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Recruitment and retention strategies for a community-based weight management study for multi-ethnic elementary school children and their parents

Diane C. Berry, PhD, ANP-BC, FAANP [Principal Investigator, Associate Professor],
The University of North Carolina at Chapel Hill School of Nursing, Campus Box 7460, Chapel Hill, North Carolina 27599-7460, Phone: 919-843-8561, Fax: 919-966-7298

Madeline Neal, BS [Field Coordinator and Interventionist],
The University of North Carolina at Chapel Hill School of Nursing, Campus Box 7460, Chapel Hill, North Carolina 27599-7460, Phone: 919-843-8561, Fax: 919-966-7298

Emily Gail Hall, BS [Field Coordinator and Interventionist],
The University of North Carolina at Chapel Hill, School of Nursing, Campus Box 7460, Chapel Hill, North Carolina 27599-7460, Phone: 919-966-9725, Fax: 919-966-7298

Robert G. McMurray, PhD [Co-Investigator, Professor Emeritus],
The University of North Carolina at Chapel Hill, School of Exercise and Sport Science, 025 Fetzer Gymnasium, Campus Box 8700, Chapel Hill, North Carolina C27599-8700, Phone: 919-544-2847, Fax: 919-966-7298

Todd A. Schwartz, DrPH [Co-Investigator, Research Assistant Professor],
The University of North Carolina at Chapel Hill, School of Nursing, Campus Box 7460, Chapel Hill, North Carolina 27599-7460, Phone: 919-966-6306, Fax: 919-966-7298

Anne H. Skelly, PhD, RN, ANP-BC, FAAN [Co-Investigator, Professor Emeritus], and
The University of North Carolina at Chapel Hill, School of Nursing, Campus Box 7460, Chapel Hill, North Carolina 27599-7460, Phone: 919-966-3612, Fax: 919-966-7298

Cheryl Smith-Miller, PhD, RN [Nurse Education]
The University of North Carolina at Chapel Hill School of Nursing, Campus Box 7460, Chapel Hill, North Carolina 27599-7460, Phone: 919-843-8561, Fax: 919-966-7298

Diane C. Berry: dberry@email.unc.edu; Madeline Neal: mneal@email.unc.edu; Emily Gail Hall: eghall@email.unc.edu; Robert G. McMurray: exphys@email.unc.edu; Todd A. Schwartz: tschwart@email.unc.edu; Anne H. Skelly: askelly@email.unc.edu; Cheryl Smith-Miller: CSmith@unch.unc.edu

Abstract

Background—This paper describes successful recruitment and retention strategies for a community-based weight management study in two school districts in North Carolina. Recruitment and retention on both district and school levels and child and parent levels are discussed.

Methods—A total of 358 children and 358 parents from 8 schools in rural North Carolina participated in a randomized controlled trial to test the effectiveness of a nutrition and exercise education, coping skills training, and exercise intervention.

We certify that all applicable institutional and governmental regulations were followed during this research concerning the ethical use of human subjects.

The authors declare no conflict of interest.

Results—Recruitment and retention at the district and school level included meeting with superintendents and receiving a proper introduction to school principals and consistently clear communication throughout the study. At the school level, relationships were developed with the principal and other key personnel to keep lines of communication open during the study. Recruitment and retention strategies at the child and parent level included allowing adequate time for questions during consent and assent and providing a free nutrition and exercise program, a light meal, homework assistance, child care for other children who came to the program, and transportation vouchers if needed.

Conclusions—Successful recruitment and retention strategies at the district and school levels and child and parent levels are important for conducting longitudinal community-based studies.

Trial Registration—NCT01378806

Keywords

recruitment; retention; children; parents; obesity management

Well designed recruitment and retention efforts are crucial for the success of community-based studies, particularly those involving parents and children and requiring school support. At the school level, researchers have reported the importance of understanding the hierarchy of school systems and gaining support on several levels including superintendents, principals, assistant principals, school nurses, teachers, physical education teachers, custodians, and key members of parent-teacher associations (Croft, Webber, Parker, & Berenson, 1984; Harrell, Bradley, Dennis, Frauman, & Criswell, 2000; Harrington et al., 1997; Olds & Symons, 1990; Petosa & Goodman, 1991; Post, Galanti, & Gilliam, 2003). At child and parent levels, researchers have reported it is important to employ various strategies in recruiting participants, including approaches that are flexible and reflect the cultural and socioeconomic status of intervention group members (Croft et al., 1984; Post et al., 2003). It is also important to keep the lines of communication open between the study staff, superintendents, school partners, and children and parents. The importance of the study and benefits for schools, children, and parents are reasons why superintendents, schools, parent, and children choose to support or join a study. (Elder et al., 2008; Olds & Symons, 1990; Sexton, 2005).

Retention strategies and procedures have been reported less frequently (Jones & Broome, 1997; STOPP-T2D Prevention Study Group, 2006). Several authors discussed the importance of retention in both the control and intervention groups and emphasized that time spent with each group should be identical (Jones & Broome, 1997; STOPP-T2D Prevention Study Group, 2006). In one study, participants' reported that program content, interventionists, support from the other participants and incentives such as food and money were all reasons why they continued to participate in the study (Jones & Broome, 1997). Some authors noted loss of interest in the study, conflicts with scheduling, lack of time, competing demands for time, and transportation issues as threats to retention (Jones & Broome, 1997; STOPP-T2D Prevention Study Group, 2006).

The Family Partners for Health Study was an early evening community-based randomized controlled trial conducted in partnership with eight elementary schools in two counties in North Carolina (NC). The sample consisted of African American (63%), Non-Hispanic white (32%), and bilingual Hispanic (5%), low-income 2nd, 3rd, and 4th grade children (n=358) and their parents (n=358) who were overweight or obese. The schools were in small towns or rural areas of NC. The sample consisted of predominantly minority lower socioeconomic status students with 88% to 94% eligible for the Free Lunch Program. Schools were randomly assigned to either the intervention or wait-list control group. A total

of 8 schools participated. This paper describes the strategies used by the study team at both district and school levels and at child and parent levels to recruit and retain participants.

RECRUITMENT STRATEGIES

We met with the superintendents, principals, school nurses, teachers, and physical education teachers to discuss the study before implementation. In the following section, the development of the recruitment materials, recruitment strategies at the district and school levels and child and parent levels are presented.

Development of Recruitment Materials

The research team worked with the university's Center for Innovation in Health Disparities Research to develop a recruitment brochure, letters, and poster boards that were appealing to African American, bilingual Hispanic, and Non-Hispanic whites, who would be recruited to participate in the study. The information in the brochure was presented in a simple, bulleted form and included information about overweight and obesity in children and adults, eligibility criteria, and the benefits of participating in the study. Since we were targeting lower socioeconomic status participants and the study was conducted in English, all study materials were available in English only and were written at the second grade reading level. Recruitment materials highlighted the benefits of participation, which included a free medical history and sports physical for each parent and child who enrolled, and nutrition and exercise education, coping skills training, and exercise sessions. Materials were reviewed and approved by the research team before they were submitted to the Institutional Review Board. The review and approval process was designed to ensure that materials were not coercive and were acceptable and culturally sensitive to children and their parents.

Recruitment Strategies at the District and School Levels

To secure their cooperation, the principal investigator met with the two superintendents during the development of the study proposal. At the beginning of the study, we met again with the school superintendents to explain the study and to answer any questions. During these meetings, both superintendents agreed to allow their school districts to participate. To be eligible for the study, the student population of the elementary schools had to be ethnically diverse, and 80% to 100% of their students had to be eligible for the Free Lunch Program, which provides schools cash subsidies to offer free and reduced-price lunches to students based on income. This assured us that we were reaching schools with the children and parents who would benefit most from a community-based weight management intervention. The schools had to have adequate classroom and gymnasium space for the early evening intervention.

The superintendents provided us with the names of the principals of all potential study schools, sent an email introduction to their principals, and gave us permission to set up an appointment to explain the study and determine if they were interested in having their school participate. If a school principal responded affirmatively to our initial invitation, we made an appointment to meet with the principal, assistant principal, school nurse, and physical education teacher on a day and time convenient for them. When meeting with the school principals, we began with a prepared 10-minute oral presentation that explained the study and provided information on risks and benefits for participants and information about incentives such as free gym equipment available for both intervention and wait-list control groups at the completion of the study. We also provided information in a handout. The study staff asked questions about what barriers principals' thought might surface in their school if the intervention sessions were held there. It was important to communicate clearly with each principal our facility requests, which included classroom and gymnasium space after school

hours. At the completion of our presentation, we allowed time for questions. The principals were also invited to contact the project manager and/or principal investigator via telephone or email if they had further questions or should any problems arise during the course of the study.

Along with a thorough description about the study, we provided principals and school staff a full description of our process for randomization. We noted that after all the schools were selected to participate in the study, the study statistician would randomize each school to either the intervention or wait-list control group. The wait-list control group received usual care throughout the study. Once they completed the study they were eligible to receive the Phase I intervention as a thank you for participating. Only the principal investigator, co-investigators, and project manager would be aware of the group assignment. We informed the principals that keeping the school staff blinded to group assignment was important to ensure that potential participants remained unaware of their group assignment. Then, after each cohort including both the intervention and wait-list control groups, were enrolled in the study, the project manager revealed the group assignment to the school principal via a telephone call and let her/him know the month and year the school would receive the intervention. Each year there was a 25% turnover rate in principals at all of the schools in both districts as a result of changing assignments, promotions, and retirements. The study team followed the process outlined above with each new principal. All schools that were approached joined the study and no schools withdrew from the study. See Table 1 for intervention and data collection time for each cohort and Table 2 for the study timeline.

Recruitment Strategies at Child and Parent Levels

Cohorts were enrolled for fall, winter, or spring programs. At each of the schools, a pre-recruitment effort was made for the coming year at the August “Meet the Teacher” night. A presentation was made to familiarize the children and parents with the study staff before they were asked to participate. Materials that supported this effort included posters explaining the risks of being overweight, handouts with information about the study, and photographs of families engaged in activities similar to those they would participate in during the study. The photographs were used to stimulate interest by portraying family members having fun while learning and exercising together. Also on hand were several signup sheets with space for names and a contact number for those who were interested in having a member of the study staff contact them later in the week for a more in-depth explanation of the study.

In the first two schools inducted, a letter from the principal and the study brochure was sent by an independent research firm to the parents of all 3rd and 4th grade children. The letter also explained to parents that we had permission to conduct the study in their school. Unfortunately, we received only a few telephone calls from interested participants in response to the letter and brochure mailed.

After reviewing the materials and content of the nutrition and exercise education, coping skills training, and exercise classes, we determined that the project was well suited for 2nd grade children, and therefore we decided to ask superintendents and principals for permission to recruit 2nd graders in addition to 3rd and 4th graders. We also decided to create a backpack sheet. That is a permission slip to be signed by the child’s parents if they were interested in being contacted by study staff to learn more about the study. To generate enthusiasm among the children, we gave a short presentation in their classrooms, with principals’ and teachers’ permission, and personally distributed backpack sheets. Along with the backpack sheet, each child received a pencil with our study name and telephone number on it. All changes in the study recruitment efforts were approved by the IRB.

After distribution of the backpack sheets research staff went back to the schools several times over the following 2 weeks to collect the sheets that were returned to a box in the schools' main offices. The new strategy worked well to increase the number of participants, and we continued to use this recruitment strategy for the remainder of the study. In addition to our new in-school approach, to increase participation, we asked the superintendents whether we could add schools to the eight schools already in the study in order to increase the number of potential participants. We received permission to contact 12 other schools that were matched with the 8 original schools to increase the number of children and parents available.

As the study progressed, the study staff became better acquainted with members of the school staff including secretaries, school nurses, physical education teachers, classroom teachers and custodians. Many of these school staff members became strong supporters of our recruitment efforts. For example, secretaries posted announcements describing the study around the school and displayed brochures in office waiting areas that were visible for parents. A school nurse would often join the study staff at an open house or parent-teacher organization meeting, providing a friendly and familiar face that helped ease uncertainties about enrolling in the research. Physical education teachers would remind children about the study during physical education classes and encourage them to discuss it with their parents and have their parents sign and return the backpack sheets if they were interested. Several custodians who witnessed the evening classes asked for stacks of blank backpack sheets to give to their friends and family members who had children enrolled at the schools. Classroom teachers provided support by welcoming study staff into their classrooms and collecting backpack sheets so that the study staff could quickly contact interested parents. Clearly a key element in recruitment is obtaining the support of the school staff even if the study is occurring after school hours.

Once a backpack sheet was returned to study staff, we conducted an initial screening telephone call to provide the parent with an in-depth description of the study, reviewed inclusion criteria for the child and one of her/his parents and determine$_d$ if they would qualify for participation. Inclusion criteria included the ability to speak, write, and read in English; a calculated BMI ≥ 85th percentile for age and gender for children; and at least one parent with a calculated BMI ≥25 kg/m^2. If the child and parent met the study criteria, an appointment was made to confirm eligibility and to obtain the parent's consent and child's assent at the school. The majority of our study staff were non-Hispanic white. This did not appear to affect recruitment. Study staff approached children and parents in a friendly manner that provided opportunity for open discussion as they learned about the study. The study staff explained the study, class schedule, and what randomization meant. If they were chosen to be in the intervention group, they would start their classes soon after they enrolled in the study. If they were in the wait-list control group they would receive usual care during the course of the study and when they completed the study they would be offered the Phase I classes in they same manner that the intervention group received them. Adequate time was allowed for questions and feedback from participants. The ethnic distribution of the sample matched the target population of the schools we recruited from. Using these techniques, we enrolled a total of 358 children and 358 parents into the study.

RETENTION STRATEGIES

To maximize retention at both the district and school levels and the child and parent levels, we remained in regular contact with the superintendents, principals, and assistant principals, as well as the children and parents, for the duration of the study.

Retention Strategies at District and School Levels

Retention strategies at district and school levels were designed to keep the superintendents, principals, and assistant principals interested and supportive of our efforts to work with the families enrolled in the study. Clear and consistent communication was important in maintaining an amicable relationship with the school administration and staff. Throughout the study the principal investigator emailed both superintendents every semester to give an update on how the study was progressing. The project manager maintained personal contact with the principals in all 8 original schools and the 12 matched schools through regular emails and telephone calls, updating the principals on the progress of the study and timelines, and asking for any suggestions on how to improve study activities. The project manager also introduced the field coordinators to the school principals so that they too felt comfortable in updating the principals and assistant principals as the study progressed.

Incentives such as free exercise equipment that the schools kept after all study activities were completed at the school and the promise to provide the wait-list control group families with the Phase I intervention at the end of their time in the study helped with retention at district and school levels. In addition, the study staff gave personalized gifts and thank you notes to teachers whose classrooms the interventionists used and to custodians who helped the study staff clean up and lock the doors at the end of each sessions. A holiday newsletter was developed and sent out to superintendents, intervention and wait-list control school principals, assistant principals, and participants. Study staff also placed extra copies of the newsletters in the staff lounge for teachers and other members of the school staff.

Retention Strategies at Child and Parent Levels

An intervention group of children (n = 189) and a parent (n=189) received the two-phase intervention and follow-up. In Phase I, children and parents received 60 minutes of nutrition and exercise education and coping skills training and 45 minutes of exercise training once a week for 12 weeks. In Phase II, participants met once a month for 9 months. At each meeting children and parents were weighed and then they met together in small groups with the interventionists to problem solve nutrition and exercise related issues. They were followed for 6 months after completion of Phase II to assess the maintenance of results, for a total of 18 months in the study. Children and parents in the intervention group had data collected at Baseline, Post Phase I, Post Phase II, and 6-months after completion of Phase II.

Children (n=169) and parents (n=169) in the wait-list control group received usual care and had data collected at the same time points as children and parents in the intervention group. After final data collection was completed, they were offered the nutrition and exercise education, coping skills training, and exercise intervention. During the course of the study they also received a monthly card to thank them for continued participation and to remind them when they were eligible to receive the intervention at the completion of their time in the study.

While some study families moved out of the school district during the course of the study, relocation was roughly equal in the intervention and wait-list control groups. Retention efforts focused on retaining both groups. The majority of the interventionists for the study were non-Hispanic white. This did not appear to affect retention. Once the intervention group began classes, they received a weekly reminder postcard in the mail and a reminder telephone call the night before each class. The interventionists developed strong relationships with the families during Phase I of the intervention and continued to foster that bond during Phase II. For example, during Phase I, if a family was absent from class, the interventionists would call to inquire about their status and inform them they were missed. The interventionist also provided the parent with a condensed version of the class over the

telephone, highlighting the main topics and any new information shared in class, and the parent was encouraged to share this information with the child. During Phase II, interventionists met monthly with the children and parents at the school and discussed concerns they were having with nutrition or exercise. Two weeks after each monthly meeting, the interventionist made a telephone call to provide additional support and answer any questions about nutrition or exercise issues. Participants continued to receive reminder postcards and telephone calls before each meeting in Phase II. In the study design we accounted for a 25% attrition rate secondary to a high transient rate in this population. The study will be completed in 1 year and we have had a 25% attrition rate due to children and parents relocating to a different county, moving out of state, families divorcing, several parents developing cancer, and several parents were incarcerated.

Two weeks before each data collection for both the intervention and wait-list control groups, the parents received a telephone call from the study staff. Staff reviewed information that would be collected with the family and set an appointment for data collection. The staff offered several evenings during the week for data collection in an effort to accommodate varying schedules. The day before participants were scheduled for data collection, they received a reminder telephone call.

A significant threat to high retention rates is the possibility of losing contact with a family. We found that families moved from their residence more frequently than anticipated. Discovering disconnected telephone numbers was not uncommon. However, our data collection packet included a contact sheet with space for the parent's home, cell, and work telephone numbers as well as a section for a second contact person to help us reach participants in case of a move or disconnected telephone number. Also, every family received a refrigerator magnet with the study's toll-free telephone number to call if they moved or changed telephone numbers. Personalized letters were given to school secretaries and sent home with a child if the study staff had a hard time reaching the parent to set up an appointment for data collection. Having multiple channels to contact each family helped minimize the number of lost participants.

Incentives were also used to help retain families. After each data collection, each child received $20 and each parent received $20. During the Phase I and II classes, all children and parents were provided with a healthy meal of sandwiches, fresh vegetables and fruit, and beverages. Childcare and homework assistance were provided for additional children who accompanied their parents, and transportation vouchers were available if needed.

CONCLUSIONS

When conducting research with children and parents from vulnerable populations, time is required to develop trusting relationships Viewpoints from all parties should be considered and all interests need to be heard. In our study, successful recruitment and retention at the district, school, child, and parent levels were achieved by following a series of steps outlined in this article.

Meetings with the superintendents were extremely important since they knew their school districts and were able to suggest schools that would make good partners and whose school principals might wish to be involved. Meetings with principals, assistant principals, school nurses, teachers, and physical education teachers were crucial in establishing the foundation for supportive relationships.

Problems in recruitment were identified quickly and the research team developed more effective recruitment strategies. Having study staff make a short presentation to all of the 2nd, 3rd, and 4th grade classrooms and hand out backpack sheets to all of the children to take

home to their parents provided a more effective approach. One strategy we found particularly effective was meeting face-to-face with potential participants to answer questions and build rapport.

Effective communication with the superintendents, principals, assistant principals, teachers, nurses, physical education teachers, and custodians was essential in our retention efforts at district and school levels. Our incentives were also important in retention efforts. Every school that hosted the intervention was grateful for free exercise equipment to be used in their physical education classes.

Our retention efforts at parent and child levels required focus. The relationships between the participants and interventionists in both the education and exercise classes were essential to our retention efforts. Incentives at child and parent levels, including a free medical history and physical, childcare, meals, and transportation vouchers, were important for retaining both the children and parents.

The Family Partners for Health study developed an approach that was rigorous yet flexible and responsive to the needs of an ethnically diverse group of children and parents. The strategies used here, while focused on recruitment and retention of those involved in this study, may be easily translated to other situations using community-based approaches to recruit children and parents and partnering with school system in early evening interventions.

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Table 1

Intervention and Data Collection Time for each Cohort

	MONTH																						
ACTIVITY	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
Recruitment			X																					
T1 data collection			X																					
Phase I for intervention group				X	X	X																		
T2 data collection						X																		
Phase II for intervention group							X	X	X	X	X	X	X	X	X									
T3 data collection															X									
T4 data collection																					X			
Classes offered to wait-list controls																						X	X	X

Table 2

Study Timeline

	Year 1				Year 2				Year 3				Year 4				Year 5			
Quarter	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
DATA COLLECTION AND INTERVENTION																				
AND FOLLOW-UP																				
Cohort 1			X	X	X	X	X	X	X											
Cohort 2				X	X	X	X	X	X	X										
Cohort 3					X	X	X	X	X	X	X									
Cohort 4						X	X	X	X	X	X	X								
Cohort 5							X	X	X	X	X	X	X							
Cohort 6								X	X	X	X	X	X	X						
Cohort 7									X	X	X	X	X	X	X					
Cohort 8										X	X	X	X	X	X	X				
INTERVENTION OFFERED TO CONTROLS										X	X	X	X	X	X	X	X			