Exploring Factors Related to Drowning Risk among Black and African American Persons in Select States

CDC Foundation

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Table of Contents

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Jill Klosky led and coordinated the study design, implementation, qualitative data analysis and report writing. Dr. Tessa Clemens conceived this project and provided technical assistance, strategic planning and overall supervision.

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Executive Summary

Background

Each year, approximately 4,500 people in the United States die from unintentional drowning with another 8,000 experiencing nonfatal drowning incidents.[2] Disparities in drowning exist by race and ethnicity in the United States,[3] and non-Hispanic Black or African American individuals experience some of the highest rates of drowning.[2]

In the United States, aquatic culture and family traditions in many African American communities were disrupted by historical and systemic forces which limited access to safe bodies of water for many Black Americans.[1,4] This limited access reduced opportunities for many Black Americans to learn swimming skills which over time, negatively influenced social norms and behaviors around aquatic participation.[1,4,5] These factors may help to explain the persistent high rates of unintentional fatal drowning among Black persons compared to persons of other races and ethnicities in the United States.[3,4,6]

This project collected qualitative data to better understand how to best tailor and implement proven drowning prevention interventions to individuals at highest risk.

Study aims

The primary aim of this study was to explore how cultural, historical, structural and systemic forces may influence Black individuals':

- perceptions of water safety
- aquatic participation
- degree of water competency among participants and their family members
- drowning risk factors
- drowning protective factors

The secondary aim of this study was to develop recommendations for drowning prevention strategies that are community strengths-based, culturally responsive and situationally specific.

Methods

A qualitative, exploratory study was conducted by the CDC Foundation with technical assistance from a diverse group of experts and community partners.

Input gathering

The research team engaged with a marketing research firm and consulted with academics who were members of the community of focus with expertise in drowning prevention. Informal interviews with subject matter experts (SMEs) and community members were conducted to inform the development of focus group discussion guides and the research plan.

Data collection

Using a community-engaged research approach, three SMEs from the informal interviews were invited to participate in key portions of the project as research team members.

Fifty participants spanning seven states participated in 12 focus groups over three phases. In Phases 1 and 2, the focus group discussion participants were organized based on sociodemographic subgroups that were at increased risk of drowning, degrees of self-reported aquatic participation and swimming proficiency, and sociodemographic subgroups that were understudied in the literature.

Topics explored in Phases 1 and 2 were:

- current and desired relationship with water and water-based activities
- barriers to participation in aquatic activity and swim lessons
- awareness of and reactions to drowning statistics
- supports needed to participate in swim lessons
- reactions to an example of a basic swimming and water safety skills training program
- participant-suggested solutions to prevent drowning

Following Phase 2, the research team engaged in an iterative process to develop preliminary drowning prevention concepts and strategies. Sixteen (16) participants from Phases 1 and 2 were invited to return to explore the newly developed concepts in Phase 3. These participants were presented with nine drowning prevention concepts that centered on four themes: raising awareness, call-to-action, program development and community mobilizing.

Data analysis

For Phases 1 and 2 data, two coders conducted a directed content,[7] team-based, iterative coding process using NVivo 15 Qualitative Software (Lumivero, Burlington MA, 2024). Once no new codes emerged, the codes were organized into themes guided by the study aims. This iterative process continued until saturation was met.

Key findings from Phase 3 were identified by the two coders and summarized.

Results

Six themes were identified from Phase 1 and 2.

1. Discrimination and subsequent barriers to accessing aquatic spaces can contribute to low familiarity with aquatics and water competency, influencing risky aquatic behaviors.

   Unfamiliarity and a related lack of water competency can contribute to risky aquatic behaviors through the following mechanisms:

   > 1) Low perceived value and lack of participation in formal swim lessons.

   > 2) Knowingly engaging in risky activities given level of water competence.

   > 3) Underestimations of risk.

2. Past negative aquatic experiences can either encourage or hinder the acquisition of swim skills.

   Past negative aquatic experiences can lead to:

   > 1) Challenges participating in or avoidance of swim lessons for oneself or one's children.

   > 2) Avoidance or apprehension with participation in aquatic activities in general.

   > 3) Motivation to become water competent and take swim lessons. The motivation tends to be stronger for parents to have their children participate than themselves.

3. Assurances of safety in aquatic spaces can be highly valued.

4. Specific needs related to hair management can hinder participation in aquatic activities.

5. Offering young children swim lessons and water safety education through public schools was strongly endorsed as a drowning prevention strategy.

6. Representation in aquatic spaces is valuable.

   Key features of this theme:

   > 1) Limited positive media and representation among aquatic professionals and athletes negatively influences social norms.

   > 2) Participants may have safety concerns in aquatic spaces when representation is absent.

   > 3) Representation facilitates participation.

Recommendations

Based on the findings, the project team developed six recommendations to tailor drowning prevention strategies to Black and African American communities:

1. Promote understanding that water competency means having water safety awareness, basic swimming skills and knowing how to safely help those in need. Raise awareness that being water competent supports safe and enjoyable aquatic participation.
2. Support partnerships between community organizations and public schools to provide basic swimming and water safety skills training for children.
3. Infuse a culturally responsive, trauma-informed approach to basic swimming and water safety skills training. Incorporate these principles into instruction for lifeguards and instructors.
4. Support participants who have needs surrounding hair management.
5. Raise perceived value of participating in swim lessons through incentives.
6. Encourage participation in aquatic sports to increase representation and role models in aquatics.

Conclusion

This report highlights historical, social, generational and individual factors that may influence drowning risk among Black and African American persons. The findings from this study stress the need to provide tailored, community driven, trauma-informed drowning prevention approaches that resonate with community members. Drowning prevention initiatives can support community organizations to teach water competency so that more people can enjoy safe aquatic participation for generations to come.

Introduction and Background

Background

For centuries, many Atlantic Africans have actively used water in a variety of ways including boating, fishing, diving for oysters or gold, as well as for recreation and surfing.[6]

In the United States, historical and systemic barriers altered family traditions around water-based activities and created an ecological system that hindered aquatic practices and culture in many African American communities.[1] Without a strong aquatic tradition and culture, and with fewer places to safely swim, significantly less African American children learned to swim over time.[1,4] This created generations with fewer swimming role models in the African American community. Fewer role models led to fewer African American aquatic professionals and aquatic sport athletes, fueling negative myths, stereotypes and social norms. This history continues to influence present day structural forces and behaviors that perpetuate and reinforce the cycle.[1] (See Figure 1.)

Burden and scope

The overall unintentional fatal drowning rate in the United States is 1.3 per 100,000 population. Crude drowning rates vary based on race and ethnicity: 2.9 per 100,000 non-Hispanic American Indian and Alaska Native (AI/AN) persons, 2.4 non-Hispanic Native Hawaiian and other Pacific Islander persons, 1.7 per 100,000 non-Hispanic Black persons, 1.4 per 100,000 non-Hispanic White persons, 1.1 per 100,000 Hispanic persons and 1.0 per 100,000 non-Hispanic Asian persons.[2]

A recent analysis comparing fatal drowning rates in the years 2020, 2021 and 2022 to rates in 2019, found that Black persons experienced the largest increases in drowning rates from 2019 to 2020. This study also found that while over half of adults in the United States reported never taking a swimming lesson, that proportion was greatest among Hispanic and Black adults (72% and 63% respectively).

Figure 1. The African American Drowning Disparity Cycle[1]

*developed by Dr. Shaun Anderson
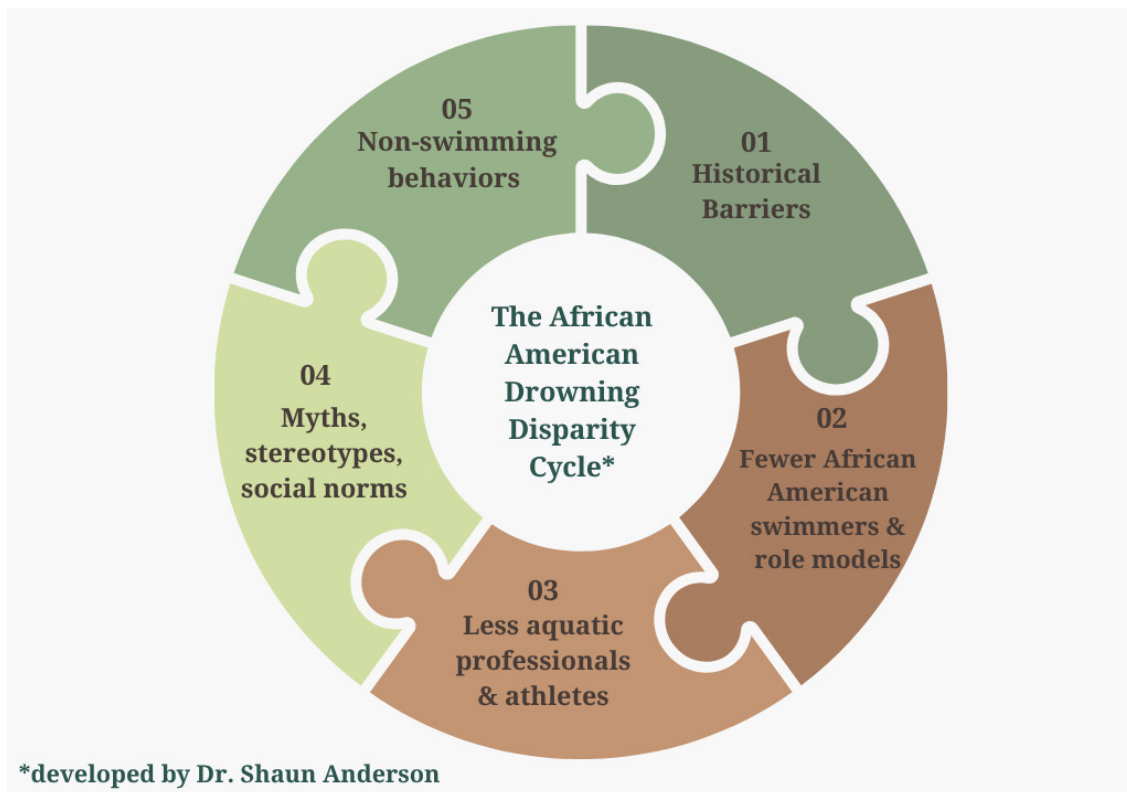
Despite having among the highest rates of drowning, Black adults reported less exposure to recreational water.[8] Taking formal swim lessons is an evidence-based drowning prevention strategy;[9] however, fewer Black and Hispanic adults reported knowing how to swim compared to persons of other races and ethnicities.[8]

Racial disparities are most pronounced in swimming pool deaths. Black youth aged 10-14 years experienced drowning rates 7.6 times as high as White youth in swimming pools.[3] In an analysis of swimming pool drowning deaths among individuals aged 5-24, Black males, regardless of level of income, had significantly higher rates of drowning compared to Hispanic males and non-Hispanic White males. This study found drowning deaths occurred more often in hotel or motel pools compared to residential pools.[10]

From 1999-2020, the rate of fatal drowning in the United States was 2.1 per 100,000 males, compared to 0.5 per 100,000 females, across all ages and races.[11] This rate was highest among non-Hispanic AI/AN males (4.6 per 100,000 population), followed by non-Hispanic Black males (2.6 per 100,000 population).[11] Although Black female youth have lower drowning rates than Black male youth, Black female youth tend to report lower swimming ability compared to Black male youth and people of other races and ethnicities.[12]

Barriers and facilitators to participation in swim lessons

Previous research has identified factors that may contribute to lower participation in aquatic activities or swim lessons among some Black persons. Concerns surrounding hair styling, maintenance and health can hinder aquatic participation for some Black individuals, especially females.[13-16] Body image, modesty concerns and rules around swimming attire, may also be barriers to participation in swimming.[16,17]

Intergenerational influences from parents can either be a barrier or facilitator to enrolling children in swim lessons.[16] Parental encouragement or discouragement to swim lessons can be related to parents' swim ability, attitudes, beliefs and comfort with aquatic activity in general, and the perceived value and risk of swim lessons.[12,14,18-20]

Proven or promising drowning prevention programs for Black communities

There are numerous proven or promising programs and initiatives to increase awareness and promote swim skills training and reduce drowning among Black individuals and communities.

Many of these programs use the following approaches:

1. Promoting swim lessons, lifeguard training or competitive swimming through community partners including historically Black colleges and universities (HBCU)s.[4,16,20-26]
2. Providing culturally responsive, historical-trauma-informed swim lessons for people of various ages.[20,27,28]
3. Funding public pool improvements with community partners.[22]
4. Promoting positive messages around swimming, and celebrating Black representation in aquatic pursuits.[22,29]

Study aims

The primary aims of this project were to explore how cultural, historical, structural and systemic forces may influence Black individuals':

1. perceptions of water safety
2. aquatic participation
3. degree of water competence among participants and their family members
4. drowning risk factors
5. drowning protective factors

The secondary aim of this project was to develop recommendations for drowning prevention strategies that are community strengths-based, culturally responsive and situationally specific.

A note about nomenclature

Language around race

The authors of this report intend to use language that is inclusive to as many people as possible while acknowledging that a consensus might not always exist among individuals and groups on terms that they choose or identify most closely with. It is also acknowledged that language and preferred terms evolve and that vocabulary may need to be adapted over time.[30]

The term, "African American," often refers to people who were born in the United States and whose ancestors were from Africa and enslaved in the United States. It may also be used to refer to people who were born outside of the United States who have African ancestry and are now American citizens or permanent residents. The term, "Black," refers to people born in any country, with ancestry from any Black ethnic populations of Africa.[30] In this paper, the author typically elects to use the term, "Black," but may use either term, sometimes reflecting the language used in the manuscript cited.

Language around water competency and swim skill

The U.S. National Water Safety Action Plan and Water Safety USA define water competency as, "Being able to anticipate, avoid, and survive common drowning situations, as well as being able to recognize and provide assistance to those in need. Includes water safety awareness, basic swimming skills, and helping others."[31]

In this study, the swim ability of the participants (and their children) was reported by the participants. Previous research has found that individuals tend to over-report their swimming ability.[32]

Overview of Project Phases

A community-engaged approach was employed throughout all phases of the study, from planning to the analysis of the data. This intentional process involved gathering a research team with collaborators who were representative of the community of focus.

Preliminary information gathering

The project began with a foundational input gathering phase with guidance from two consultants who were academics with expertise in drowning prevention and members of the community of focus. This phase consisted of a review of the literature and preliminary discussions with public health professionals who work in community health promotion. The purpose of this phase was to identify gaps in the literature and develop a detailed research plan. (See Figure 2.)

Informal discussions

The research team expanded to include a marketing research firm with extensive public health experience. Informal discussions were conducted with subject matter experts (SME)s who were community members working in drowning prevention and/or advocacy for Black persons and communities. These interviews informed the focus group discussion (FGD) guides and the organization of the focus groups. (See Appendix A for summary of key findings.)

Focus group discussions

There were three phases of FGDs. Focus group participants of Phase 1 were individuals who, according to the literature, represented persons with high risk of drowning, sociodemographic subgroups that are understudied in the literature and people who themselves or their children reported high levels of aquatic participation or proficiency. The purpose of having participants with higher swimming proficiency was to explore how barriers to aquatic participation might have been overcome and to allow for comparisons between groups.

Figure 2. Project Overview

SME= Subject matter expert
Text in red= Formal data collection
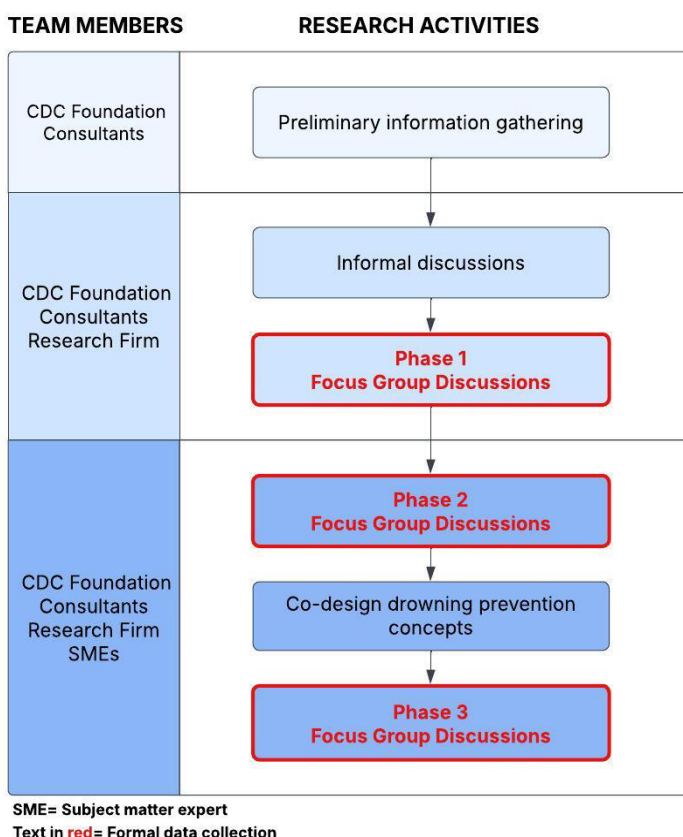
Phase 2 focus groups consisted of participants who, according to the literature, represented persons with high risk of drowning, low swimming proficiency and parents who reported that their children participate in aquatic activities. This phase was also designed to explore potential sex differences.

Three SMEs from the informal discussions were invited to return as members of the project team. They were trained on the project plan, their roles, the FGD guide and preliminary findings from Phase 1 discussions. As part of the research team, they observed the Phase 2 FGDs and participated in iterative feedback sessions to identify key findings and co-design drowning prevention strategies to explore in the Phase 3 FGDs. (See *Methods* for more detail.)

Methods

Ethics, consent and confidentiality

Univo IRB, an independent, accredited institutional review board, determined this project qualified for an exemption.

Consent process

Informed consent was administered by the moderator individually in paper format for in-person discussions. Prior to virtual discussions, recruiters administered the informed consent form and participants provided a digital signature or verbal consent. All participants also provided verbal consent immediately before recording.

Moderator training

The moderator was trained in ethical standards for human participant research. Training covered obtaining informed consent, respecting voluntary participation of respondents, respondents' privacy and the confidentiality of data collected.

Data management, storage and confidentiality

Focus group discussions were digitally audio and video recorded when conducted in person and audio and video recorded via Zoom when conducted virtually. Recordings were professionally transcribed then cleaned and de-identified by research team members. Transcripts and recordings were stored securely on password protected computers and were permanently deleted at the completion of all data analyses. Data were only available to the members of the research team who were directly responsible for data analysis and reporting.

Recruitment of study participants

This study was a portion of a larger qualitative study occurring in 10 states that were selected based on drowning rates, geographic diversity, variety of water exposures and population characteristics. To support focused recruitment efforts for this portion of the study, the scope was adjusted to include seven states (California, Florida, Georgia, Louisiana, Michigan, New York and Texas).

Participants were recruited using a pre-existing database and through the project consultants when needed. (See Appendix B for recruitment screener.)

Study population

Inclusion criteria for participants:

- reside in one of the selected states
- age 18+
- comfortable speaking and reading in English in a small group setting
- self-identify as Black/African American (alone or in combination with another race or ethnicity)

Exclusion criteria for participants:

- Individual would feel discomfort or distressed talking about participation in aquatic activities or drowning.

Focus group structure

Phases 1 and 2 consisted of nine focus group discussions with a total of 50 participants from seven states. Three of the five Phase 1 FGDs were conducted in-person in Atlanta, Georgia, with participants who reside in Georgia. The in-person focus groups were intended to reduce potential technology barriers and promote trust and comfort. The groups that were held in-person included two groups with persons representing understudied sub-groups, and one group representing people at higher risk of drowning. The in-person FGDs were held in a public location with closed doors for privacy. The remaining discussions were conducted virtually via Zoom. The virtual focus groups enabled the team to achieve as much geographic coverage as possible.

Phase 3 focus groups consisted of a total of 16 individuals who were selected from the previous FGDs to explore drowning prevention concepts and strategies that were identified by the team.

The Phase 3 participants were selected based on diversity in demographic variables and placed into one of three groups based on self-reported swim ability.

Phase 1 groups consisted of:

1. Parents or guardians of non-swimming child(ren) ages 1-14 years (in-person)

2. African or African diaspora immigrants or second-generation adults (in-person)

3. African or Black Muslim females of any parental status (in-person)

4. Parents or guardians whose child(ren) participate in competitive swimming or are highly proficient in water (virtual)

5. Aquatic professionals (virtual)

Phase 2 groups consisted of:

1. Parents or guardians of non-swimming child(ren) ages 1-14 years (virtual)

2. Parents or guardians with swimming child(ren) ages 5-14 years (virtual)

3. Female swimmers and non-swimmers regardless of parental status (virtual)

4. Male young adults ages 18-24 with various swimming ability (virtual)

Focus group discussion guide development and data collection

The Phase 1 FGD guide was developed based on the extant literature and key findings from the informal SME interviews. After Phase 1 data collection, the discussion guide was slightly modified to improve clarity of the prompts and further explore emerging topics. (See Appendix C for final focus group discussion guide.)

Domains explored in the Phase 1 and 2 FGDs included: current and desired relationship with water, barriers to participation in aquatic activity, awareness of and reactions to drowning statistics, support needed to participate in swim lessons, reactions to a

sample basic swimming and water safety skills training program and participant suggested solutions to prevent drowning.

Immediately following Phase 2 FGDs, the research team engaged in an iterative process to develop preliminary drowning prevention concepts and strategies. Following the "Four P's" of the Social Marketing Model (i.e. product, price, place and promotion),[33] drowning prevention strategies were identified based on key findings from the previous focus groups, existing research and guidance from SMEs.

In Phase 3, the FGD participants were presented with nine newly developed drowning prevention concepts that focused on four themes: raising awareness, call-to-action, program development and community mobilizing. A separate discussion guide was developed for this phase.

Data Analysis

Two research team members conducted the formal data analysis for the focus groups of Phases 1 and 2. A directed content approach[7] of the qualitative data was employed using NVivo 15 Qualitative Software (Lumivero, Burlington MA, 2024).

The two coders developed a preliminary codebook based on the research aims, the domains of the FGD guide and extant literature. This codebook was reviewed with a senior research team member. The two coders applied the preliminary codebook to six of the nine transcripts and iteratively revised and added inductive codes until a final codebook was developed. This revised codebook was reviewed with the senior research team member, finalized and applied to all transcripts. When coding was complete, the codes were organized into themes through an iterative process guided by the study aims. This process continued until saturation was met. (See Appendix D for codebook.)

Phase 3 FGDs were not included in the formal thematic analysis. Key findings from Phase 3 were identified by the coders and summarized. (See Appendix E for summary of key findings from Phase 3.)

Findings

Demographic characteristics

The sample consisted of 50 participants. Most participants were aged 35-54 years (n=34, 68%), were female (n=30, 60%), had an undergraduate college degree or greater (n=34, 68%), were married (n=28, 56%) and worked full-time (n=41, 82%). The largest percentage of participants resided in Georgia (n=23, 46%) and reported an annual household income of ≥$100,000 (n=24, 48%). (See Table 1.)

Thirty-eight (76%) participants reported being parents to children aged ≤17 years and most parents reported having children in the 5-9 and 10-14-year age categories.

Aquatic characteristics

One focus group consisted of five (10%) participants who were aquatic professionals, and one focus group consisted of parents of competitive swimmers or aquatic athletes (n=6, 12%). Two of the focus groups had participants whose children did not currently participate in water-based activities (n=11, 22%). (Data not shown in table. See Recruitment Screener for participant distribution in focus groups, Appendix B.)

Thirty-nine (78%) participants reported knowing how to swim and 32 (64%) reported being "advanced" or "functional" swimmers. (See Recruitment Screener for definitions of terms, Appendix B.) Thirty-six (36) participants, who were parents of children aged 5-17 years, reported their child(ren)'s swimming ability. Fourteen (14) of these parents rated at least one of their children as a non-swimmer and 19 ranked at least one of their children as functional or advanced swimmers. Of the 37 parents who reported whether their child(ren) (aged ≤ 17 years) had taken swim lessons, over half (n=20, 54%) reported that they had. (See Table 2.)

Almost half of the participants affirmed that they frequently participate in water-based activities (n=24, 48%). The majority (n=35, 70%) either experienced a nonfatal drowning themselves, knew someone who had or knew someone who died from drowning. Notably, all participants (100%) ranked the value of learning to swim as "very important."

Table 1. Participant demographic characteristics, (N=50), based on responses from the Recruitment Screener. (See Appendix B.)

Descriptive Characteristic		n	%
Age	18-24 years	6	12
	25-34 years	6	12
	35-44 years	19	38
	45-54 years	15	30
	55+ years	4	8
Sex	Female	30	60
	Male	20	40
Region of origin/ethnic descent	North America	35	74
	Caribbean	5	10
	Africa	7	14
	Multi-region (Caribbean/Africa)	1	2
State of residence	California	7	14
	Florida	2	4
	Georgia	23	46
	Louisiana	3	6
	Michigan	3	6
	New York	6	12
	Texas	6	12
Educational attainment	High school	6	12
	Some college	10	20
	College graduate	24	48
	Postgraduate	10	20
Marital status	Single	19	38
	Married	28	56
	Divorced	1	2
	Widowed	2	4
Household income	<$65,000	11	22
	$65,000-$99,000	15	20
	≥$100,000	24	48
Current employment	Full-time	41	82
	Part-time	3	6
	Student	3	6
	Other*	3	6
Current parent or legal guardian for child[†]	Yes	38	76
Number of parents with children by age	0-4 years	5	-
	5-9 years	15	-
	10-14 years	22	-
	15-17 years	14	-

* Retired, homemaker, maternity leave.
[†] Child defined as current age ≤ 17 years.
[‡] Parents with more than one child were counted more than once if their children were in different age groups.

Table 2. Participant aquatic characteristics, (N=50), based on responses from the Recruitment Screener. (See Appendix B.)

Aquatic Characteristic*		n	%
Knows how to swim (self-report)	Yes	39	78
	No	10	20
	Learning	1	2
Self-reported swimming ability[†]	Advanced	13	26
	Functional	19	38
	Beginner	7	14
	Non-swimmer	11	22
Has taken formal swim lessons	Yes	30	60
	No	20	40
Number of parents who ranked child(ren)'s swim ability[‡]	Advanced	11	-
	Functional	8	-
	Beginner	8	-
	Non-swimmer	14	-
Child(ren) has taken formal swim lessons	Yes	20	54
	No	17	46
Frequency of participation in water-based activities[§]	Frequently (≥ once/week)	24	48
	Occasionally (once/month)	15	30
	Rarely (a few times/year)	8	16
	Never	3	6
Knows someone who drowned[ǁ]	Yes	35	70
	No	15	30
Importance of learning to swim	Very important	50	100

* See Recruitment Screener (Appendix B) for definitions of terms and questions.
[†] Notes: One participant with no answer was categorized as 'functional' based upon responses in screener and in the focus group discussion. One focus group consisted of participants who were all aquatic professionals (n=5).
[‡] Data displayed are count of parents who reported their child(ren)'s (ages 5-17 years) swim ability per category. Parents might have reported for >1 child over >1 category. One focus group consisted of parents of children with advanced swimming proficiency (n=6).
[§] Coded as the lowest amount of participation recorded when response indicated seasonal variation (e.g. "occasionally" was coded when respondent noted that they participate frequently during summer, but occasionally the rest of the year).
[ǁ] Includes fatal or nonfatal drowning.

Themes

Six major themes were identified through the thematic analysis of the FGDs of Phases 1 and 2.

> **Themes**
> 1. Discrimination and subsequent barriers to accessing aquatic spaces can contribute to low familiarity with aquatics and water competency, influencing risky aquatic behaviors.
> 2. Past negative aquatic experiences can either encourage or hinder the acquisition of swim skills.
> 3. Assurances of safety in aquatic spaces can be highly valued.
> 4. Specific needs related to hair management can hinder participation in aquatic activities.
> 5. Offering young children swim lessons and water safety education through public schools was strongly endorsed as a drowning prevention strategy
> 6. Representation in aquatic spaces is valuable.

1. Discrimination and subsequent barriers to accessing aquatic spaces can contribute to low familiarity with aquatics and water competency, influencing risky aquatic behaviors.

Participants acknowledged that historical barriers have contributed to present day reduced access and exposure to aquatic spaces for many Black persons. There was recognition that these events contributed to negative norms and expectations regarding African American people swimming. Many participants noted that intergenerational influences from family members, due to experiences of discrimination, tended to promote avoiding participation as a water safety strategy. Some who had lived in or travelled to Caribbean countries observed that it is normative for Black children to engage in aquatic activities in those regions compared to the United States. Participants often discussed having less opportunity to acquire swim skills compared to White persons in general.

"I think that because we don't have the ability to normalize or be so familiar with being around pools, sometimes people don't think about pool safety… because it's not as common as crossing the street. You teach your kids to look both ways. We don't think about pool safety or big bodies of water safety, because it's not something that we're really familiarized with."

— female, self-reported functional swimmer

Several participants, including most from the young male focus group, displayed an overall lack of interest in aquatic activities. With few exceptions, males in particular spoke to being unfamiliar with aquatic sports when compared to other sports.

"…I feel like even when I first started [collegiate] rowing, I had a lot of my friends and even family tell me, 'Oh, that's a White sport.' …it's something that you don't really see your own people or members of your community partaking in."

— male, self-reported functional swimmer

Many participants described engaging in water-based activities in ways that implied a general lack of water safety awareness.

"I pretty much taught all four of my children how to swim the same way my father taught me. …I threw them down the river, thrown them in."

— male, self-reported functional swimmer

Unfamiliarity and a related lack of water competency can contribute to risky aquatic behaviors through the following mechanisms:

1) Low perceived value and lack of participation in formal swim lessons.

Many participants spoke of or took actions that displayed low value assigned to swim lessons for themselves or their children. This was often described as a lack of prioritization or interest. Passive disengagement was sometimes described in terms of a lack of social norms around participation in swimming, lack of awareness of drowning risk and low perceived relevance of swim lessons. These sentiments were inconsistent with the finding that all 50 participants noted that it is 'very important' to learn to swim in the recruitment screener.

"…[Swim lessons are] definitely not at the top of my list. I guess just because summer is such a short amount of time. We're not swimming all year round or visiting water…. So for me and my family, I would definitely put it towards the bottom of my list of priorities."

— female, self-reported beginner swimmer

2) Knowingly engaging in risky activities despite low swim ability.

Several people spoke of having a strong desire to participate in aquatic activities, even if they knew that their swim ability was low. The powerful appeal of aquatic recreation was sometimes present despite a participant having had a past negative aquatic experience.

"So…like, I'm risky. I've been jet skiing and doing things that I know I shouldn't be doing because I can't swim. …. But I have done those things and allowed myself to enjoy the water,… if you throw me in, I'm not sure I [would have] survived. So, it's like, yeah, I have a weird relationship with water."

— female, self-reported beginner swimmer

3) Underestimations of risk.

Participants described instances where they unknowingly engaged in risky behavior due to underestimating the potential risk and/or overestimating their swim ability given the circumstances.

"Initially, I was fearful of my own kids going into deep waters, until I took my kids on a trip down the [river] and raft. … And [my son], he dropped his hat, and he really liked this hat so he tried to reach it, and he fell in. He didn't have on a life vest because he chose not to wear one. He learned that day. He did not panic because I've always taught my kids whatever situation you're in, don't panic…. He was four."

— female, self-reported functional swimmer

2. Past negative aquatic experiences can either encourage or hinder the acquisition of swim skills.

Past negative aquatic experiences (PNAE) were defined in this study as participants experiencing a nonfatal drowning themselves, knowing someone else who had or knowing someone who died from drowning. These were also characterized as a participant knowing about or experiencing unpleasant events that occurred in aquatic settings ranging from negative verbal interactions to violent acts. Many participants experienced weather-related flooding, including witnessing other people being rescued.

Some participants spoke about discomfort while wearing swim attire based on reactions of others. For example, a few female participants had received unwanted sexual attention by men while wearing swimsuits. One male participant described feeling embarrassed when, as an overweight adolescent, he was told by a younger lifeguard to remove his shirt when swimming in a pool. Others spoke about discomfort wearing swimsuits during puberty.

Many participants described being pushed or thrown into water when they were children and they did not know how to swim. These events were often described as traumatic and related to harassment, misguided jest or an attempt to forcibly teach swimming. Being thrown in water against one's will as an inappropriate learn-to-swim technique was frequently mentioned.

"… I come from a military family and almost everybody in my family came from the military. I don't know how true it is about the military, throw you in the water, teach you how to learn how to swim, but apparently that's what they did…. And it became a fear for me, going to my uncle's house. He had a big old pool in the backyard, and he would toss us one by one. He would do his own children first, so, we know that it's okay. And [he'd say], 'Hey, I am not hurting you guys! I'm just teaching you to swim!'"

– female, self-reported non-swimmer

There were varied outcomes regarding self-reported swim skill acquisition after PNAE(s) in childhood. For some who experienced PNAE(s) in childhood and did not learn to swim as children, participation in swim lessons or aquatic activities in adulthood could be challenging or was avoided. A few parents who experienced PNAE(s) in childhood and reported that they did learn to swim as children, encountered challenges with their children successfully participating in swim lessons, especially if their children also had their own PNAEs. In contrast, for some participants, PNAE(s) provided strong motivation for having their children learn to swim through formal swim lessons.

"I know how to swim, my children do, but my husband doesn't. He almost drowned when he was a kid. And he has a fear of the water as a result of that. But that's also the reason why our children know how to swim. It was something that he was very, very serious about, as well as myself, because I do know how to swim and I love the water…."

– female, parent of a competitive swimmer

Participants' past negative aquatic experiences could lead to:

1. Avoidance or apprehension with participation in aquatic activities in general.
2. Challenges participating in or avoiding swim lessons for oneself or one's children.
3. Motivation to become water competent and take swim lessons. The motivation tends to be stronger for parents to have their children participate than themselves.

Conversely, many participants (both aquatic professionals and non-professionals alike) reported past positive aquatic experiences. These participants tended to have greater participation in water-based recreational activities and self-reported swim ability.

3. Assurances of safety in aquatic spaces can be highly valued.

Participants frequently discussed a strong desire to feel safe and comfortable in aquatic spaces. Feelings of safety applied to physical, emotional and mental wellbeing while participating in aquatic activities. For many, various social factors have threatened feelings of safety in aquatic spaces, leading to distrust and avoiding participation in aquatic activities, including formal swim lessons. For example, some women reported that unwanted sexual attention by men while wearing swim attire created discomfort in aquatic spaces. A few young men shared concerns over being judged or ridiculed for not knowing how to swim.

Many participants expressed discomfort in deep water due to insufficient skill, and natural water conditions due to unpredictable factors; however, most safety concerns were over unsafe behavior of other swimmers, instructors and lifeguards.

Many participants spoke about worries of having insufficient swim ability for a given situation compounded by skepticism over being rescued if needed. This concern was usually discussed in the context of having to rely solely on White lifeguards or instructors for assistance. Other concerns about being physically unsafe ranged from potentially being the target of aggressive rough housing to being assaulted by other aquatic participants.

Most participants were very attracted to the idea of learning water rescue, water safety and cardiopulmonary resuscitation for themselves and their children. A few participants spoke of the importance of having these skills in the event of weather-related flooding in addition to safe participation in aquatic recreation.

"I would like my 12-year-old son just to learn how to swim. That way if they go to a pool party or go somewhere that's water[-related], that if something happened, they know how to save themselves. They know what to do or they know how to save somebody else."

– female, parent of non-swimming child

4. Specific needs related to hair management can hinder participation in aquatic activities.

All groups noted hair management when participating in aquatic activities could pose significant challenges and hinder participation for many Black individuals. Although this issue was more prevalent for women than men, not all women experienced hair management challenges personally. Many participants knew strategies to care for their hair when participating in aquatic activities; however, the time and expense of hair management could pose constraints to participation.

"Now I'll find that if you don't get the kids young, it's unlikely that the high school athletes will choose swimming, because the other sports will get them if you don't get them early in swimming. … But when a girl hits high school, it's not like they want their hair wet every day. Okay, that's a big one. I've had good swimmers stop swimming because of that."

– male, veteran swim coach

5. Offering young children swim lessons and water safety education through public schools was strongly endorsed as a drowning prevention strategy.

The two strategies of initiating swim lessons while children are young and offering swim lessons through public schools were strongly supported in all groups. Utilizing schools was widely acknowledged as a way to improve access to swim lessons. While there were different opinions as to the ideal age to initiate swim lessons, all groups endorsed introducing swim skill training in childhood.

"I feel like it would've been better if it was pushed towards me when I was younger, maybe in the same way how kids have mandatory PE class. If I could have incorporated [swim lessons] when I was younger and so I just have that skill when I become an adult, then that would definitely make things a lot easier on me."

– male, self-reported non-swimmer

26

Aquatic professionals noted that pool resources (e.g. pool spaces and trained instructors) were scarce in their communities. Some parents were concerned with potential safety issues of offering swim lessons through schools, particularly the appropriate vetting of swim instructors.

6. Representation in aquatic spaces is valuable.

Although the value of racial representation was not typically discussed directly, discussions surrounding the racial makeup of aquatic participants emerged in all groups.

Media, Black aquatic professionals and athletes

A few participants noted that they did not typically see positive media content that portrays Black people swimming, although this would be very welcomed. Others recounted media depictions of historical and contemporary instances of racially motivated drowning homicides. Some participants spoke about being personally impacted when learning about drowning incidents through news media.

Many participants stated that it was uncommon for them to see Black lifeguards, swim instructors or competitive athletes. While many participants observed that swimming and aquatic sports are often not socially normative in many Black communities, others, including most of the aquatic professionals, reported growing up around other Black swimmers. Some participants reported learning to swim as young adults through their HBCU.

"I don't want to address the elephant in the room, but I don't really think I've seen a lot of Black or African American lifeguards…. …I don't even think about lifeguards and associate that with African Americans."

– male, self-reported functional swimmer

"I've personally have found that people have been really surprised about Black children who swim or whose parents want them to swim. Or even Black

children who swim competitively. It seems like it's shocking and some people don't understand it, which I personally don't understand."

– female parent of a competitive swimmer

Discomfort and safety concerns when representation is absent

While there was some variability, several participants spoke to concerns for safety when they or their family members were the only Black participants in an aquatic space. Many people spoke of being skeptical that a White lifeguard, instructor or bystander would help them in an emergency. Several participants shared experiences where they needed help and White aquatic professionals were not paying adequate attention to them. Some participants experienced unwelcome rough housing by others who were White when at a pool.

"I was really going on hope and a prayer, because … I was the only Black girl [on the church sponsored white-water rafting trip]. So I'm like, 'They probably wouldn't saved me.' I would hope that they would've, because we was there in the name of the Lord, but you do question, 'would they have saved me?'"

– female, self-reported beginner swimmer

Representation facilitates participation

One veteran swim coach observed that her background as a nationally ranked competitive swimmer encouraged participation among Black parents and students by providing a sense of legitimacy to swimming as an option. Other aquatic professionals noted that lived experience facilitates knowledge sharing on various issues including how to protect hair when swimming and comfortable fitting of swimsuits.

Some participants noted that if they observed more Black aquatic athletes and aquatic professionals then swimming would seem more normative and relevant.
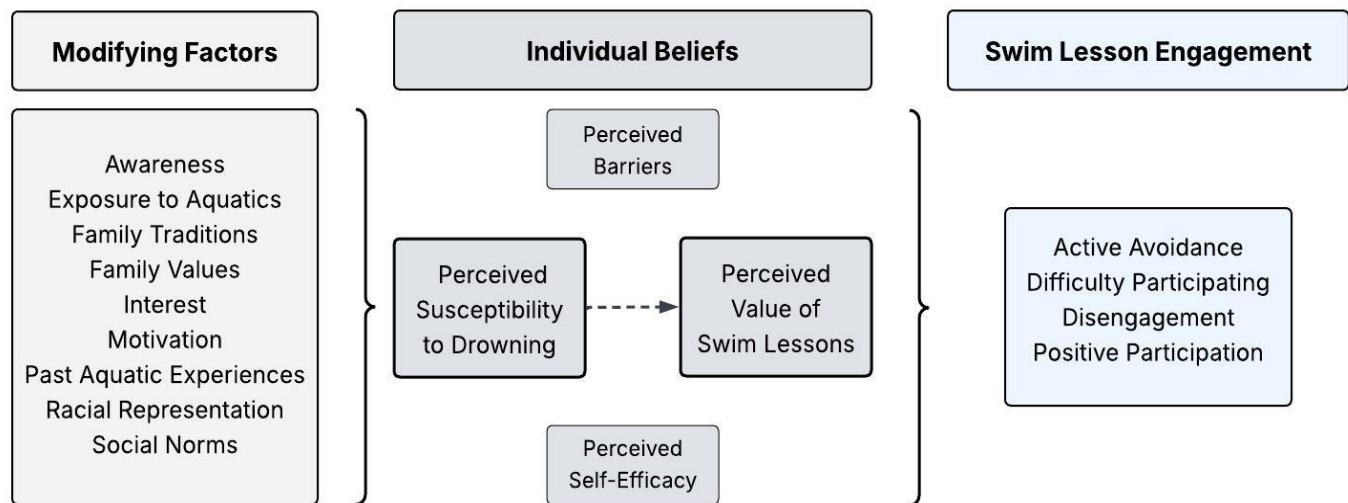
"I'm talking about quality instructors and people that look like them so they're comfortable learning [how to swim]…. Because if they're not comfortable, they're not going to do it."

– veteran swim coach and former nationally ranked competitive swimmer

Discussion

Figure 3. Swim Lessons Belief Model*

* This model represents findings from participants in this sample and is not necessarily generalizable to others.

Based on the findings from the participants in this study, a modified Health Belief Model[33] can be utilized to summarize and conceptualize factors that may facilitate or hinder participation in swim lessons as a part of gaining skills to be water competent for oneself and/or one's children. (See Figure 3.)

This model represents factors that may influence participation in swim lessons as a drowning prevention strategy among the study participants. There were various modifying factors that could shape participants' individual beliefs.[33] Of the individual beliefs, participants' perceived susceptibility to drowning tended to carry the most weight and often influenced perceived value of swim lessons. Among many study participants, several patterns emerged from the contributions of individual beliefs to four outcomes regarding participation in swim lessons.

Participants in this study who perceived themselves to be moderately susceptible to drowning, tended to have a high perceived value of swim lessons. These participants tended to overcome barriers and experienced positive participation in swim lessons for themselves and/or their children.

For those participants with high perceived susceptibility to drowning, the potential risks of harm while participating in swim lessons could outweigh the potential benefits. These participants might have attempted swim lessons but often faced difficulty successfully participating, even if the perceived value of swim lessons was sufficiently high.

Participants with high perceived susceptibility to drowning and a low perceived value of swim lessons, tended to be disengaged with the idea of participating in swim lessons or avoided swim lessons for themselves or their children. These participants seemed less motivated to address barriers to participation, or barriers proved too difficult to overcome. In addition to scheduling, cost and transportation challenges, other barriers to participation could include specific needs not being met surrounding hair management and discomfort related to past negative aquatic experiences.

When the perceived susceptibility to drowning was low, participants tended to hold a low perceived value of swim lessons. Often participants would display a lack of awareness of swim lessons as a drowning prevention strategy, or view swim lessons as irrelevant or unnecessary. These beliefs could foster a disengagement with the idea of participating in swim lessons.

Recommendations

The research team developed six recommendations for drowning prevention interventions with Black and African American persons and communities. These recommendations are based on the themes identified from the qualitative analysis of the FGDs from Phases 1 and 2 and key findings from participant responses to drowning prevention concepts presented in Phase 3. (See Appendix E for summary of Phase 3 key findings.)

1. Promote understanding that water competency means having water safety awareness, basic swimming skills and knowing how to safely help those in need. Raise awareness that being water competent supports safe and enjoyable aquatic participation.

The definition of water competence includes, "… being able to recognize and provide assistance to those in need. Includes water safety awareness, basic swimming skills, and helping others." This definition aligns with most participants' strong desire for themselves and their children to learn water safety and bystander rescue skills.

Increasing awareness of the components of water competence, and that it can be achieved through basic swimming and water safety skills training, could appeal to those with a very high perceived susceptibility to drowning. This strategy could also potentially address low perceived value of swim lessons for some.

2. Support partnerships between community organizations and public schools to provide basic swimming and water safety skills training for children.

Two participant-identified drowning prevention strategies were strongly endorsed in the focus groups: starting swim lessons while young and through school systems. These strategies could address barriers to access, realign social norms and allow time for skill development for aquatic athletes.

3. Infuse a culturally responsive, trauma-informed approach to basic swimming and water safety skills training. Incorporate these principles into instruction for lifeguards and instructors.

Many of the attributes of a trauma-informed approach to implementing public health interventions[34] were generated by participants when speaking of the desired elements of swim lessons. This approach could potentially address low self-efficacy around learning to swim, and high perceived susceptibility to drowning. The following are the six principles of a trauma-informed approach tailored towards programs to gain skills to be water competent:

1) Safety

Pay special attention to ensure physical and emotional safety during swim lessons and in general by lifeguards and staff. Consider initiating education of basic water safety principles in the classroom in addition to formal swim lessons in a pool.

2) Peer support

Encourage representation among aquatic professionals and participants. This could be particularly beneficial when addressing specific concerns such as hair care and generally fostering a comfortable environment.

3) Collaboration and mutuality Listen to and address the needs of communities, families and students.

4) Empowerment, voice and choice

Take a strengths-based approach to promoting water competence. Promote self-advocacy.

5) Trustworthiness and transparency

People should be treated with consistency, fairness and respect. Organizations and professionals should prioritize earning trust. Swim instructors should be clear about their actions and follow through with consistency.

6) Cultural and historical issues

Care should be given to avoid reinforcing negative stereotypes and past trauma by understanding and acknowledging how factors such as racial discrimination contributes to inequities.

4. Support participants who have needs surrounding hair management.

Providing education of various protective styling and hair management options as well as fostering community partnerships for products and/or professional services, could support participants and encourage participation.

5. Raise perceived value of participating in swim lessons through incentives.

Many participants suggested or endorsed incentivizing the completion of basic swim lessons. Some suggestions included providing aquatic gear, access to community events or theme parks, and more advanced swim lessons. Incentives from

community partnerships with hair salons or styling products was very appealing to many participants.

6. Encourage participation in aquatic sports to increase representation and role models in aquatics.

Amplifying Black aquatic athletes and diverse participation in aquatic sports could realign social norms and increase familiarity with swimming.

Recommendations

1. Promote understanding that water competency means having water safety awareness, basic swimming skills and knowing how to safely help those in need.

2. Support partnerships between community organizations and public schools to provide basic swimming and water safety skills training for children.

3. Infuse a culturally responsive, trauma-informed approach to basic swimming and water safety skills training. Incorporate these principles into instruction for lifeguards and instructors.

4. Support participants who have needs surrounding hair management.

5. Raise perceived value of participating in swim lessons through incentives.

6. Encourage participation in aquatic sports to increase representation and role models in aquatics.

Future Directions and Conclusion

The findings from this study support public health efforts to provide tailored, community driven drowning prevention initiatives.

Directions of future research and programs could include:

1. Developing a best practices toolkit or community guide to support partnerships between schools and community organizations to provide basic swimming and water safety skills training to children.

2. Advancing messaging on the concept of water competence to enhance safety during aquatic recreation.

3. Increasing understanding of appropriate approaches to teach basic swimming skills.

4. Identifying ways to encourage Black youth participation in aquatic sports and aquatic professions.

5. Understanding whether technology (e.g. virtual reality headsets, phone apps) promotes participation in early water safety training and enhances uptake of swim lessons.

6. Exploring the scalability of proven and promising programs.

Future public health research can support implementation of community-specific drowning prevention interventions and scalability of programs so that more individuals and families may enjoy safe aquatic participation for generations to come.

References

1. Anderson SM. *A Health Disparity: Perceived Ecological System Factors of African American Aquatic Professionals that Impact African American Participation in Water Safety Awareness, Education, and Aquatic Programming.* [Doctoral dissertation]. Princess Anne, MD: University of Maryland Eastern Shore; 2017.

2. WISQARS. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]). June 4, 2024. Accessed July 23, 2024. https://wisqars.cdc.gov

3. Clemens T, Moreland B, Lee R. Persistent Racial/Ethnic Disparities in Fatal Unintentional Drowning Rates Among Persons Aged ≤29 Years — United States, 1999–2019. *MMWR Morbidity and Mortality Weekly Report*. 2021;70(24):869-874. doi:10.15585/mmwr.mm7024a1

4. Wiltse J. The Black–White Swimming Disparity in America: a Deadly Legacy of Swimming Pool Discrimination. *Journal of Sport and Social Issues*. 2014;38(4):366-389.

5. Hastings DW, Zahran S, Cable S. Drowning in Inequalities: Swimming and Social Justice. *Journal of Black Studies*. 2006;36(6):894-917.

6. Dawson K. Parting the Waters of Bondage: African Americans' Aquatic Heritage. *International Journal of Aquatic Research and Education*. 2018;11(1)(9)

7. Hsieh HF, Shannon SE. Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*. 2005;15(9):1277-1288.

8. Clemens T, Moreland B, Mack KA, Thomas K, Bergen G, Lee R. Vital Signs: Drowning Death Rates, Self-Reported Swimming Skill, Swimming Lesson Participation, and Recreational Water Exposure - United States, 2019-2023. *MMWR Morb Mortal Wkly Rep*. May 23 2024;73(20):467-473. doi:10.15585/mmwr.mm7320e1

9. Brenner RA, Taneja GS, Haynie DL, et al. Association Between Swimming Lessons and Drowning in Childhood. *Archives of Pediatrics & Adolescent Medicine*. 2009;163(3):203. doi:10.1001/archpediatrics.2008.563

10. Saluja G, Brenner RA, Trumble AC, Smith GS, Schroeder T, Cox C. Swimming Pool Drownings among US Residents Aged 5-24 Years: Understanding Racial/Ethnic Disparities. *American Journal of Public Health*. April 2006;96(4):728-33. doi:10.2105/AJPH.2004.057067

11. Centers for Disease Control and Prevention, National Center for Health Statistics. National Vital Statistics System, Mortality 1999-2020. http://wonder.cdc.gov/ucd-icd10.html

12. Pharr J, Irwin C, Layne T, Irwin R. Predictors of Swimming Ability among Children and Adolescents in the United States. *Sports*. 2018;6(1):17.

13. Waller SN, Norwood DM. The Complexities of De-Constructing the Constraints to African American Female Participation in Swimming: A Rejoinder to Irwin et al. *International Journal of Aquatic Research and Education*. 2009;3(4)doi:10.25035/ijare.03.04.03

14. Ross SR, Irwin CC, Irwin RL, Martin NT, Ryan TD. The Development of Swimming Skills for African American Youth: Parent and Caregiver Perceptions of Barriers and Motivations. *International Journal of Aquatic Research and Education*. 2014;8(3):3.

15. Dasinger TM, Brown LL, Sawyers AJ. Examining Minority Youth Swimmers' versus Non-swimmers' Perceptions of Swimming Involvement. *International Journal of Aquatic Research and Education*. 2020;12(4):6.

16. Norwood DM. I Am Not My Hair... or Am I?: Exploring the Minority Swimming Gap. [Doctoral dissertation]. Knoxville, TN: University of Tennessee; 2010.

17. Beale-Tawfeeq A, Quan L, Bennett E, Fielding RR. Promoting Equity, Social Justice, and Saving Lives with Life Jacket and Clothing Policies. *International Journal of Environmental Research and Public Health*.

18. Ito GH. Barriers to Swimming and Water Safety Education for African Americans. *International Journal of Aquatic Research and Education*. 2014;8(3):4.

19. Irwin CC, Irwin RL, Ryan TD, Drayer J. Urban Minority Youth Swimming (In)ability in the United States and Associated Demographic Characteristics: Toward a Drowning Prevention Plan. *Injury Prevention*. August 2009;15(4):234-9. doi:10.1136/ip.2008.020461

20. Rawlins KC. Reestablishing a Culture of Water Competency at an HBCU. *International Journal of Aquatic Research and Education*. 2018;11(1):5.

21. Gorsuch MM, Myers SL, Jr., Lai Y, Steward D, Motachwa R. Vanishing Racial Disparities in Drowning in Florida. *Injury Prevention*. December 2019;25(6):487-493. doi:10.1136/injuryprev-2018-042872

22. Waller S, Norwood DM. What African Americans Can Do to Bridge the Swimming Gap: A Call to Action. *International Journal of Aquatic Research and Education*. 2011;5(4)doi:10.25035/ijare.05.04.10

23. Beale AK. Fulfilling the Promise of Making a Difference: Creating Guards of Life with TPSR. *International Journal of Aquatic Research and Education*. 2012;6(3)doi:10.25035/ijare.06.03.09

24. Beale A. Making a Difference: TPSR, a New Wave of Youth Development Changing Lives One Stroke at a Time. *Journal of Physical Education, Recreation & Dance*. May/June 2016, 2023-11-28 2016;87(5):31-34.

25. Stempski S, Liu L, Grow HM, et al. Everyone Swims: a Community Partnership and Policy Approach to Address Health Disparities in Drowning and Obesity. *Health Education & Behavior*. April 2015;42(1 Suppl):106s-114s. doi:10.1177/1090198115570047

26. Quash T, Rawlins K, Anderson S. A Comprehensive Analysis of Aquatic Programming at Historically Black Colleges and Universities (HBCUs). *International Journal of Aquatic Research and Education*. 2020;12(3) doi:10.25035/ijare.12.03.02

27. Gamory T, Lynch M, Thomas AU, Beale-Tawfeeq A. Blue-Mindfulness Training: A Story of Restorative Justice Decolonizing and Re-indigenizing Communal Relationships with Water. *International Journal of Aquatic Research and Education*. 2023;14(2)doi:10.25035/ijare.14.02.07

28. Wolfrom D, Snellgrove C, Rivera M, Vandessppooll K, Feliciano E. Closing Racial Disparity by Dismantling Constructs of Fear - A Practical Methodology for Learning to Swim. *International Journal of Aquatic Research and Education*. 2023;14(2)doi:10.25035/ijare.14.02.01

29. Beale-Tawfeeq A, Quash T, Rawlins K, Prizzia V, Lynch M. "POOL: A Social History of Segregation Exhibition" Exploring Social Justice Through the Lens of Water Safety Awareness and Art-based Education. *International Journal of Aquatic Research and Education*. 2023;14(2)doi:10.25035/ijare.14.02.06

30. National Academies of Sciences, Engineering and Medicine. *Federal Policy to Advance Racial, Ethnic, and Tribal Health Equity*. July 27, 2023. https://doi.org/10.17226/26834

31. *U.S. National Water Safety Action Plan - 2023-2032*. 2023. https://www.watersafetyusa.org/uploads/7/0/6/0/70608285/usnwsap_v7.pdf

32. Rawlins K AS, Quash T. Self-reported Water Competency Skills at a Historically Black College & University and the Potential Impact of Additional HBCU-Based Aquatic Programming. *International Journal of Aquatic Research and Education*. 2023;14(2)doi:10.25035/ijare

33. Rimer BK, Glanz, K. *Theory at a Glance: A Guide for Health Promotion Practice*. (Second Edition). U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute. 2005.

34. Substance Abuse and Mental Health Services Administration: *Practical Guide for Implementing a Trauma-Informed Approach*. SAMHSA Publication No. PEP23-06-05-005. Rockville, MD: National Mental Health and Substance Use Policy Laboratory. Substance Abuse and Mental Health Services Administration, 2023.

Appendices

Appendix A. Summary of Key Findings from Informal Subject Matters Expert Discussions

The research team conducted informal preliminary discussions with six subject matter experts (SME)s who were also community members working in drowning prevention and/or advocacy efforts. These interviews informed the focus group discussion guides and the organization of the focus groups; however, were not part of the formal data collection and analysis.

Theme	Summary of key learnings	Illustrative quotes
Connections to water	SMEs shared examples of positive Black and African aquatic traditions including respect of and deep spiritual connections to water and aquatic activities throughout history. Even during segregation, Black people found some aquatic spaces that were available to them such as Black YMCAs and beaches designated for use by Black people. Today, community programs and HBCUs are creating opportunities for participation. These efforts exemplify a successful return to water, yet the effects of historical factors resulted in many adults today lacking swim skills and water safety knowledge, negatively impacting their ability to encourage and teach their children.	"Teaching kids water safety and swimming skills in Muslim communities is one of the three most important life skills according to the Prophets." "Parents have shame in not knowing how to swim. There should be no shame, you can learn at any age."
Impact of historical barriers to aquatic spaces	SMEs highlighted the impact on many Black people of historical exclusion from public pools and beaches and the resulting trauma many share. This history has shaped present behaviors and attitudes toward water safety among many Black people such as negative perceptions of water, generational fear of water, reduced acquisition of skills and a loss of swimming culture. Phrases like "Black people don't swim" have roots in historical barriers but reinforce disengagement from aquatic activities.	"Trauma decontextualized in a people over time, unexpressed, unexamined, unaware, unaddressed will look like culture." - SME paraphrasing a quote from Resmaa Menakem
Conceptualizing water competence and safety	Most people perceive water competence as generally being safe and comfortable in water, not necessarily by having a certain skill set.	"We always hear the traumatic stories and we never really hear the positive stories that happen *(in the Black community)*."

Theme	Summary of key learnings	Illustrative quotes
	Parents tend to overestimate their and their children's swimming ability.	
	Highlighting the positive experiences, like the joy and benefits of swimming and cultural connections to water, is recommended to inspire a more proactive approach to becoming water competent.	
Historical trauma can amplify fear of drowning	For some, the fear of drowning is deeply tied to historical events such as segregation and the subsequent lack of access to safe aquatic spaces. This and pervasive stories of drowning contribute to intergenerational trauma and fear around water activities. Historical trauma created a cultural shift away from valuing water activities and building competency.	"Everyone has a story of someone going into water and never coming back- getting in water can mean not being safe." "There was an *(negative)* impact on the African American community on the sense of belonging and competence and confidence around water...."
Overcoming fear of drowning	Stories that perpetuate fear, often passed down by parents to keep their kids safe and out of water, must be unboxed (understanding the historical origins) and countered by positive framing that builds knowledge. Familiarity with water, water safety knowledge and practices and swimming competency reduce fear.	"Instead of learning to be safe in water, many parents keep their kids safe by staying out of water...this fear response and apprehension of water most likely won't go away with just offering free swim lessons." "It's baby steps, go slow, start on land or shallow water. People that look like them showing them what it looks like *(to be safe in water)*."
Access and barriers to swimming facilities	SMEs noted that many people do not have access to safe and comfortable aquatic spaces. This hinders people's ability to gain water safety knowledge and swimming skills which can contribute to drowning risk. Access includes welcoming environments/pools in Black communities, affordable and conveniently scheduled lessons (for working parents and school aged children) and knowledge of available lessons and how to sign up for them.	"Some cultures may not have access (to pools) because they are for mixed gender and this is not allowed." – SME activist speaking about Muslim women "If there are no avenues presented to enter *(safe, welcoming and inclusive)* water spaces, then there is no demand for water safety practices."

Theme	Summary of key learnings	Illustrative quotes
	Other specific barriers include limited availability of gender-specific changing rooms and pools and needs surrounding hair maintenance and body image or modesty in swim attire.	
Representation, exposure and the role of family	Seeing instructors and lifeguards who reflect the community inspires trust and increases the likelihood of participation. It is recommended to take a family-centered approach to build awareness of water safety and to encourage support of and involvement in aquatic activities. People see organized swimming as a sport and other sports are taking precedence. Cross training in water can create opportunities for exposure and participation. Furthermore, seeing Black aquatic role models helps people see themselves participating and dismiss stereotypes.	"Seeing people that look like you and care about you can actually reverse those stories and that immediate sense of fear."
Catalysts for becoming water competent	There are many layers, but it is important to acknowledge historical trauma and address fear through land-based education that can include countering myths, reducing anxiety and teaching breathing techniques. Other facilitators include: improving access to water safety and swim skills training, having positive experiences associated with aquatics, bringing communities together around water, promoting career and economic opportunities and featuring the inspiring stories and images of Black role models in aquatics.	"This work is about opening minds- realizing they can do this, overcoming their fear, preventing panic, learning to stay calm and breathe, feeling comfortable in water, learning skills so they can be safe and enjoy water."

Appendix B. Recruitment Screener for Focus Group Discussion Participants

Session	Segment	Language	Location	Region
1	Black or African American parents or guardians of child(ren) involved in competitive swimming or highly proficient in water	English	Virtual	CA, FL, GA, LA, MI, NY, OK, TX
2	Aquatic professionals that serve Black or African American people	English	Virtual	CA, FL, GA, LA, MI, NY, OK, TX
3	African Diaspora/Immigrants or 2nd generation adults from Africa (mixed gender/mixed country)	English	At Facility	Atlanta, GA
4	African or Black Muslim females regardless of parental status	English	At Facility	Atlanta, GA
5	Parents or guardians of non-swimming child(ren) (1-14yrs)	English	At Facility	Atlanta, GA
6	Parents or guardians of non-swimming child(ren) (1-14yrs)	English	Virtual	CA, FL, GA, LA, MI, NY, OK, TX
7	Parents or guardians with swimming child(ren) (5-14yrs)	English	Virtual	CA, FL, GA, LA, MI, NY, OK, TX
8	Female swimmers and non-swimmers regardless of parental status (identify as African diasporan or African American)	English	Virtual	CA, FL, GA, LA, MI, NY, OK, TX
9	Black or African American young adults ages 18-24 years (all males/ swimmers and non-swimmers)	English	Virtual	CA, FL, GA, LA, MI, NY, OK, TX

INTRODUCTION

Hello, I'm _____ from _____, a local market research company. This is not an attempt to sell you anything. I'd only like to ask you a few questions. May I please speak with you for a few minutes. Please be assured that no one will contact you as a result of your participation in this research project.

DEMOGRAPHICS

Q1. What is your age?

    [if Q1= under 18, Terminate]

Q2. How would you identify your racial or ethnic background? (select all that apply)

    1.   African American/Black *[MUST SELECT, if Not, THANK and TERMINATE]*
    2.   White
    3.   Hispanic or Latino
    4.   Asian
    5.   Native Hawaiian or Pacific Islander
    6.   American Indian and or Alaska Native
    7.   Middle Eastern or North African
    8.   Something else

Q3. What is your region of origin or ethnic descent? You may select more than one response.

    1.   Africa [Please Specify]
    2.   North America [Please Specify]
    3.   South America [Please Specify]
    4.   Central America [Please Specify]
    5.   The Caribbean [Please Specify]
    6.   Other [Please Specify]

Q4. Do you currently reside in the United States?

    1.   Yes
    2.   No [THANK AND TERMINATE]

Q5. What state do you currently reside in?

    1.   California

    2.   Florida

    3.   Georgia

    4.   Louisiana

    5.   Michigan

    6.   New York

    7.   Oklahoma

    8.   Texas

    9.   Other (please specify) _____*[THANK and TERMINATE]*

Q6. What city do you currently reside in? _____

Q7. How do you currently describe yourself?

    1.   Female

    2.   Male

Q8. Are you currently a parent or legal guardian to child(ren) under the age of 18?

    1.   Yes

    2.   N/A

Q9. (If yes to Q8). How old is/are your child(ren)?

Q10. (If yes to Q8). What is your child(ren's) sex?

    1.   Female

    2.   Male

Q11. What is the highest level of education you have completed? (select one)

    1.   Some high school

    2.   Graduated high school/GED/Equivalent

    3.   Some college

    4.   Technical school graduate

    5.   College graduate

    6.   Postgraduate

Q12. What is your marital status? (select one)

1. Single
2. Married
3. Living with significant other as married
4. Separated/Divorced
5. Widowed
6. Prefer not to answer

Q13. Which of the following categories best describes your household annual income before taxes? (select one)

1. Less than $20,000
2. $21,000 - $44,000
3. $45,000 - $64,000
4. $65,000 - $84,000
5. $85,000 - $99,000
6. $100,000 OR MORE

Q14. Are you currently?

1. Employed full-time
2. Employed part-time
3. Self-employed
4. Homemaker
5. Unemployed
6. Retired

SCREENER

Q1. Are you interested in participating in a focus group on drowning prevention within the African American and Black communities?

1. Yes
2. No [THANK AND TERMINATE]

Q2. Are you comfortable talking about water activities, drowning or drowning prevention within the African American and Black communities?

    1.   Yes

    2.   No [THANK AND TERMINATE]

Q3. This is a small group discussion where you'll need to speak and read in English. Are you comfortable doing so in front of a small group?

    1.   Yes

    2.   No [THANK AND TERMINATE]

Q4. Please select the group that best describes your situation:(Please listen carefully. Select only one.)

1. You are a parent or guardian with child(ren) in high school or younger who participate in competitive swimming.

2. You have experience teaching, coaching, or managing aquatic programs.

3. You identify as part of the African Diaspora/Immigrants or 2nd generation adults (Individuals of African descent who live outside the continent of Africa-including people from the Caribbean).

4. You identify as a Black immigrant or African American Muslim *AND* are female.

5. You are a parent or guardian of a child(ren) between the ages of 1 and 14 whose child(ren) does not currently participate in swimming or water-related activities. This includes anything that involves being in or around water, such as swimming, water sports, or even just playing in the pool.

6. You are a parent or guardian of a child(ren) between the ages of 5 and 14 whose child(ren) is currently participating in swimming or other water-related activities? This includes anything that involves being in or around water, such as swimming, water sports, or even just playing in the pool.

7. You are 18 years or older and are female.

8. You identify as a Black or African American male between the ages of 18-24.

9. None of these groups describe me [THANK AND TERMINATE]

Q5a. How would you describe your swimming ability? (select only one)

1. Non-Swimmer

    Definition: Someone who cannot swim or has not learned how to swim. They may feel uncomfortable or unsafe in the water and typically avoid it.

2.   Beginner

Definition: Someone who has basic swimming skills but may need to improve their technique and confidence. They can perform simple strokes (like the dog paddle or basic freestyle) for short distances. May be uncomfortable in deep or natural water (i.e. oceans or lakes).

3.   Functional swimmer

Definition: Someone who is comfortable in the water and can perform multiple strokes with reasonable skill. They can swim for longer distances, tread water and are comfortable in deep water where they can't stand. They have a functional grasp of techniques like freestyle, backstroke and possibly breaststroke.

4.   Advanced

Definition: Someone who has very strong swimming skills and technique. They can swim efficiently and effectively across various strokes. Advanced swimmers have participated in competitive swimming or other water sports or life guarding and have a high level of comfort at any water depth and are skilled in the water.

Q5b. [If yes to Q4 indicated being a parent or guardian (selection 1,5,or 6)]

How would you describe your child's swimming ability? (select only one)

1.   Non-Swimmer *[People who select this option could be put in group 5, 6]*

Definition: Someone who cannot swim or has not learned how to swim. They may feel uncomfortable or unsafe in the water and typically avoid it.

2.   Beginner *[People who select this option could be put in groups 7]*

Definition: Someone who has basic swimming skills but may need to improve their technique and confidence. They can perform simple strokes (like the dog paddle or basic freestyle) for short distances. May be uncomfortable in deep or natural water (i.e. oceans or lakes).

3.   Functional swimmer *[People who select this option could be put in groups 7]*

Definition: Someone who is comfortable in the water and can perform multiple strokes with reasonable skill. They can swim for longer distances, tread water and are comfortable in deep water where they can't stand. They have a functional grasp of techniques like freestyle, backstroke and possibly breaststroke.

4.   Advanced *[People who select this option could be put in group 1]*

Definition: Someone who has very strong swimming skills and technique. They can swim efficiently and effectively across various strokes. Advanced swimmers have participated in competitive swimming or other water sports or life guarding and have a high level of comfort at any water depth and are skilled in the water.

Q6. Have you or a close family member participated in an interview or focus group on drowning prevention issue in the last 6-12 months?

      1.   Yes [SKIP to Q8]

      2.   No

Q7. What was the topic of the group discussion or interview?

      (RECORD RESPONSE BELOW)

_____

[IF TOPIC IS RELATED TO DROWNING PREVENTION OR AQUATIC PARTICIPATION, TERMINATE]

RELATIONSHIP WITH WATER

Q1. How often do you participate in water activities?

      1.   Frequently (once a week or more)

      2.   Occasionally (once a month)

      3.   Rarely (a few times a year)

      4.   Never

Q2. Do you know how to swim?

      1.   Yes

      2.   No

      3.   Learning

Q3. Have you ever taken formal swimming lessons?

      1.   Yes

      2.   No

      3.   Unsure

Q4. If you have children, have they taken swimming lessons?

      1.   Yes

      2.   No

      3.   Not applicable

Q5. How often do you visit places with water activities (like pools, beaches, lakes, etc.)?

    1.   Frequently (once a week or more)

    2.   Occasionally (once a month)

    3.   Rarely (a few times a year)

    4.   Never

Q6. What types of water activities do you or your family engage in? (Select all that apply)

    1.   Swimming in a pool

    2.   Swimming in the ocean

    3.   Swimming in a lake

    4.   Boating

    5.   Fishing

    6.   Water sports (e.g., water skiing, surfing)

    7.   None of the above

    8.   Other (Please specify)

Q7. Have you or someone you know ever experienced a water-related incident including a drowning or a nonfatal drowning?

    1.   Yes

    2.   No

Q8. What, if any, are your main concerns about participating in water activities? (Select all that apply)

    1.   Safety concerns

    2.   Lack of swimming skills

    3.   Fear of drowning

    4.   Lack of access to swimming facilities

    5.   Cultural or community norms

    6.   Not feeling comfortable

    7.   None of the above

    8.   Other (please specify)

Q9. How important do you think it is to learn how to swim?

    1.   Very important

    2.   Somewhat important

3.   Neutral

4.   Not very important

5.   Not important at all

Q10. Do you have any additional comments or information you believe is relevant?

(Please specify) _____

Contact Information:

Name: _____

Thank you for your time and interest!

Appendix C. Final Focus Group Discussion Facilitator Guide, Phases 1-2

INTRODUCTION: [3-5 minutes]

Welcome and thank you for agreeing to participate in this group discussion. My name is _____. My role is to guide our conversation today. Before we begin, please silence or turn off your cell phone or anything else that makes noise [pause]. Thank you.

Drowning is a serious issue that affects many communities, but it disproportionately impacts the Black community. Understanding why this happens and how we can prevent it is important. In today's discussion, we'll explore the challenges (barriers) and helpful factors (facilitators) related to drowning prevention in the Black community.

Remember that we take your privacy seriously. What you say will be kept completely private and your name will not be associated in any way with the research we do.

Before we get started, there are just a few things we need to cover.

- • Participation in this focus group is completely voluntary.

- • You can choose not to answer a question if you want.

- • The session is being audio recorded, so please speak at the same volume that I speak at—If you are talking softly, I may ask you to speak up to ensure your comments are captured.

- • Please speak one at a time.

Participation from everyone is important. There are no right or wrong answers. The group does not need to agree on everything—you can voice a different opinion.

In the next 2 hours, I am going to ask you a variety of questions. We are interested in all your opinions. We also have a lot of questions, so I may need to move us along occasionally. Please don't take this personally; it's just part of the process.

Does anyone have any questions or concerns before beginning?

Do we have your permission to record this session for notetaking purposes?

WARM UP/ICE BREAKER [5 MINS]

So we can get to know each other, let's begin by finding out a little bit about each other.

1. What is your favorite activity, for yourself and to do with your kids or family/friends?

CURRENT RELATIONSHIP WITH WATER [15 MINS]

1. Today, we are going to talk about bodies of waters and your relationship to them. With that in mind, what does water represent in your life? How would you describe your relationship with water?

   - Probe: Do you spend time in and around water?
   - Probe: Did you grow up around water/swimming?

2. How safe do you feel around water?

3. What is the cultural history in your family around water?

4. Does anyone in your family swim?

   - Probe: Do you or your kids swim?
     - Probe: Why or why not?
   - Probe: What about previous generations?

5. What are the mental/physical health benefits of water activities, if any?

   - Probe: Would they be a reason you/your family would choose to participate?

For swimming families or swimmers:

1. How did you (or your kids) first become interested in water activities?

   - Probe: What did you/they choose to participate in? Why?

2. What was the experience like?

   - Probe: What were your expectations and were they met?

3. Is there anything you would change or improve about the experience for you/your kids, or to make it better for others?

   - Probe: How and why?

For non-swimmers:

1. What best describes your point of view about learning to swim or learning about water safety?

[Participants may fall within this range, however, keep it open-ended so participants can in their own words speak to what best fits their situation]

   - Not interested
   - I tried it but I don't feel comfortable/didn't like it/had a bad experience, so I stay away
   - Never had the opportunity, haven't really considered it

- Interested but not currently a priority
- What are the things that are stopping you from making it a priority?
- What would help to overcome that?
- What kind of support would be helpful?
- Think it's important and are actively seeking participation
- Probe: How are you looking to participate? What avenues have you already explored?
- What kind of support would be helpful?

DESIRED RELATIONSHIP WITH WATER [10 MINS]

1. What do you want your relationship to water to be?
   - Probe: Why is that? Tell me more.
2. Is there anything you would want to be able to do in water or want your kids to learn to do?
   - Probe: Why is that important to you?
3. How do water activities fit into your family's priorities?
4. Are you aware of the potential economic benefits from knowing how to swim?
   a. Probe: Jobs like lifeguarding, military positions, college sports scholarships, etc.
   b. Probe: Would your family be interested in learning more about those benefits? Why or why not?

BARRIERS [10 MINS]

For swimming families:

1. What challenges or barriers have you faced in participating in water activities?
   - Probe for any cultural barriers. Ask if they are comfortable sharing a story (to understand how that might have shaped their perceptions/attitudes/behavior).
   - Probe: Health conditions
   - Probe: Feeling safe, feeling comfortable or a sense of belonging
   - Probe: Seeing others who look like me
   - Probe: Hair health and maintenance
   - Probe: Modesty or swim attire

For non-swimming families:

1. Do you think you or your family could learn how to be safe in and around water or learn to swim? How?

2. Why don't you or your children participate in water activities or swimming lessons?

   - Probe: are you interested in participating (yourself and/or children)?

   - Probe: Can you identify any specific reasons or concerns that have prevented you from participating?

   - Probe: Are there particular health issues, fears, or personal experiences that have influenced your decision? [listen for feeling safe, feeling comfortable or a sense of belonging; hair health and maintenance; modesty or swim attire]

   - Probe: Do you see or know of other Black families that swim?

   - Probe: Have you ever had a negative experience with water activities that might affect your willingness to participate? Ask if they are comfortable sharing a story (to understand how that might have shaped their perceptions/attitudes/behavior).

Non-swimming and swimming families

NEEDS - [10 MINS]

1. If water safety and/or swimming lessons were designed around you/your family, what kind of experience would you want?

   - What might that look like? Feel like?

   - Specifically, what would you need to feel comfortable participating in a swim lesson for yourself? Is there a difference between males and females?

   - Specifically, what would you need to feel comfortable having your kids participate in a swim lesson?

2. When thinking about water safety and/or swim lessons:

   - What age do you feel is the best age to start swimming lessons?

   - What kind of exposure to water/ aquatic activity would you want for your infant? Toddler? Young child?

   - Is there a difference based on gender?

3. Would you like to take a swimming lesson in the water with your child? Why or why not?

4. Would you like the idea of family or intergenerational swim lessons? Why or why not?

   - How would you like that to look?

5. How long do you think it should take for a child to learn to swim and be safe in the water? As an adult? (how many lessons over how much time?)

6. Ultimately, what level of swim skills/water competency would you like your child to have?

   • What does that look like?

   • At what age should they have achieved this?

7. If swim lessons were not free, what's an appropriate cost?

8. When thinking about staff in an aquatic environment:

   • Describe your ideal swim instructor.

      i. What would make you feel safe with a swim instructor for yourself and/or your children?

   • What would you like to see in a lifeguard to feel safe at the pool or beach?

STATISTICS [10 MINS]

I am going to read some information and then we can discuss it:

Every year, over 4,000 people in the United States die from unintentional drowning and another 8,000 have survive drowning incidents but may have long-term health problems from nonfatal drowning. Sadly, Black or African American people are at disproportionately high risk.

In the past, discrimination and segregation kept Black Americans from accessing swimming pools and natural bodies of water, so many didn't get the chance to learn how to swim. Knowing how to swim is very important for preventing drowning, which could be a big reason why more Black people drown.

A study found that after age 10, Black male youth drowned at 10 times the rate of White male youth. White male children had the highest drowning rate at ages 1-4, but their rate went down with age. For Black male children, the rate was lower at ages 1-4 but went up as they got older.

Another finding is that Black females reported lower swimming ability compared to Black males and people of other races and ethnicities.

1. How do you feel about hearing these statistics?

   • Probe: Do they match what you've seen or heard in your community?

2. Why do you think drowning is more common among Black people?

3. How do you feel sex plays a part in drowning incidents?

4. How do you feel sex plays a part in participating in water activities or water safety programming?

5. Have you or someone you know faced difficulties in finding places to swim or take swimming lessons?

   • Probe: Can you tell us more about those challenges?

6. What historical factors have impacted generations of Black families not swimming?
    • Probe: Discuss the underlying issues of segregation- open up the conversation about how to acknowledge and address this issue?
7. What about any issues today that might be impacting current generations of Black families not swimming?
    • Probe: Issues such as racism, any social norms, lack of representation… (ask if anyone has experienced any of these and if they feel comfortable sharing their story)

SWIMMING AND WATER SAFETY AS A LIFE SKILLS [5 MINS]

1. What do you consider as necessary life skills that all people need to learn? Where do people learn these skills? Are they the same for everyone?
2. Would you frame water safety and swimming as a life skill? Why or why not?
    • Probe: Where/How do you think it should be taught?
3. Do you think there should be advocacy for teaching swimming and water safety as a life skill? Why or why not? and how should it be done?

SOLUTIONS/PROGRAMS [15 MINS]

I am going to read some information and then we can discuss it:

Basic Water Safety and Swim Skills Program:

The objective of a water safety program is to educate participants on safe behaviors and practices around water to prevent drowning and water-related accidents.

Key Components May Include:
    • *Water Safety Awareness: Understanding water hazards and other water safety concepts like never to swimming unsupervised and wearing a life jacket when boating*
    • *Basic Swimming Skills: Teaching fundamental swimming techniques.*
    • *Rescue Techniques: Instruction on how to assist someone in trouble without putting oneself at risk*
    • *First Aid & CPR Training: Learning basic first aid and CPR skills to respond to water emergencies.*

1. If this was available, would you participate?

    - Probe: why/why not?
    - Probe: what specifically would motivate you to participate?

2. What type of experience or programming would make a difference in your community, for your family, for other extended families?

    - What would need to change for you to feel safe? Comfortable?
    - What would it look like if it were designed around your needs?

3. How can we raise awareness and improve education about water safety programs like these in Black communities?

    - Who/where would you trust to get this information from?

4. How else would you promote a culture of water safety in Black communities?

    - Probe: Are there other things that can be done to prevent drowning other than taking swimming lessons?

[Explore ideas or suggestions they have for programs they would participate in or think others would participate in]

5. Are you interested in hearing water safety information for yourselves or your families?

    - Probe: If so, how?

6. What role, if any, do you see medical providers playing in drowning prevention education?

7. Do you think drowning prevention strategies that are intergenerational would be helpful? If so, what could that look like?

8. If you could do anything to reduce drowning, what would it be?

CLOSE [5mins]

Thank you for your time and your responses. Those are all the questions that I have. We have a few minutes in the session remaining for you to share any thoughts you have about the topics we covered today and for you to ask questions.

[1min pause].

[instructions for incentive payment] Have a good evening/day.

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
Awareness of drowning risk		Deductive	General degree of understanding (or lack thereof) of community level drowning prevalence and risk factors within the Black community. May include reactions to presented statistics.	*Yes, I would tell them to look at the news, that there are so many children, so many drowning deaths, and it has nothing to do with socioeconomics. Rich people's kids are drowning because they're not safe. Poor people's children are drowning. That is very, very important for your child's safety to teach them how to swim. That's what I would say.*
	Lack of understanding of water competency and drowning risk	Inductive	Participants describe engaging in aquatic situations that would be risky given their reported swim skill level and water competence. Describes situations that demonstrate lack of water-safety-awareness.	*Initially, I was fearful of my own kids going into deep waters, until I took my kids on a trip down the (river) and raft. And it was my youngest son first time in the deep water. We didn't know how deep it was because it's murky. And he dropped his hat, and he really liked this hat, so he tried to reach it, and he fell in. He didn't have on a life vest because he chose not to wear one.... He was four.*
	Understanding of water competency and drowning risk	Inductive	Participants demonstrate understanding of drowning risk at individual or family levels.	*If I'm taking my kids and their friends or if I'm taking somebody else, I'm all up in the mix because I know it only takes 60 seconds and an inch of water for somebody to lose their life or be brain dead. So I'm extremely cautious. Like everyone says, I respect it, especially if it's a natural body of water as opposed to a pool. But I'm very 'OCD' with the kids at the pool, especially if I have more than my kids and I know their level of swimming.*
Barriers to participation in aquatic activities		Deductive	Description of general lack of opportunities or other barriers to participation (e.g. low motivation or interest, safety concerns, etc.). Does not include lack of priority, low perceived value, hair management, access, modesty or fear.	*And then a lot of parents, if they don't know how to swim, then they don't encourage the kids to learn how to swim either. I think that that's the start there is if the parents know how to swim themselves.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
	Access	Inductive	Discussion of barriers related to access (e.g. location, facility availability, time, transportation, cost). May include infrastructure issues such as pool closures or staffing challenges, perhaps related to COVID.	*Well, I think a lot of us don't have the access to swimming pools in our backyard. I grew up on the 12th floor of an apartment, so I didn't have access to a swimming pool, and a lot of my friends didn't either. Growing up in apartments and not having just access to it, really.*
	Issues related to hair management	Inductive	Participants describe challenges and concerns related to hair maintenance, protection and health when swimming. May also include acknowledgement of social norms surrounding getting one's hair wet.	*...little girls, all the effort that it takes to braid their hair and wash it and having to deal with them crying and doing all this other stuff. I mean, swimming caps are a thing, for me, I'll just put a swimming cap on my daughter, but it is a lot of effort. So, definitely you don't want your daughter's hair to get messed up from playing in the pool. I know that was a real concern for my mom. I'm sure it's been a lot of concern for the little girls.*
	Modesty	Inductive	Participants describe concerns or discomfort related to swim wear. May include discomfort wearing swim wear or seeing others in swim attire. Excludes unwanted sexual attention by others.	*But the swimsuit modesty is a thing, especially with the younger Black girls. They have hips as teenagers, so their body types are not even the same as their counterparts. So yes, I do have certain swimmers who their swimsuits fit too big because they are uncomfortable with the tight fit. Teaching them, and learning how to properly wear a swimsuit and what it's supposed to look like, is a thing too.*
Benefits of water-based activities		Deductive	Discussion of benefits and positive aspects of engaging in water-based activities.	*It's great for the mind. It's great for exercise. It's great for building confidence and it's a life skill. It really is.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
Current relationship with water		Deductive	Participants describe their feelings, beliefs and perceptions towards water bodies, water-based activities and water safety. Discussions around what water represents in people's lives.	*Water represents danger. Danger, because I can't swim, and over the entire course of my life, I've had many, many near drowning incidents, including one that happened this summer in the Dominican Republic with my husband, and the lifeguard saw me drowning and he jumped in the water and pulled me out. It was really scary. Really scary.*
	Avoidance	Inductive	Participants discuss avoiding water-based activity as a water safety strategy for themselves or others. Might describe intergenerational rules.	*…it created such a fear in me that I avoided pools for most of my life. And once I had my children, we would start going on vacations to the ocean and we would be around pools, but I wouldn't get in the water. It took almost another 10 years before I actually tried to get in the water. I would stay by the pool, I would stay by the side, dip my feet in, but I just wouldn't get in.*
	Cautious approach	Inductive	Participants characterize their approach to participation as cautious. May include discussion of closely monitoring their children around water or other actions that suggest caution or discomfort.	*…I want to be able to get in the pool because I want to and I want to swim, but I still want to have that healthy dose of fear. Because I don't want my kids to think that they can go out in the middle of the ocean and be okay when mother nature is so unpredictable. So it's more of a safety thing for me and that's what I want for my kids too, to be safe and to be confident, but still have a healthy dose of fear.*
	Dual relationship	Inductive	Participants describe opposing feelings towards water and aquatic activity.	*…it could flood, a tsunami could come and wipe out a village and displace millions of people, or it could be used to take that relaxing bath.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
	Positive and active participation	Inductive	Participants describe active and/or positive ways they or their family currently engage in aquatic activities. May be seasonal involvement but otherwise does not include self-limited engagement (e.g. sitting on side of pool only). Does not include actions that demonstrate a lack of water safety awareness. Does not include discussion around regular job duties for those who are aquatic professionals.	*So for me, by myself, water is very grounding. Like I said, I love kayaking, I love floating, that sort of thing.*
Desired relationship with water		Deductive	Participant describes what they would like their relationship with water to be. May be aspirational or may also include no change.	*I would say comfortable. You want to be comfortable with the water. You don't want to be scared of it.*
Facilitators for increasing water competency or aquatic participation		Deductive	Participant-generated ideas, desires, or actions taken about how to reduce drowning or promote water safety and acquisition of swim skills for oneself, their children and/or generally in Black communities. Can also include reactions to a sample water safety and basic swim skill program. Might also include ways to promote feelings of safety and comfort in aquatic spaces.	(I would be motivated if) *My kids really wanted me to swim with them or they asked me and stuff.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
	Acquiring water rescue skills	Inductive	Participants describe the desire for themselves and/or their children to learn the skills to get oneself out of a dangerous aquatic situation and/ or to rescue others from drowning. May include CPR, first aid, etc. Does not include formal lifeguard training.	*Especially* (learning) *the rescue techniques because I think that's so important. That's my main reason for wanting to* (learn to) *swim.*
	Availability of pools for swim lessons	Inductive	Description of the need for more available pools in communities for swim lessons. May include instances of access they have experienced or know about.	*We need more pools. We need more pools, that's the biggest thing. And we need more pools that would allow accessibility and to give lessons and give kids the opportunity to be on swim teams and be on all levels...*
	Desired approaches to swim lessons	Inductive	Description of how to make swim lessons comfortable for people who are fearful or report that they have experienced trauma related to past negative aquatic experiences. Does not include desired traits of lifeguards or instructors.	*I mean for the kids, make it fun. Have some popular songs that they listen to when they come in to maybe do some water aerobics, get them ready for the swimming lessons, and make it fun and fun activities for the kid. For the adult, I think similar, play some cool music that they could get comfortable with.*
	Desired traits for lifeguards/swim instructors	Inductive	Description of desired traits in aquatic professionals. Includes traits that increase comfort and safety.	*...I think a lot of people enter a spot and they're forgotten about the moment they walk in. But if...they make sure to acknowledge your presence while being in a safe environment, I think you have a higher probability of actually not* (only) *learning but wanting to learn and trying to accelerate learning.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
	Importance of starting swim lessons while young	Inductive	Participants speak about water safety and swim skill instruction beginning when children are young. This may reflect a value or is a description of what they experienced.	*I started my children at two, so they didn't have fear, they didn't have any thoughts or opinions. So I think when they're exposed at that age, they just do it. They don't know what it is not to know how to swim. That's all they know because they started so young.*
	Management of hair and comfortable swim attire	Inductive	Description of successful management of hair needs and swim attire for comfort to enhance participation in aquatic activities.	*I have locks now…. So now with locks, there's a sense of liberation that I have when it comes to water. I'll go in the rain and I'll drench me out because, but before it's like no, I'm not going outside. So I think that…it's not a barrier anymore. My hair has actually pushed me more to want to learn how to swim. I'm more inclined to jump in the water, not caring what's going to happen to my hair. It's really just opportunity for me.*
	Monetary facilitators	Inductive	Participants describe desire to have options for free swim lessons or some type of incentives. May include free passes to goods or services (e.g. water park, hair care products). May include college scholarships or jobs available if one has swimming skills.	*Just some type of incentive to encourage families to want to go and get these lessons for their kids, or for themselves*
	Teaching youth through public schools	Inductive	Participants speak about teaching children water safety and swim skills through public schools.	*Yeah, I feel like it should be an in-school activity. They have that in Asia and Japan. They have that in some high-end schools in America.*
Family and personal history		Deductive	Participants generally describe family culture, exposures and access to water-based activity.	*Well, I'm a long-time swim coach. I come from a swimming family.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
	Acquisition of swim skills	Deductive	Participants describe who in their family swims or does not swim. May include how people learned to swim and at what ages.	*Well, my daughters are 14 and eight and the oldest learned when she was three and my youngest learned when she was two and a half.*
	Military history	Inductive	Military influences on how the participant or family member learned to swim. Might include intergenerational military influences.	*My father was in the Marines, and so, we had no choice but to learn what we had to learn. And so, I come from four brothers, I'm one of five. And that was part of the mission was to make sure that we knew how to survive in any atmosphere or any environment. So we all learned how to swim.*
	Past negative aquatic experiences	Inductive	Descriptions of knowing someone who died from drowning or experiences of nonfatal drowning for oneself or others. May also include being subjected to improper swim instruction or being pushed into water by others that resulted in negative feelings. Descriptions of how current aquatic participation is shaped by these experiences. May be described as traumatic. Might include mentions of media events that were impactful.	*And it became a fear for me going to my uncle's house, he had a big old pool in the backyard and he would toss us one by one. And (he would say), "Hey, I am not hurting you guys. I'm just teaching you to swim."*
	Past positive aquatic experiences	Inductive	Descriptions of past positive experiences related to water-based activities. May include descriptions of how current aquatic participation is shaped by these experiences.	*I remember as a kid going to the beach, smelling the sand and hearing the seagulls and it's in the air. It's just a part of my growing up.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
Fear of drowning		Inductive	General discussion of fear related to water or drowning. May include intergenerational influences	...my parents didn't always allow us to go swim. I guess they were always scared and then they transferred the fear to us.
	Anticipation of insufficient skill	Inductive	Concerns over being in an aquatic situation beyond one's level of water acclimation, skill and/or water competency. Sometimes described in terms of not being in control of a situation. Does not include unsafe or negative influences from other people.	I feel like, whenever you're in the water, you're just thrown in the water and there's nothing to grab onto. There's nothing. So it's like the water is in control. "If I want to drown you...I can do that." So I feel like I want to have some type of control in the situation....
	As a barrier	Inductive	Participants describe fear specifically as a factor that reduces participation in aquatic activities.	And for the older people in my life, their source of teaching me how to swim was: toss them in the pool and you'll learn. ...But for me,...that was not how I was supposed to learn how to swim. And it created such a fear in me that I avoided pools for most of my life.
	As a motivator	Inductive	Participants discuss experiences when fear motivated them to take swim lessons, enroll their children in swim lessons, or otherwise participate in aquatic activities.	I know how to swim, my children do, but my husband doesn't. He almost drowned when he was a kid. And he has a fear of the water as a result of that. But that's also the reason why our children know how to swim. It was something that he was very, very serious about....
	Fear of not being rescued if needed	Inductive	Discussion of unease related to uncertainty that lifeguards or bystanders would come to one's aid in an emergency. This concern can extend to one's children. May include worry that lifeguards and swim instructors would not be sufficiently attentive or responsive.	I was really going on a hope and a prayer, because...I was the only Black girl. So I'm like, "They probably wouldn't saved me." I would hope that they would've because we was there in the name of the Lord, but you do question, 'would they have saved me?' or 'would they have even been able to save me?' because of how fast the waters were going.

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
	Open or deep water	Inductive	Descriptions of discomfort in deep or natural water conditions. Excludes flooding or catastrophic weather events.	*Yeah, I want to be able to actually not touch the ground (while swimming) and be okay. I want to be able to be in deep water and be safe.*
	Other people's behavior in aquatic spaces	Inductive	Concerns over the potential for other peoples' behavior to be unsafe, aggressive, or uncomfortable (e.g. rough housing, being sexualized, being made fun of). Excludes lifeguard/instructor issues, or concerns about being rescued.	*Fear of judgment. Say you don't know how to swim, people are going to make fun of you, so you just don't even try (to learn).*
	Weather-related disaster events	Inductive	Participants discuss exposures and/or concerns of drowning or safety related to catastrophic weather events such as flooding or hurricanes.	*...so water is, I'm going to be honest with you, as of last week, it actually can be traumatizing. I saw somebody being water rescued (from a flood) from my bedroom window. It's like trauma. I can't go too much, because I'll start crying actually.*
Historical and contemporary racism and racial discrimination		Inductive	Discussion of historical and contemporary racism and racial discrimination and how this relates to present day swim skill acquisition, comfort in and access to aquatic spaces, and water competency among Black people and communities. May include experiences of microaggressions. May include structural racism such as disinvestment in community/ municipal pools.	*It's sad, but with segregation, they didn't want us to swim. And then, when I really think about it, my dad was always a stickler like, "You don't go in water. There's always a current that'll pull you away." He always instilled fear in me when it came to swimming. He just didn't trust it. But now, I've seen that his age group, yeah, they would have a fear of water.*

Appendix D. Codebook

Code	Sub-Code	Strategy Used	Code Description	Example from Data
Illustrative quotes		Inductive	Collection of illustrative quotes.	*They put me in the class with the newborns and the babies. I didn't want to be in that class, but I couldn't swim.*
Perceived value of gaining skills to be water competent		Inductive	Discussion that reflects how much value participants place on themselves and/or their children in having water competencies. May include discussion of degree of motivation to overcome barriers and prioritizing swim lessons. May include description of action or inaction or competing priorities. May also include prioritizing swimming as a sport or activity.	*...the college I'm at, we have a pool that's open all the time. It's just I don't have time to go.*
Racial representation		Inductive	Participants discuss the presence or absence of Black lifeguards, instructors, or fellow participants in aquatic activities. May include description of how racial representation relates to feeling safe, welcome, comfortable and trusting of others in aquatic spaces.	*I don't want to address the elephant in the room, but I don't really think I've seen a lot of Black or African American lifeguards, you know what I'm saying? So whenever we think about that, I don't even think about lifeguards and associate that with African Americans.*

Appendix E. Summary of Reactions to Drowning Prevention Concepts from Phase 3 Focus Group Discussions

Key Findings	Summary
Drowning prevention strategies should be relevant, specific and relatable	• Many people expressed the desire for interventions that are culturally relevant and specific to the Black/African American community. • Proposed partnerships with Black-owned businesses for hair care and skin care were very well received. • Relevance and relatability of public figures is important. Aquatic athletes, local politicians or celebrities with ties to drowning prevention are preferred to other famous people. • Promotional materials centered around pools were largely viewed as more relevant than natural water images.
Use caution if relaying information or statistics about drowning	• Discomfort around this topic tended to be greater among participants with lower swim proficiency. • Some participants viewed stories about overcoming a fear of drowning or traumatic aquatic experiences as inspirational, while others found them fear-provoking.
Schools were strongly endorsed as a resource	• Developmentally appropriate, lifelong learning of water safety and swim skills was welcomed. • The concept of initiating swim skills training while young was strongly supported. • Aquatic professional workforce (e.g. lifeguard) training through schools was supported. • The potential for college scholarships for aquatic athletics was recognized and appealing. • The concept of aquatic cross training for high school athletes in their off season was endorsed as a way to promote swimming as a viable activity through visible athletic role models. • After-school clubs that promote aquatics was supported. • One parent had concerns about school-based swim lessons through schools for his daughter with obesity. Others expressed hesitation about ensuring the quality of instruction and safety of swim lessons through schools
Other concepts that were strongly endorsed	• Campaigns delivered by Black professional athletes, particularly aquatic athletes or Olympians were supported, although few were familiar with Black Olympic swimmers. • Incentives that have monetary value (e.g. more advanced swim lessons or water park tickets) were encouraged to reward students who demonstrate water safety knowledge or skills. • Use of virtual reality headsets was endorsed as a land-based water safety teaching tool that is fun and exciting. • Overall framing learning-to-swim and water safety as a positive, fun, family experience was welcomed.
The concept of family swim lessons was met with mixed results	• Many supported the idea of a family swim class, but others had logistical doubts. These concerns centered around competing priorities for families, and how to manage the various levels of swim proficiency and comfort in water that could be present.

Exploring Factors Related to Drowning Risk among Black and African American Persons in Select States