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Parent/Caregiver Lack of Knowledge: A Barrier to Perceived Youth Swimming Ability?

**Timothy D. Ryan, Carol C. Irwin, Joris Drayer,
and Richard L. Irwin**

This study examined how a parent's lack of knowledge of potential opportunities and barriers may restrict the child's opportunity to learn how to swim. A survey was completed in multiple urban areas ($N = 524$), where parents/caregivers reported their perception of their child's swimming ability, as well as the parent's knowledge of possible barriers to their child's participation in swimming. ANOVA results suggested that the only significant difference between the presence of barriers to their perception of their child's swimming ability was based on the availability of a pool and ease of access. For potential barriers examined, the group who lacked knowledge of barriers had a significantly lower perception of their child's swimming ability than the group who recognized barriers ($p < .001$ for all), suggesting that while physical barriers may play a role in a child's likelihood of learning to swim, the most significant barrier may be the involvement and knowledge of the parent/caregiver.

A parent's or caregiver's lack of knowledge may act as a barrier to the protection of a child, whether it is knowledge about childhood vaccinations or use of bike helmets (Bernstein, Harper, Pardi, & Christopher, 2003; Borrás, Dominguez, Fuentes, Batalla, Cardenosa, & Plasencia, 2009). While stereotypes exist as to why children from poorer backgrounds, including minority children, do not learn to swim, rarely has the impact of parent/caregiver knowledge or awareness been explored. Although barriers to exercise have examined topics such as safety of the area, proximity to the child's house, cost involvement, neighborhood environment, and other items that reduce the probability that children will participate (Holt et al., 2009), little to no research has been done on swimming and the parent's/caregiver's familiarity with available resources. The purpose of this study was to examine relationships between perceived barriers within the inner-city neighborhood and a child's swimming ability. Specifically, we explored parent/caregiver knowledge of local swimming facilities to see if this awareness was connected with their perceived child's swimming ability.

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Background

Youth swimming inability has been linked to lower family income, especially among some racial groups (Irwin, Irwin, Ryan, & Drayer, 2009a). This is significant as African American children (5–9 years) are nearly 2.5 times more likely to drown than their Euro-American peers, and the probability grows to nearly 4 times more likely as they reach 10–14 years old (Center for Disease Control, CDC, 2007). Johnson, (2000) suggested that the disparities between the health indices of minority groups could partially be explained through cultural differences and physical barriers to exercise; however, anecdotal evidence suggested that parent/caregiver knowledge and fears acted as a barrier in the same way that constraining factors within a neighborhood might prohibit healthy physical activity in children.

Holt et al. (2009) identified three main areas that influenced a child's physical activity—neighborhood, family, and program characteristics. Specifically, plentiful resources within the neighborhood aided physical activity in children, while unsafe neighborhoods limited activity in children. The availability of programs likewise was positively related to a child's participation, while staffing problems within programs could be a constraint on youth participation (Holt et al., 2009). Of significance to this manuscript was the effect of family involvement as this involvement was a positive factor in youth physical activity, while a family in disorder meant less youth activity (Holt et al., 2009). While the intention of this study was not to examine the effect of family disarray on perceived child's swimming ability, we do suggest that if a parent/caregiver is not aware of resources or potential barriers to youth's opportunity to learn how to swim, that child will be more likely to be an at-risk swimmer.

Additional past research by Romero (2005) explored minority youths barriers to exercise. The results from her quantitative analysis parallel the results of Holt et al. (2009) as she found that greater availability of programs and safe places for children to play was positively related to time spent in physical activity. Similarly, we expected to see that safer, more accessible pools for inner-city youth will correlate with higher parents' perceptions of children's swimming ability. Unique to this study is the measure of those parent/caregivers who are unable to answer questions on these issues as it is expected that lack of awareness about pool location, pool quality, or perceived safety of the pool may be a greater constraint to a child's swimming ability than any of the reported barriers.

Method

Participants

A purposeful sample was drawn arbitrarily from six metropolitan areas including Chicago IL, Houston TX, Memphis TN, Miami FL, Oakland CA, and Philadelphia PA. Research staff worked with representatives from each city's YMCA of the USA organization to identify data collection sites. The YMCA was chosen as the primary data collection source due to their access to diverse youth populations including swimmers and non-swimmers and keen interest in the study's objectives. Only nonswimming YMCA programs (e.g., after-school care, sport programs) were used to recruit participants.

As intended, the sample (N = 543) primarily consisted of minority children aged 4–17 years of varying swimming skill levels (mean age = 8.5, SD = 2.48) from low-income households as determined from free/reduced lunch recipients with moderately educated parents/caregivers (see Table 1). According to the United States Department of Agriculture (USDA), an average US family of four during the 2007-08 school-year annual income eligibility level for free lunch was \$26,845 and reduced lunch was \$38,203. Poverty level for a family of four during this time was \$20,650 (USDA, 2007). Racial identity categories were selected to mirror those used in the Youth Risk Behavior Survey (YRBS), a CDC surveillance system for adolescents (CDC, 2004). The income variable was operationalized using the child’s lunch program status as determined by the United States Department of Agriculture (USDA) during the current school year (USDA, 2007).

Instrumentation

A newly developed survey instrument drawn from physical activity constraint studies (Johnson, 2000; Romero, 2005) was designed in collaboration with the study’s sponsor, USA Swimming, and included a section measuring awareness of the nearest swimming facility. These specific facility knowledge survey items are as follows:

- The nearest pool is available all year.
- The nearest pool is in good condition.
- It is easy for my child to get to that pool.
- I do not feel that my child is safe with certain people around that pool.
- I do not feel that my child is safe walking/riding a bike to this pool.

Table 1 Demographic Characteristics of Sample

Sex	
Male	52.0%
Female	48.0%
Race	
African American	39.7%
Hispanic/Latino	20.4%
White	27.8%
Multiracial	6.5%
Other	5.6%
Child’s Lunch Program Status	
Free lunch	46.4%
Reduced lunch	14.9%
No lunch program	38.7%
Highest level of education	
Some high school	6.1%
High school diploma or GED	23.2%
College or technical school degree	49.8%
Advanced college degree (Masters/PhD, etc.)	20.9%

Note. N = 543.

For each item, respondents selected “yes,” “no,” or “I don’t know.” The child’s perceived swimming ability, reported by that parent/caregiver, was ranked using a 5-point scale: 1 (*unable to swim*), 2 (*could swim a little, but not comfortable in deep water*), 3 (*comfortable in deep water, but cannot swim for very long*), 4 (*able to swim for an extended period of time*), and 5 (*swim competitively, or could, and for an extended period of time*). Prior to administration, the study and survey were approved by the institutional review board for the University of Memphis.

Procedures

The research team distributed surveys in both English and Spanish with a total of 543 parent/caregiver surveys returned that were deemed usable for the study. Parents and/or caregivers of children aged 4–11 years old were asked to complete the survey in the place of their child. These parents/caregivers reported their perception of the child’s swimming ability as well as their knowledge of possible barriers to their child’s participation in swimming. Data were entered systematically into Statistical Package for Social Sciences (SPSS) version 15.

Data Analysis

For each survey item measuring awareness of an aquatic-specific issue, a child’s perceived swimming ability was compared for three groups —parents/caregivers who reported “yes,” those who reported “no,” and parents/caregivers who reported “I don’t know.” We employed one-way analysis of variance (ANOVA) tests with Tukey’s HSD post hoc to test for significant differences for each item measuring parent/caregiver knowledge. Levene’s Test of Equality of Error Variances was applied to verify the homogeneity of variance assumption was met, which was the case with all tests conducted. We used the traditional alpha ($p < .05$) as the criterion when determining statistical significance. When statistically significant differences were found, effect size was determined using partial eta squared (Cohen, 1988). Descriptive statistics are reported in Table 2.

Table 2 Descriptive Statistics for Variables in Study

Variable	Known (Yes or No)		I Don’t Know		ANOVA	
	Mean	SD	Mean	SD	F	η^2
The nearest pool is available all-year.	2.39	1.16	1.57	.95	41.42	0.08
The nearest pool is in good condition.	2.39	1.16	1.58	.96	37.79	0.07
It is easy for my child to get to that pool.	2.33	1.16	1.66	1.08	19.33	0.04
I do not feel that my child is safe with certain people around that pool.	2.33	1.16	1.85	1.10	14.50	0.03
I do not feel that my child is safe walking/riding a bike to this pool.	2.28	1.16	1.76	1.11	10.42	0.02

Results

The first barrier examined was the availability of the nearest pool. As expected, there was a statistically significant effect for parent/caregiver knowledge of the availability of the pool, $F(2, 508) = 21.83, p < .001$ with a medium to large effect size (partial eta squared = 0.08). Post-hoc comparisons using the Tukey HSD test indicated no differences in the parents' perception of children's swimming ability between the "Yes" and "No" responders on pool availability. Parents/caregivers who answered "I don't know" reported a statistically significant lower perceived swimming ability for their child ($M = 1.57, SD = 0.95$) from those who answered "Yes" ($M = 2.45, SD = 1.67$) and "No" ($M = 2.27, SD = 1.14$).

The second barrier examined was the condition of the nearest pool (i.e., "The nearest pool is in good condition"). As expected, there was a statistically significant effect for parent/caregiver knowledge of the condition of the pool, $F(2, 501) = 25.84, p < .001$ with a medium to large effect size (partial eta squared = 0.08). As before, post-hoc comparisons using the Tukey HSD test indicated no differences in the parents' perception of their child's swimming ability between the "Yes" and "No" responders on pool condition; however, the parents/caregivers who answered "I don't know" reported a statistically significant lower perceived swimming ability for their child ($M = 1.58, SD = 0.96$) from those who answered "Yes" ($M = 2.42, SD = 1.16$) and "No" ($M = 2.06, SD = 1.05$).

The third barrier examined was the ease of access to the nearest pool (i.e., "It is easy for my child to get to that pool"). There was a statistically significant effect for parent/caregiver knowledge or awareness of the ease of access to the pool, $F(2, 501) = 22.30, p < .001$ with a medium to large effect size (partial eta squared = 0.08). Post-hoc comparisons using the Tukey HSD test indicated no significant differences in parents' perception of their child's swimming ability between the "No" and "I don't know" responders on ease of access. But, the parents/caregivers who answered "Yes" reported a statistically significant higher perceived swimming ability for their child ($M = 2.48, SD = 1.17$) from those who answered "No" ($M = 1.85, SD = 0.96$) and "I don't know" ($M = 1.66, SD = 1.08$).

The fourth barrier examined was about safety with people around the nearest pool (i.e., "I do not feel that my child is safe with certain people around that pool"). As before, there was a statistically significant effect for the parents/caregivers awareness of this issue, $F(2, 495) = 8.74, p < .001$ with a small to moderate effect size (partial eta squared = 0.03). Post-hoc comparisons using the Tukey HSD test indicated no differences in parents' perception of their child's swimming ability between the "Yes" responders ($M = 2.18, SD = 1.16$) and either of the other two groups. The parents/caregivers who answered "No" reported a statistically significant higher perceived swimming ability for their child ($M = 2.39, SD = 1.16$) from those who answered "I don't know" ($M = 1.85, SD = 1.10$).

The final barrier examined was the child's trip to the pool (i.e., "I do not feel that my child is safe walking/riding a bike to this pool"). There was a statistically significant effect for parent/caregiver knowledge when testing this specific item's responses, $F(2, 490) = 7.46, p < .005$ with a small to medium effect size (partial eta squared = 0.03). Post-hoc comparisons using the Tukey HSD test indicated no differences in parents' perceptions of their child's swimming ability between the "No" ($M = 2.16, SD = 1.13$) and "I don't know" ($M = 1.76, SD = 1.11$) responders

on safety of trip to the pool. One significant difference between groups was found between parents/caregivers who answered “Yes” ($M = 2.39, SD = 1.17$) from those who answered “I don’t know.”

Results suggested that for each of the questions, lack of parent/caregiver knowledge about a constraint correlated with lower perceived ability of their child’s swimming ability. Moreover, while there was some support for barriers having an impact on a parent’s perception of their child’s swimming ability, there is evidence that the primary barrier is knowledge about the pool, its conditions, and access to the pool.

Discussion

Results discovered differences between response groupings in all analyses. A number of the differences aligned with previous barriers in exercise reported by Romero (2005) and Holt et al. (2009). Whether it was neighborhood constraints or quality of facilities, items that prohibited a child from participating in swimming impact a parent’s perception of their child’s swimming ability. More specifically, to the purpose of this study, the results suggested that a lack of knowledge about a constraint was associated with the parent/caregiver’s perception of their child’s swimming abilities.

Implications

It behooves swimming officials and facility managers to appropriately market swimming in local communities and neighborhoods, targeting caregivers. Funk and James (2001) developed a model of sport product adoption which suggested that awareness was fundamental to any level of product adoption. Enhancing awareness was most effectively achieved through the development and execution of an integrated marketing communications campaign that incorporated a mix of advertising, publicity, and personal contact (Irwin, Sutton, & McCarthy, 2008). Therefore, a campaign targeting parents/caregivers of young children with basic information addressing the location and availability of nearby pools in addition to the positive aspects associated with swimming should be one critical step toward increasing swimming competency in minority children.

We also recommend that highly frequented community institutional locations (e.g., YMCA’s, schools) should serve as the distribution channel for campaign materials. For instance, similar to the commonly-posted visual map for the nearest fire exit found in apartment complexes, hotel rooms, and restaurants, attractive, eye catching displays depicting the location, condition, and suggested means of access to neighborhood pools may be posted in school gymnasiums or by the YMCA at the various afterschool program sites that lack their own pool facility.

Media messages connecting swimming with other sports and activities may be beneficial in reaching those audiences who traditionally would not look at an advertisement or message on swimming lessons. Community organizations offering formal swimming lessons can more effectively inform parents/caregivers by conducting informational sessions before, during, and at the conclusion of various sports and afterschool programming. We highly recommend that a trusted fellow citizen, preferably a parent/caregiver from the same neighborhood, participate in

this advocacy marketing effort in order to connect with the audience using source attractiveness and credibility. While pamphlets, flyers, and handouts may be beneficial to some groups, these communication media are likely not reaching all people, including parents/caregivers who already lack interest and knowledge of swimming. Furthermore, as some schools already are doing, it may be judicious to include swimming lessons or at least water safety information as part of the curriculum.

Limitations

Limitations involved with this study include those common with large population studies, specifically concerning the sample, which was targeted and convenient. The survey sites were regionally distinct but not randomly selected and cannot be considered absolutely representative. Also, self-report data can yield imprecise findings despite the literature that suggest large population self-report studies score high validity and reliability measures due to the large number of respondents (Brener, Billy, & Grady, 2003; CDC, 2004).

The research instrument was an originally-developed questionnaire drawn from various physical activity studies. A panel of experts was employed to ensure readability levels and relevance to swimming concerns (a.k.a., content validity). Also, a pilot study using the new survey was conducted and pilot participant comments were applied regarding instrument modification as well as adjusting the research protocol.

The question of the parents' perception of their child's swimming ability was difficult to define and delineate. The authors strove for brevity and accuracy with this question, seeking feedback from several swimming specialists. Also, during YMCA staff training sessions, this key question was highlighted that enabled YMCA staff administering the surveys to assist respondents on how to best understand and answer this important item correctly.

Conclusions

Swimming is an important life skill that should be learned by all children, not only for recreational purposes, but to protect against fatal and non-fatal drowning. Hindering this learning for some children are certain barriers, including parent/caregiver knowledge of locally-available swimming facilities. Understanding this, it is then necessary to overcome these barriers by providing messages that will be accepted by families who have traditionally not been involved or interested in swimming and water safety.

To coincide with this important water safety issue, participation and competency in swimming would also likely increase as positive attributes of the activity become internalized by populations that customarily have not participated in swimming and thus might yield a higher level of commitment to the sport (Funk & James, 2001). This commitment could help to increase diversity in swimming and offer other disenfranchised youth opportunities that swimming can provide (e.g., water safety jobs, team affiliation, leadership roles, and college scholarships). This research helped to verify that parent/caregiver awareness of a nearby swimming facility may be vital to help them perceive that their children are more skilled swimmers. Encouraging children to learn how to be safe in and around water as

well as how to swim competently is unequivocally recommended and could be a lifesaving event.

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