% had also completed the preschool extension. While it is encouraging that virtually all instructors held some accreditation, it is disappointing that such a high proportion (62%) of instructors of preschool aged children did not hold the recommended extension.

Almost all instructors were confident that they could perform CPR on a child in an emergency, but more than 20% did not provide the correct compression-to-breaths ratio. A similar lack of knowledge of current CPR protocols, along with high levels of anxiety about the ability to perform child CPR, have recently been reported among toddler parents (Moran & Stanley, 2011). Despite AUSTSWIM accreditation requiring annual CPR reaccreditation, swim schools would be prudent to provide CPR updates for their instructors. This study did not ask participants whether their CPR certification was current.

Table 1 Instructor Opinions Regarding Their Roles as a Toddler Aquatics Instructor

	Strongly Agree/Agree %			Not Sure %			Strongly Disagree/Disagree %		
	All	TSWS	Extension	All	TSWS	Extension	All	TSWS	Extension
It is not the instructor's job to educate toddler parents about child water safety.	23.6	32.0	9.3	7.1	10.7	0	69.3	57.3	90.7
It is too difficult to both instruct toddlers and teach parents about safety during in-water lessons.	18.9	24.7	6.5	5.3	7.8	0	75.8	67.6	93.5
Swim schools are not responsible for teaching parents how to look after their children.	39.4	46.0	27.9	10.2	11.8	9.3	50.4	42.1	62.8
It is better to teach toddlers safety rules rather than teach the parent.	24.4	29.0	14.0	11.8	18.4	2.3	63.8	52.6	83.7

Key: All—combined percentages for both groups of instructors

TSWS—% instructors with Teaching of Swimming and Water Safety qualification only

Extension—% instructors with both TSWS (prerequisite) and preschool extension

* indicates a significant difference $p < .05$

Table 2 Instructor Opinions on Toddler Drowning

	Strongly Agree/Agree %			Not Sure %			Strongly Disagree/Disagree %		
	All	TSWS	Extension	All	TSWS	Extension	All	TSWS	Extension
Toddlers drown because they haven't learned to swim.	38.0	32.9	43.2	4.7	6.6	2.3	57.3	60.5	54.5
Increased toddler confidence after swim lessons requires greater adult supervision around water.	67.2	72.4	60.8	9.1	10.5	4.3	23.7	17.1	34.8 *
Swimming lessons are the best way to prevent your toddler from drowning.	50.0	51.3	41.9	10.2	13.2	7.0	39.8	35.5	51.2
It is better to develop the toddler's swimming ability than rely on adult supervision to prevent drowning.	31.0	36.7	23.3	2.3	1.3	4.7	66.7	62.2	72.1

Key: All—combined percentages for both groups of instructors

TSWS—% instructors with Teaching of Swimming and Water Safety qualification only

Extension—% instructors with both TSWS (prerequisite) and preschool extension

* indicates a significant difference $p < .05$

No “best age” has been established for children to learn swimming skills and controversy exists over this issue. Some bodies encourage parents to introduce their children to swimming lessons while they are still preschoolers (Canadian Red Cross, 2011; Swim Australia, 2011) but research to date indicates that the development of formal swimming strokes in children typically does not occur until after the age of five years, even for children who commence aquatics programs at a much younger age (Blanksby et al., 1995; Erbaugh, 1986; Parker & Blanksby, 1997; Williamson, Irvine, & Sadural, 2002). Despite this relative paucity of empirical data, many parents take heed of those who encourage early lessons, and a large proportion of these believe that “the earlier children learn to swim the safer they will be” (Moran & Stanley, 2006a, p.140), indicating confusion between learning skills and being safe in the water. The American Academy of Pediatrics (2010) recommends that parents consider factors such as frequency of exposure to water, potential health concerns, emotional maturity and physical limitations when deciding at what age their child should commence water survival skills or swimming lessons. The AAP states “. . . it must be stressed that even advanced swimming skills will not always prevent drowning and that swimming lessons must be considered only within the context of multilayered protection with effective pool barriers and constant, capable supervision” (p. e259).

It is of concern, therefore, that instructors indicated that the most important reason for toddler lessons and the most important achievement following lessons both related to safety. Key Australian water safety advocates such as RLSSA and Austswim do not focus on safety as an outcome of preschool aquatics. Indeed, they highlight the importance of constant supervision of children around water (AUSTSWIM, 2008; RLSSA, 1995a). A recent analysis of 353 Australian child fatal drowning cases using data extracted from the National Coroners Information System further reinforced the importance of sound supervision. The analysis found that supervision was identified as a contributing factor to 68.8% of cases, but may have contributed to as many as 85.3% of child drownings (Petross, Blitvich, & Finch, 2011).

The findings of the current study suggest that instructors may be perpetuating the mistaken belief that participation in preschool aquatics classes can make young children safe around water. Disturbingly, instructors with the preschool extension qualification were more likely to stress safety as an outcome than their less qualified counterparts, even though the preschool extension course does not make this claim. It is possible that respondents were influenced by social desirability when they selected “safety” in response to these questions. Nevertheless, even if this is the case, it is likely that they would respond in the manner they considered socially desirable when asked the same question by parents of young children. Instructors and swim school operators must take care to ensure that parents do not receive this message, but rather that the need for close and constant supervision is always emphasized. A further possibility is that some instructors who select to pursue the preschool extension hold a strong personal belief that skills developed in early age aquatic education indeed can make children safe, and despite the content of the extension course to the contrary, this belief is maintained. This circumstance is quite problematic, and again swim schools should be vigilant to ensure that their instructors avoid such messages, focusing instead on reinforcing the need for supervision.

The preschool extension course places considerable emphasis on the importance of educating the parent/caregiver (Ure, 1998), and participants in this study with this qualification indicated that they readily accepted this role. This is an important difference between the fundamental Austswim TSWS course, which does not consider the role of educating parents, and the preschool extension which expects that, for toddlers, a parent or caregiver will actively participate with their child in the water. In this way, toddler aquatics lessons can be valuable in educating parents, as long as the information passed on by instructors is current and correct. Swim school managers would be prudent to ensure their instructors are up to date in their knowledge of toddler water safety.

While some instructor responses regarding the vital role of supervision in toddler drowning prevention were equivocal, most (84%) believed the single most important step that a parent can take to prevent a toddler drowning is to “provide constant adult supervision around water.” When considering swim instructors’ opinions relating to toddler drowning, many respondents placed emphasis on “nonsupervision” factors. More than one-third of instructors (38%) *agreed/strongly agreed* that toddlers drown because they haven’t learned to swim; 50% *agreed/strongly agreed* that swimming lessons are the best way to prevent toddlers from drowning; and 31% *agreed/strongly agreed* that it is better to develop the toddler’s swimming skills than rely on adult supervision to prevent drowning. Of further concern, almost one-third of participants did not acknowledge that participation in toddler swimming lessons could increase toddler confidence, resulting in the need for greater adult supervision around water. This was the only question related to opinions about toddler drowning for which there was a difference between those with the preschool extension and those without. It was alarming that significantly more instructors with the preschool extension *disagreed/strongly disagreed* that increased supervision was necessary (34% for those with the extension, and 18% for those without, respectively).

Key water safety bodies world-wide highlight the importance of caregiver supervision of children around water (e.g., Canadian Red Cross, 2011; National Drowning Prevention Alliance Education Committee, 2009; RLSSA, 2005). In Australia, RLSSA introduced the “Keep watch” campaign in 1995 (personal communication RLSSA, 10th July 2010) and has continued to emphasize the role of close and constant supervision since then. Messages such as “within arms reach” and “never take your eyes off them” are included in new water safety advertising each summer. Further promotion by instructors of the need for close and constant supervision of children by parents and caregivers around water is advised.

Limitations

While the results from this study provide information on the potential impact of instructor beliefs on toddler water safety, these results should be interpreted with some caution in light of several methodological limitations. First, the sample was confined to one large metropolitan city and may not be representative of all swimming schools teaching preschool aquatics. Second, reliance on telephone calls for initial contact and the use of answering machines by some schools may have limited the uptake of school involvement in the study. Third, because the study was related to child water safety, it is possible that participants responded with socially desirable

responses rather than truly held opinions. Finally, given the cross-sectional design, the associations observed in this study cannot be assumed to be either causal or predictive of toddler drowning risk. Further qualitative research via in-depth oral interviews may be useful in determining the influence of preschool swim instructors on toddler water safety.

Recommendations

Key water safety stakeholders, for example in Australia bodies such as RLSSA and Austswim, must continue to emphasize the importance of supervision in the prevention of child drowning. Despite many years of water safety and drowning prevention campaigns such as “Keep watch,” new ways must be found to present this information because the message has yet to reach some people and even aquatics instructors are underemphasizing the role of supervision. In Australia, Austswim and RLSSA already stress that the role of infant aquatics programs is for water familiarization and water awareness, but this message appears to be clouded in the minds of many instructors. This study shows that many instructors also consider that their lessons are providing a drowning prevention effect, by making children “safe in the water.” It would be prudent for Austswim and RLSSA to further address this issue in their water safety campaigns and within their instructor education programs. Swim schools also would be advised to ensure their instructors are aware of the importance of both close and constant adult supervision of children near water and the need to ensure this message is made known to parents/caregivers.

Conclusion

Supervision and water safety education are two important strategies in drowning prevention that can make a valuable contribution to the layers of protection supporting child drowning prevention (National Drowning Prevention Alliance Education Committee, 2009). Swim instructors are in a privileged position within the parent-child-teacher triad and in this role can educate both children and parents in drowning prevention as well as reinforce to parents the importance of close and constant supervision. Accordingly, it is vital to ensure that the messages instructors deliver are accurate and effective. Further investigation of toddler aquatics education using an integrated approach to consider the view point of parents and instructors will extend the understanding of the influence of toddler aquatics education as a drowning prevention strategy.

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