

Healthy Hydration Pilot in Elementary Schools

NCT06132763

05/07/2025

1. STUDY DESIGN AND METHODS. Our team recognizes the broader context that influences student hydration behavior. As such, the proposed research involves multiple components aligning with levels of the social-ecological framework to advance water equity. All schools in will have hydration stations and be operating under their model hydration policy in the 2022-23 school year. We will randomly select a pair of matched elementary schools for study inclusion. One school will serve as the Intervention school and the other as the Control. To test study aims, we will conduct a 2 (Intervention and Control) x 2 (baseline and post) cluster pilot RCT, with students nested within schools. Both schools will receive water bottles and Hydration Tip sheets. In the Intervention school, we will collaborate with student ambassadors and our Community Advisory Board (CAB) to develop hydration marketing materials. We will then pilot a 12-week intervention that includes a student-developed marketing campaign plus positive reinforcement of water bottle use in school. Teachers will receive state standards of learning-aligned lessons related to hydration. Assessments of hydration station usage will be conducted at baseline, weekly throughout the intervention, and 12-weeks (post). Beverage selection and water bottle use at lunch will be assessed at baseline, monthly throughout the intervention, and post. School personnel and 4th and 5th grade students will complete online surveys via REDCap at baseline and post. The primary aim is to determine intervention feasibility, evidenced by the ability to recruit and retain student ambassadors, implement the intervention components as planned, and ratings of school personnel satisfaction. Secondary outcomes of interest are 1) % of students with water bottles at lunch, 2) hydration station usage, and 3) sugar-sweetened beverage (SSB) selection at lunch. We will also test our protocols for assessing body mass index (BMI) and dental caries status with a subset of 3rd grade students. Although we do not anticipate change on these measures in this short duration, these will inform methods applied in a larger trial. To acknowledge the district's time and involvement in this study, each participating school will select an incentive valued up to \$500 that is related to an identified school need (e.g., kitchen, recess, or PE equipment).

1.1 Target Population and Setting. The respective school district serves >26,000 students within 25 elementary schools (22 Title I and thus eligible for this study). Students identify as Black (56%), white (21%), Latinx (19%), multiracial (3%), and Asian (2%). The majority (>90%) of students participate in the NSLP and all students receive free meals. For the current study, all Title I elementary schools will first be categorized based on race (%Black) and ethnicity (%Hispanic); two matched schools will be randomly selected and assigned to either Intervention or Control group (methods successfully applied in our prior work in this district). Potentially eligible schools have a mean enrollment of 400 students (range 145-854); we anticipate obtaining lunchroom observations from >80% of students on each rating day, for a projected sample of ~320 student observations per day in each school. Numbers will change based on the population of the selected schools. A subset of 3rd graders who have active parent consent and student assent will complete biomedical assessments.

1.2. Student Ambassadors. We will work with a local non-profit that has successful health-related programming in the schools and the school district to solicit student ambassador nominations. Both student self- and teacher nominations will be accepted. Teachers will describe ambassador roles and responsibilities, which include determining incentives, developing marketing materials and assisting the teacher ambassador with recording hydration station usage from the device, and other intervention-related tasks as relevant. Interested students will complete an interest form, signed by their parent/guardian. Teachers will select 2-3 ambassadors. In these ways, this study will build capacity and partner with students, teachers, and the CAB to enhance study relevance. To maintain study rigor, we will train students and teacher liaisons on study procedures. Ambassadors will receive compensation for this work.

1.3. Marketing Design. In the Intervention school, student ambassadors and a graphic design consultant will attend 5 meetings to develop healthy hydration promotional materials. Meetings will be guided by Appreciative Inquiry (AI) an asset-based approach to engage participants in

self-determined change that utilizes questions and dialogue to help them focus on what's working and lead to collectively developing and implementing strategies for improvement. We will apply SOAR (Strengths, Opportunities, Aspirations, Results) to marketing design. This strategic framework is based on AI principles, focuses on strengths, and includes the voices of relevant stakeholders to identify strengths, build creativity, and determine meaningful results. Ambassadors will be provided with the overall framework regarding multiple levels that influence behaviors and asked to develop messaging (words + images) to change student hydration behaviors and create a school culture that promotes healthy hydration. The final design will be selected via consensus by ambassadors, our CAB, and the investigative team. Each ambassador will be offered a gift valued at \$20/meeting for this work. These marketing materials will then be piloted within a hydration intervention in their school.

1.4. Consent Procedures. Parents/caregivers will be informed of the study via notification letters sent home by the schools, with a form to return if they wish to opt their child out of the study. Active parental consent / student assent will be obtained for 3rd graders to participate in biomedical assessments.

1.5. Hydration Intervention. (Intervention school)

1.5.1. Hydration Kick-Off. In January 2023, the study team, in collaboration with teachers and community organizations, will host a kick-off event at the Intervention school. All pre-K through 5th grade students and teachers will receive clear refillable water bottles with carabiners (so students can attach the water bottle to their backpack, a lesson learned in our prior work), a Hydration Tip sheet, and verbal and written guidance to bring their water bottle to school daily for use at the hydration station. Students will select a decal for their water bottle and their name will be written on the bottle, a strategy to increase ownership and help if it is misplaced. Hydration Tip Sheets and intervention information will be sent home to parents via established district parent communication strategies (in English and Spanish). Water bottles will stay at school with cleaning materials and instructions provided for each classroom.

1.5.2. Hydration Intervention. Students will be informed at Kick-off that they could receive prizes if they use their water bottle in school. We will conduct a 12-week intervention that includes: 1) a marketing campaign with student-developed materials, 2) use of incentives (determined by student ambassadors) to positively reinforce water bottle use, 3) hydration trivia, 4) hydration lessons. Marketing materials will be placed strategically in high traffic areas including hallways, school entries/exits, the lunchroom, and on floor decals and walls near hydration stations. A **Hydration Headquarters** will be set up in the school displaying a "water meter" illustrating the increasing number of water bottle refills from their school's hydration station each week (colored in weekly by student ambassadors). This CAB-generated strategy is designed to create group cohesion towards a common healthy goal and enhance student motivation. Study personnel positively reinforce water or water bottles observed in the lunchroom 1 day/week throughout the 12 week intervention. Teachers receive classroom water procedure signs with space to personalize details regarding when students can fill, store, and clean their water bottles. Laminated hydration tips will be posted in each classroom. Teachers will receive hydration lessons by subject matter and grade that align with SOL's.