

2-1-2012

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Recommended Citation

Petrass, Lauren A. and Blitvich, Jennifer D. (2012) "The Nature of Caregiver Supervision of Young Children in Public Pools," *International Journal of Aquatic Research and Education*: Vol. 6: No. 1, Article 4.

DOI: <https://doi.org/10.25035/ijare.06.01.04>

Available at: <https://scholarworks.bgsu.edu/ijare/vol6/iss1/4>

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RESEARCH

International Journal of Aquatic Research and Education, 2012, 6, 11-23
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The Nature of Caregiver Supervision of Young Children in Public Pools

Lauren A. Petrass and Jennifer D. Blitvich

This study examined the level of caregiver supervision when children were engaged in active play at public pools. A six-hour unobtrusive observation period was conducted at six different indoor aquatic venues with caregivers accompanying children aged < 10 years eligible to be monitored. Child behavior, corresponding caregiver supervision, and the willingness of parents to intervene when children exhibited unsafe behaviors all were considered. Environmental factors and pool conditions were also recorded. Chi-square tests illustrated that increased supervision was associated with decreased incidents and lower risk behaviors. Supervision was significantly affected by child and caregiver age, number of children for whom caregivers were responsible, and child swimming ability. The nature of caregiver supervision in aquatic settings requires further investigation to enable the development of effective programs to address poor supervision practices.

Drowning represents the second leading cause of unintentional injury death for Australian children (Australian Institute of Health and Welfare, AIHW, 2009) and ranks among the top three leading causes of child death worldwide (Taneja, Van Beeck, & Brenner, 2008). In Australia, drowning rates are consistently highest in children aged under 5 years (Australian Water Safety Council, 2008; Royal Life Saving Society Australia, RLSSA, 2009, 2010), and for more than any other child age group, it is children aged 0–4 years that rely directly on others for their safety (National Public Health Partnership, NPHP, 2004).

Caregiver supervision and attentiveness take on increased importance when young children are in and around aquatic settings because of the augmented dangers and tragic consequences associated with aquatic incidents (Fisher & Balanda, 1997; RLSSA, 2004). Despite this, inadequate supervision, or lack thereof, has been implicated in almost all childhood drownings worldwide (Petrass, Blitvich, & Finch, 2011a; Ross, Elliott, Lam, & Cass, 2003; Simon, Tamura, & Colton, 2003). For Australian child drowning deaths, coronial reports have documented a lack of adult supervision to be the main contributing factor (Bugeja & Franklin, 2005; Petrass et al., 2011a).

A limitation of much of the contemporary aquatic literature, however, is the use of retrospective study designs to understand the circumstances and contributing

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factors in child drownings, particularly identifying the role of supervision (Bugeja & Franklin, 2005; Byard, Koning, Blackbourne, Nadeau, & Krous, 2001; Kemp, Mott, & Sibert, 1994). It is encouraging to realize that more recent studies have used prospective study designs and unobtrusively investigated the level of caregiver supervision when children are engaged in active beach play (Moran, 2009, 2010; Petrass, Blitvich, & Finch, 2011b). Still, little is known about the level of caregiver supervision when children are in public pools, a setting in Australia where paid lifeguards are omnipresent. With this in mind, the purpose of this study was to examine the level of caregiver supervision of young children in public pools and assess the willingness of parents to intervene when children exhibit behaviors that have the potential to lead to injury.

Method

This study used a naturalistic observation design. It has been noted in a systematic review of supervision studies (Petrass, Finch, & Blitvich, 2009) that the quality of natural observations is at the “more robust” end of the methodological scale to measure supervision behavior. When undertaken with minimal intrusion, influence, or disturbance on the participant’s behaviors, the naturalistic observed behavior is likely to reflect true supervisory behavior (McBurney & White, 2004).

Categorization of caregiver supervision for this study was based on the conceptual model of supervision developed by Saluja and colleagues (2004). This model has provided a sound framework for measuring supervision, with most contemporary supervision definitions both in the home and aquatic environments focusing on the dimensions identified in the model (Bugeja & Franklin, 2005; Morrongiello, Ondejko, & Littlejohn, 2004a; Petrass et al., 2011b). The model considers three dimensions: (a) visual and auditory attention, (b) proximity, and (c) continuity, with a combination of all three dimensions used to define supervisory behaviors (Saluja et al., 2004). Underpinning this model is the assumption that the level of supervision escalates as one or more of the supervision dimensions (i.e., continuity, proximity, and attention) increase. The following information describes the procedures for data collection and subsequent analysis. This study received approval from the University Human Research and Ethics Committee.

Sampling Procedure

Venue Selection. Public swimming pools were selected from the phone book and internet across metropolitan and regional Victoria. Selected venues were anticipated to have adequate patrons during the data collection period. Final selection was based on convenience, as observations took place after the warmest months of the year and, by necessity, occurred at venues providing access and high patronage during nonsummer months.

Permission to collect data was obtained from three metropolitan and three regional aquatic centers. The six aquatic venues provided access to a range of different swimming pools, including recreation, wave, toddler, hydrotherapy, and lap pools. Observations at each venue encompassed the water as well as the surrounding deck areas. Observation periods were always completed at recreation, wave, and/or toddler pools where the majority of children and corresponding caregivers

were positioned. Depending on the layout of the venues, it was often possible to observe a combination of both recreation and toddler pools.

Instrument. A set of three recording matrices were used at public pools to enable recording of caregiver supervisory behaviors, child behaviors, and associated environmental and pool factors. The matrices were developed following preliminary observations at swimming centers and were refined following data collection in a pilot project before the main study.

To enable objective recording of supervisory behaviors, the “caregiver supervision” matrix was designed around the conceptual model of supervision from Saluja et al. (2004). This matrix contained a cell for each of the recognized dimensions from the Saluja et al. model: attention visual (3 = watching child continuously, 2 = watching child intermittently, 1 = not watching child at all, 0 = unknown); attention auditory (2 = focal—able to hear child continuously, 1 = peripheral—able to hear child intermittently, 0 = unknown), proximity (4 = constant physical contact, 3 = within arm’s reach, 2 = beyond reach nearby ($\leq 5\text{m}$), 1 = beyond reach distant ($> 5\text{m}$), 0 = unknown) and continuity (3 = continuously focused on child, 2 = intermittently focused on child, 1 = absent, 0 = unknown). Other cells were designed to record the estimated age of the caregiver and to document the number of children for whom the caregiver was responsible, whether the caregiver intervened, and a description of the intervention (gesture body language, moved closer to the child, spoke briefly with child, verbal warning, spoke and removed child, no intervention, intervention not required, other). A separate cell enabled documentation of whether the lifeguard intervened and corresponding description of the intervention (using the same categories as the caregiver description).

The “child behavior” matrix included approximate age of the child, size of the group with whom the child was playing, and behavior displayed categorized into one of seven types of behavior: running on the deck, defined as having both feet of the ground simultaneously to move around pool; bombs near someone else in the water, defined as an entry with elbows and legs tucked toward the chest; inappropriate entry, defined as diving head first into shallow water; pushing people under the water, defined as pushing another person under in a nonaggressive, composed manner; aggressive acts, defined as physically hitting another person with hands or equipment or throwing equipment; general play, defined as acceptable, safe recreational activity; and other, defined as any behavior observed not encompassed in other categories. Child attitude to caregiver interventions (poor and nonresponsive, poor and responsive, accepting and responsive, positive and responsive, unknown), swimming ability (nonswimmer, weak swimmer, average swimmer, strong swimmer), and positioning in water (close to the edge $< 1\text{ m}$; midway from edge $\geq 1\text{ m}$ – 5 m ; far away from edge $> 5\text{ m}$), deep or shallow water were also recorded. In addition, if the lifeguard intervened, child attitude or response to lifeguard intervention was documented on the child behavior matrix, using the same categories as the child response to caregiver interventions.

The “environmental” matrix was completed at 30 min intervals. The researcher recorded the approximate number of patrons at the venue, the number and average age of lifeguards on duty, and any hazards in the environment (wet slippery floor, equipment, other). Water depth ($\leq 0.5\text{ m}$, > 0.5 – 1 m , $> 1\text{ m}$ – 1.5 m , $> 1.5\text{ m}$ – 2 m , $> 2\text{ m}$ – 2.5 m , other) and type of pools in the venue (flat, wave pool, pool with inflatable, pool party, other) were recorded at the start of the six hour observation period.

Participant Selection and Observations

Participants observed in the study were infants to 10-year-old children engaged in recreational play and the caregiver responsible for the child who was present at the venue throughout the observation period. All children who were estimated to be infants to 10-year-olds were eligible to be monitored along with their associated caregiver. A combination of lifeguarding scanning strategies were implemented to monitor patrons, including tracking (defined as tracking the progress of individuals who submerge and those who fit the high-risk profile, e.g., the lone child at the water's edge), grouping (defined as sorting clients into groups by age, gender, risk potential, activity), head counting (defined as counting the number of people in the area), and mental filing (defined as building patron profiles that take into account swimming ability, skill, activity and other relevant factors; RLSSA, 2001b).

Assessment of supervision was incident-focused (defined as any behavior that had the potential to lead to or result in the occurrence of an unintentional injury). Accordingly, assessments of supervision were not made in the absence of an incident. It had been planned where venues had low patronage or minimal incidents to continue observing until a minimum of 20 behavioral incidents had been observed. All venues had sufficient attendance so this was not required.

The data were collected during a single six-hour observation period spent at each venue. All data collection was conducted by the first author and followed a phase of pilot testing to ensure familiarity with the observation instrument and recording consistency. All of the observations were completed during school holiday periods or weekends throughout the school term to gain a representative sample of children's recreational play and caregiver supervision. Observations were conducted between 10:00 a.m. and 4:00 p.m. or 10:30 a.m. and 4:30 p.m. because, during pilot studies, these were judged to be the busiest times of the day. Throughout data collection periods, the researcher was positioned as unobtrusively as possible, but within clear view of the pool.

Statistical Analysis

All data were extracted from the observation sheets and manually entered into Microsoft Excel spreadsheets on two separate occasions to enable data cleaning. Cleaned data were transferred to SPSS for analysis.

The individual scores for each supervision dimension (i.e., attention visual, attention auditory, proximity, and continuity), as described in the methods, were combined to provide an overall supervision score for each of the recorded incidents. To improve the interpretation of results the overall supervision score was collapsed into five groups with categorical descriptors (excellent, good, sound, poor, absent) to represent the spread in the levels of supervision observed.

Five caregiver variables (approximate age of the supervisor, number of children for whom the supervisor was responsible, overall level of supervision, intervention [yes/no], and intervention description) were examined. The caregiver variables were then compared with three child-based variables, including approximate age, behavior displayed, and child swimming ability.

Frequencies and percentages were calculated to describe the patterns of supervisory practices and child behaviors. A series of Chi-square analyses involving caregiver and child variables were conducted to determine associations among

Pearson Chi-square value was significant, adjusted standardized residuals ($z > = \pm 1.96$) were used to determine significant differences between expected and observed counts within cross tabulations.

Results

A total of 715 incidents (defined as any behavior that had the potential to lead to or result in the occurrence of an unintentional injury) were recorded across the six aquatic venues. The frequency of aquatic incidents recorded within each caregiver age category varied, as illustrated in Table 1. Due to the low frequency of incidents ($n = 10$) in the 12–18 caregiver age category, however, this age group was excluded from the analysis which ensured that all variables met the assumptions concerning the minimum expected cell frequency required for Chi-square analysis.

An overall supervision score for each observed incident was calculated, with higher scores indicative of better supervision. Final supervision scores ranged from absent (overall supervision score of 1–5) to excellent (overall supervision score of 12) with a mean of 7.44 (see Figure 1). The effect of different caregiver and child variables on the nature of caregiver supervision is illustrated in Table 2.

Table 1 Frequency of Incidents Recorded Within Each Caregiver Age Category

Age Category	Frequency	Percent
12–18	10	1.4
19–25	33	4.6
26–32	329	46
> 32	343	48
Total	715	100

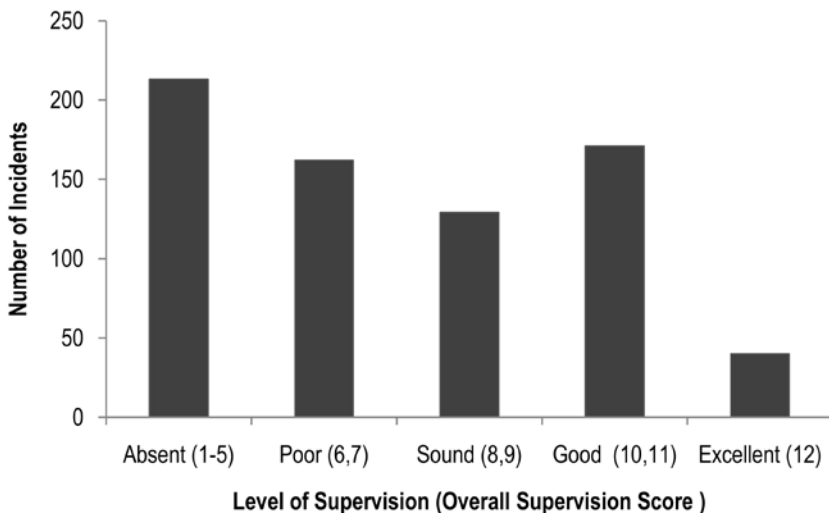


Figure 1 — Distribution of supervision scores derived from observation of 715 incidents in public pools.

Table 2 The Effect of Different Caregiver and Child Variables on the Nature of Caregiver Supervision

	No Supervision (%)	Poor Supervision (%)	Sound Supervision (%)	Good Supervision (%)	Excellent Supervision (%)
Number of incidents	29.8	22.7	19.1	22.6	5.8
Child behaviors					
Running	31.0	33.2	15.8	18.5	1.6
Inappropriate entry	58.1	16.1	14.5	11.3	0
Play fighting	50.0	25.9	13.0	11.1	0
General play	17.1	14.9	19.4	33.3	15.3
Other	28.4	23.0	25.7	20.8	2.2
Child age					
Preschool	14.6	20.9	21.4	33.2	9.9
School	46.0	24.6	16.7	11.1	1.5
Child swim ability					
Non swimmer	13.8	11.0	18.3	35.8	21.1
Weak swimmer	18.5	22.1	22.8	31.5	5.1
Competent swimmer	47.3	25.7	15.4	10.3	1.4
Unknown	23.1	42.3	23.1	11.5	0
Age of caregiver					
19–25	9.1	21.2	18.2	42.4	9.1
26–32	16.1	28.3	21.0	27.4	7.3
> 32	44.9	17.5	17.5	16.0	4.1
Number of children caregiver supervising					
1	5.9	19.8	19.8	39.6	14.9
2–3	25.5	24.8	21.2	23.6	5.0
4–5	29.4	21.6	17.6	25.5	5.9
≥ 6	61.7	18.8	12.8	5.3	1.5

A number of associations emerged among caregiver and child variables and the level of supervision. Results illustrated a significant relationship between children's exposure to injury risk as measured by behaviors and levels of caregiver supervision, $\chi^2(16) = 130.03$, $p < 0.01$. As the level of supervision increased, children were significantly less likely to be observed play fighting or performing inappropriate water entries while significantly more likely to be involved in general play or "other" activities (such as playing on inflatables, waterslides, or other features specific to the venue).

Supervisor age and the level of supervision were also significantly related, $\chi^2(8) = 80.63$, $p < 0.01$, indicating that young adult caregivers (19–25 and 26–32 age groups) were more likely to provide good supervision than to provide no supervision. For the over 32 age group, caregivers were significantly more likely to provide no supervision and less likely to provide either poor or good supervision. Not surprisingly, caregivers providing closer supervision were also significantly more likely to intervene when an incident occurred, $\chi^2(2) = 17.35$, $p < 0.01$, while caregivers providing no supervision (i.e., those aged older than 32 years) intervened significantly less.

The relationships among caregiver age, caregiver intervention, and child age were examined to account for the fact that older caregivers may be responsible for older children, where the requirement for continuous, direct supervision declines. No significant differences were found between caregiver age groups for preschool aged children, $\chi^2(2) = 1.39$, $p = 0.49$; however, significant differences were observed for school age children, $\chi^2(2) = 9.06$, $p < 0.01$. The 26–32 age supervisor group intervened significantly more than expected for school-aged children, while the older-than-32 age group intervened significantly less than expected for the same child age group.

As expected, a highly significant relationship was found between child age and level of supervision, $\chi^2(4) = 121.31$, $p < 0.01$, with preschool children significantly more likely to be provided with good and excellent supervision. School aged children were not closely supervised, with actual counts of no supervision significantly greater than expected.

Further analysis illustrated a significant relationship between swimming ability and level of supervision. Nonswimmers were significantly more likely to be provided with good and excellent levels of supervision, while weak swimmers were significantly more likely to receive average or good supervision, $\chi^2(12) = 162.40$, $p < 0.01$. Competent swimmers were supervised most poorly with a significantly greater number of caregivers providing no supervision.

The number of children for whom the caregiver was responsible was the final variable associated with the level of caregiver supervision. When caregivers were responsible for only one child, it was significantly more likely for the child to receive good or excellent supervision and significantly less likely to be unsupervised, $\chi^2(12) = 123.09$, $p < 0.01$. When caregivers were responsible for two or three children, significance only occurred for no supervision, and caregivers were significantly less likely to leave two or three children unsupervised. There were no significant differences between any categories when caregivers were responsible for four or five children, although the trend was that when caregivers were responsible for more children, decreased supervision was likely. Caregivers responsible for supervising

six or more children were significantly more likely to leave children unsupervised and significantly less likely to provide poor, average, or excellent supervision.

Discussion

Supervision is often an assumed method of injury prevention (Pollack-Nelson & Drago, 2002); however, previous studies have indicated that a number of factors affect the level of supervision caregivers provide to children (Kendrick et al., 2007; Morrongiello, Ondejko, & Littlejohn, 2004b; Petrass et al., 2011b). In public pools, the age of the child, the age of the caregiver, the number of children for whom the caregiver was responsible, and the swimming ability of the child affected the nature of supervision and often resulted in children being placed at increased risk of unintentional injury.

Overall, the current study found that a greater number of potential injury incidents occurred in public pools when children were unsupervised, compared with when an excellent level of supervision was provided. This finding agrees with a previous aquatic study that found rule violations by swimmers were lower when there were high ratios of caregivers to children (Harrell, 2001). Studies in the home have also identified similar trends, with constant supervision (defined as child within sight and within reach) associated with fewer injuries in comparison with intermittent (defined as intermittently checking or listening) or no supervision (> 5 mins without checking on the child; Morrongiello et al., 2004b). Not surprisingly, children were also found to be at reduced risk of potential injuries when subjected to a higher level of supervision. With higher levels of supervision, when incidents were observed, they frequently occurred during general play, but these incidents involved behaviors that were considered to be low risk activities or activities with less severe injury risk. Children who were unsupervised or poorly supervised, however, were frequently engaged in activities considered high risk. The identified high risk behaviors in this study were synonymous with the risky patron behaviors identified in a study that examined risk taking by swimming patrons (predominantly children; Schwebel, Simpson, & Lindsay, 2007), including running unsafely in the venue, pushing people under the water, aggressive acts, performing inappropriate entries, and jumping into the water near someone else.

Prior findings have suggested that child age affects the nature of caregiver supervision, with younger children monitored more closely (Pollack-Nelson & Drago, 2002). In this study, preschool children were highly supervised, possibly influenced by the recommendation by key water safety stakeholder RLSSA (2010) that children aged 0–4 years require close, constant, and focused supervision. For children aged 5–9 years, RLSSA recommends increasing distance but always within eyesight and ready for action (RLSSA, 2010). It is of concern, therefore, that a large number of school-aged children in aquatic venues were unsupervised when incidents occurred, thus indicating that some caregivers may be unaware or disregard RLSSA recommendations. Further, this finding illustrates that some caregivers appear to ignore facility requirements based on the *Guidelines for Safe Pool Operation* (RLSSA, 2001a), which state that children under 10 years should not be permitted entry to a facility unless under the active supervision of a person 16 years or older.

Caregiver age was also associated with the nature of supervision and the willingness of the caregiver to intervene when children exhibited behaviors that had the potential to lead to injury. Younger caregivers were found to supervise children more closely than older caregivers, and not surprisingly, caregivers who provided a higher level of supervision (greater levels of attention, proximity and continuity) were more likely to intervene as appropriate. While an observational study of caregiver child pairs in beach settings has also identified caregiver age as an independent factor associated with supervision (Petraass et al., 2011b), to date, no studies have examined the supervisory practice of caregivers of different ages. This information is crucial for understanding the relationship between supervision and the risk of drowning. The low contribution of incidents by children under the supervision of the youngest caregiver age group (12–18 years) was, however, positively associated with the concept of supervision. A study of supervision and child injury (Kendrick et al., 2007) found that children of younger parents were at an elevated risk of injury. Therefore, one would not expect or want individuals within this age group left with the responsibility of supervising siblings or young children in aquatic environments. The low frequency of incidents within this age group suggests that this is not occurring on a regular basis.

Findings indicated those caregivers responsible for larger numbers of children (six or more) provided poor or no supervision more frequently than caregivers who were responsible for fewer children. Other home supervision studies with young children have also found that a target child in families with a larger number of children to be alone and without parental supervision in other rooms of the home more frequently than in families with fewer children (Iltus, 1994). Parental delegation of supervision to older siblings and the idea that parents believe that older children will be around to look after younger children could partly explain the decreased level of supervision in the home (Iltus, 1994).

Recently, more research on sibling supervision in the home (Morrongiello, MacIsaac, & Klemencic, 2007; Morrongiello, Schell, & Schmidt, 2010; Morrongiello, Schmidt, & Schell, 2010) has begun to emerge. Morrongiello and colleagues (2007) found that older children used similar strategies as their parents when supervising younger siblings, although children who were supervised more by older siblings had a history of more minor and moderate injuries. Further research on siblings as supervisors extended this initial work using videotapes of young children engaging in different types of behavior in the home and directly comparing the supervision practices of mothers and siblings (Morrongiello, Schmidt et al., 2010). The study unobtrusively recoded video of a young child in two “contrived hazards” situations, one with the mother acting as the supervisor and the other with the sibling acting as supervisor (Morrongiello, Schell et al., 2010). Results indicated that mothers supervised more closely than siblings. Mothers were more attentive about risky behaviors and provided more teaching responses when the child did take risks and used more proactive strategies to modify the environment to reduce potential hazards (Morrongiello, Schell et al., 2010; Morrongiello, Schmidt et al., 2010).

There is also risk inherent in delegating supervision to older children in aquatic settings. A study of bathtub submersions indicated that up to 80% of children involved in bathtub submersions were supervised by a sibling or left unsupervised (Kemp et al., 1994). In aquatic environments, caregivers with many children of different ages or diverse swimming ability could encounter supervision and control

problems. This was especially so when children want to play in different pools at an aquatic venue. Accordingly, it would be interesting to determine how caregivers decide which child to monitor when they are responsible for multiple children. This problem is likely to be lessened if children were of similar ages or swimming abilities and in the same area, allowing the caregiver to always be within eyesight and ready for action.

There is little empirical evidence to support or reject the effectiveness of swimming lessons and associated swimming ability in reducing drownings in aquatic settings. Although it seems obvious that on an individual level, more adept swimmers would be less likely to drown, the protective capacity of swimming ability remains unclear (Brenner, Saluja, & Smith, 2003; Brenner, Moran, Stallman, Gilchrist, & McVan, 2006). The majority of expert and medical opinion, however, discounts the ability of children under age 3 to swim well enough to save themselves in the event of an accident (Diamond, 1974). Others have argued that increased swimming proficiency might, in fact, lead to increased drowning risk though increased exposure to water and dangerous aquatic situations (Barss, 1995) and less vigilance by parents as children become more comfortable in the water (Brenner et al., 2003).

This supposition appeared to be the case in this study, with nonswimmers and poor swimmers provided with the highest levels of supervision, while children classified as weak swimmers were provided a lower level of supervision. Competent swimmers were supervised most poorly of all swimming groups, thus demonstrating that level of supervision appeared to decrease as the child's swimming ability increased. This is of concern, particularly as a clear protective relationship between increased swimming ability and the risk of drowning is yet to be demonstrated. For this reason, the importance of supervision in aquatic settings is paramount. Water safety organizations (Australian Water Safety Council, 2008; RLSSA, 2004) continue to advocate the importance of young children being closely supervised in aquatic environments, even when they have some aquatic skills. Further investigations are required to determine the effects of swimming lessons and swimming ability on caregiver supervision and to provide evidence of any relationships among swimming lessons, swimming ability, and drowning risk.

Limitations

This study provides initial insight into levels of caregiver supervision and associated child behavior at indoor public swimming pools. While these findings are important, methodological limitations should be considered. First, all observations took place at indoor pools outside the warmest months of the year. The number of patrons may have been fewer than in summer, and this may have limited the number of incidents and corresponding intervention behaviors recorded. Further, as the observations took place indoors, it is not possible to generalize results to outdoor aquatic settings. Future studies should consider the level of supervision and types of incidents that occur during the summer period, both at indoor and outdoor pools to determine whether these findings are indicative of peak season supervision behaviors. Second, because the age of children was estimated, it is possible that some children over the age of 10 years were included in the sample and according

to the RLSSA guidelines (2001a) these children are not required to be accompanied by or supervised by an adult in aquatic venues. Third, as drowning events are rare at public pools, we measured a range of incidents, identifying risky behaviors that are targeted by most lifeguards and anecdotally associated with drowning and/or injury risk. Finally, as observations were unobtrusive, it was not possible to formally evaluate real swimming competency. Judgments of participants' swimming ability and water confidence were therefore made while the child was engaged in their recreational activities. Because there is a dearth of research that objectively measures actual swimming ability from unobtrusive observation, further research is required to examine the relationship between swimming ability and drowning risk.

Conclusion

In summary, the present findings provide important insights into the nature and scope of caregiver supervision in public swimming pools where drownings are rare but highly visible and emotionally disturbing events (Schwebel et al., 2007). This study found that over half (52.4%) of children received poor or no supervision in public pools, while less than one-third (29.5%) received good or excellent supervision. Clearly, over half of the caregivers observed in this study were placing their child at elevated risk when they failed to provide close and constant supervision to the child.

In Australia a qualified, paid lifeguard is always present at public swimming pools, although the aquatic industry recognizes that their key responsibilities are prevention, administration and management, public relations, education, and rescue (RLSSA, 2001b). Accordingly, the presence of lifeguards does not replace the need for close and constant caregiver supervision. It is essential therefore that further prospective research is conducted to confirm whether caregivers mistakenly believe that the responsibility for children's safety is transferred entirely to the lifeguard once they enter an aquatic venue as well as to determine what approaches are required to raise awareness about the need for close and constant supervision of young children in aquatic settings.

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