

**Knowledge and Attitudinal Impacts Upon Teen Volunteers
Teaching Younger Youth
in a Community-Based Obesity and Overweight Prevention Education Program**

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Abstract

Researchers have documented positive effects of volunteering upon adult volunteers' personal health, yet no similar research has focused upon youth volunteers. The researchers developed a mixed-methodology to investigate knowledge and attitudinal changes among 43 teen volunteers teaching in a cross-peer, cross-generational program designed to educate 5-to-12-year-old youth about obesity, fitness, and nutrition. The quantitative data showed an average gain of approximately .11 points between the pretest and the posttest, resulting in a small effect size of .2. Two overarching themes resulted from qualitative data analysis: (1) teen volunteer teachers increased knowledge regarding fitness and nutrition; and (2) teen volunteers learned more about themselves as teachers of younger youth. The researchers suggest that beyond the teaching activity success of the teen volunteers, the program also was successful in impacting positively the teen volunteers themselves regarding obesity, fitness, and nutrition.

Key Words

teen volunteers, evaluation, impact, obesity, health education

Introduction

For decades, managers of volunteers, medical researchers, and nonprofit organizations have espoused the positive effects of volunteering upon a volunteer's mental, emotional, and/or physical health. As early as 1991, Graff reported on a project funded by the Ontario Ministry of Health that explored relationships between volunteering and health. She concluded that "Volunteering can generate a heightened sense of self-esteem, . . . reduce heart rates and blood pressure, increase endorphin production . . . boost immune system and nervous system functioning, reduce life's stresses, and overcome social isolation" (p. ii). Luks and Payne (1992) synthesized medical and scientific documentation supporting the health benefits of volunteering upon volunteers, including a heightened sense of well-being; improved insomnia; a stronger immune system; and speedier recovery from surgery.

Among medical clinicians and researchers, Kawachi and Kennedy (1997), Gillies (1998), and Lomas (1998) all concluded that an individuals' voluntary involvement in social, civic, and/or volunteer organizations was correlated positively with both improved personal and public health. More recently, Li (2004) explored relationships between volunteering and health at different stages of adulthood. She concluded that formal volunteering exerted a beneficial effect on adult volunteers' depressive symptoms in later life stages, especially among older widows.

However, at least one contemporary study has concluded that volunteering may

actually be detrimental to a volunteer's health (Ziersch et al., as cited in the British Broadcasting Corporation, 2004). Based upon a survey of more than 500 Australian adults involved in voluntary groups and volunteer efforts, researchers from Flinders University in Australia found that respondents who did volunteer work linked it with negative effects on their health. According to the lead researcher, "[Volunteer] involvement may not be beneficial for individual health, and that for the individuals involved [in the study] there is some evidence that this involvement may in fact be detrimental for their own health" (Ziersch, 2004, para. 11). The researchers did recognize, however, that the relationship between individuals' volunteer activities and organizations is ". . . complex, and . . . there may be hidden differences between types of civil society groups" (para. 12).

While limited, the published literature supports overwhelmingly the positive relationships between an individual's volunteer activities and her/his personal health. However, that majority of data reported in the literature are either purely anecdotal or collected in clinical contexts. Valid and reliable empirical social science research is needed to investigate such possible connections between volunteers' activities and their health, for both adult and youth volunteers.

Youth Obesity in North Carolina

In North Carolina (N.C.), five of the 10 leading causes of death and disability are linked to dietary factors (North Carolina

Prevention Partners, 2005). The epidemic of obesity (and the chronic diseases that often accompany it) will lead to more hospitalizations, require more medications, and underlie the premature maiming and killing of more people than any other condition currently known. The state's increase in overweight and obese youth has far exceeded that of other states. Mohad, Serdula, Dietz, Bowman, Marks, and Koplan (1991) indicated that North Carolina's children ranked 11th in the nation in the rate of overweight and obesity at the beginning of the 21st century, with 25% of youth ages 12 to 18, and 20% ages 5 to 8, being overweight.

In addition to obesity, poor dietary quality among North Carolina's children and youth is a concern. The 2002 and 2005 N.C. Prevention Partners Report Cards (North Carolina Prevention Partners, 2002, 2005) show that North Carolina earned "F's" in nutrition both years. The reports suggested that this failing grade was the result of a statewide diet high in foods that are high in fat, sugar, and calories and low in consumption of fruits and vegetables and the protective nutrients contained therein.

The problem of poor dietary quality is compounded by the lack of physical activity among youth. North Carolina has one of the most sedentary populations in the nation. According to the United States Centers for Disease Control and Prevention (2001), nearly 40% of the state's youth are not getting the recommended amount of physical activity needed for good health. As a result, North Carolina youth scored 12 – 15 % below the national average in heart-lung fitness tests. The high level of physical inactivity, coupled with poor dietary quality, translates into a troubling statistic for the state as a whole: North Carolina's children and youth are two to three times more likely

to be obese and poorly nourished than children nationally.

Teens as Volunteers

Teens need to be engaged actively and meaningfully in their communities through volunteerism and service. One such opportunity would be engaging teens as volunteer teachers of younger youth in community-based non-formal educational settings. Such a cross-peer volunteer program delivery model has proven successful both historically (Smith, Havercamp, & Waters, 1990) and more contemporarily with various content foci and delivery settings. In Nevada, high-risk teens served successfully as volunteer teachers of younger latchkey youth (Smith & Havercamp, 1991). Groff (1992) developed the NC 4-H Teens Reaching Youth (TRY) program to, among other goals, empower teens to make a difference in the lives of others (especially younger youth) through teaching opportunities.

Safrit, Scheer and King (2001) noted that "Teens are more willing to . . . seek greater responsibility in deciding what volunteer projects to conduct. Volunteer opportunities can enhance the teen's career exploration, provide an opportunity to learn about themselves, and be included as a part of building a strong college application or job resume" (p. 19). Subsequently, Safrit (2002) described the need for managers and administrators of teen volunteer programs to recognize and practice the "Four E's" of working with teens: empathy, engagement, enrichment, and empowerment. Lee, Murdock, and Paterson (2002) concluded:

Teenagers can be extremely effective teachers of young children. Children respond well to teen teachers. Teenagers can be positive role models for young children. Using teenagers as teachers is efficient. A team of eight teenagers can teach 60 or more children organized in small groups. (p. 2)

The authors also noted, "Teenagers themselves benefit from being teachers. Attitudes toward teachers and school can improve. Self-confidence and a sense of accomplishment can increase" (p. 2).

Regarding critical aspects of successful youth service learning programs, Junck (2004) encouraged such volunteer programs to focus upon true community problems rather than issues of the sponsoring volunteer organization, while making adult mentors available to support the youths' service initiatives. Safrit, Gliem and Gliem (2004) described the importance of cross-generational volunteerism, stating that "the most effective infrastructure for youth volunteerism and community service may be through youth-adult partnerships, i.e., youth and adults working together as equal peers to address through volunteerism the serious challenges facing their communities" (p. 39).

The Cross-Peer, Cross-Generation Teen Volunteer Program

North Carolina (N.C.) 4-H Youth Development is the youth-focused program of the Cooperative Extension Service. In 4-H, community-based youth development professionals manage adult and youth volunteers who guide experientially based educational programs for youth ages 5-18. The N.C. 4-H program is administered by the Department of 4-H Youth Development and Family and Consumer Sciences at North Carolina State University, and North

Carolina A&T State University, and seeks to create helping relationships to enable youths to become responsible, productive citizens.

In 2002, in direct collaboration with National 4-H Council, Safrit, Edwards, and Flood (2005) developed "Teens Reaching Youth through Innovative Teams" (TRY-IT!) as the next generation of an original cross-peer, cross-generational teen volunteer program (Groff, 1992). TRY-IT! utilizes innovative Web-based learning modules to strengthen and expand community-based teen volunteerism and service through effective teen-adult partnerships. In TRY-IT!, teens (ages 13-18) work with adult volunteer coaches to teach curricula to younger youth (ages 5-12). County 4-H TRY-IT! Teams are organized by county 4-H Youth Development professionals, and attend two, three-day state level face-to-face training retreats. The first retreat empowers teen and adult Team members as leaders, challenges them to work as an effective teen-adult partnership, and prepares them to be effective and safe teachers of younger youth. The second retreat trains Team members in the specific curricula to be taught.

In February 2005, the authors received a \$7,500 competitive grant for the six-month period April through October, 2005 to nurture successful and positive teen and adult partnerships through active teen leadership and citizen involvement in N.C. counties, targeted toward educating youth about serious issues of youth obesity and overweight. Specific objectives included: 1) to establish and train County 4-H TRY-IT! Teams (each consisting of an average of 3-4 teen and 1-2 adult volunteers) to teach health, nutrition and fitness curricula; and 2) for the teen and adult volunteers to collaborate to teach obesity, fitness, and

nutrition curricula to a minimum of 500 youth ages 5-12. The overall program goal was to strengthen both the teen volunteers' and youth participants' knowledge and attitudes toward relationships between obesity, proper nutrition and fitness so as to address the issue of youth overweight. Thirteen county 4-H TRY-IT! Teams were trained, comprised of 43 teen volunteers (ages 13-18) and 17 adult volunteer leader coaches. As of October 7, 2005, the 13 county 4-H TRY-IT! Teams had taught 70 individual educational sessions (consisting of 278 instructional hours) to 1,579 youth between the ages of 5-12.

While the program's true societal impact would have been best documented by assessing resulting knowledge and attitudinal changes upon the 1,579 youth taught (Safrit & Merrill, 1998) such an impact evaluation model was not possible. The N.C. State University research Institutional Review Board expressed serious concerns about subject (i.e., youth/minors) protection and test administration considering the project's widespread outreach. With parental consent requirements and expressed concerns about minors (teen volunteer teachers) administering the surveys to other minors (session participants), logistical and protective realities made this level of data collection impossible for this short-term project.

Subsequently, the researchers collected quantitative data describing program inputs (Safrit & Merrill, 1998) focused upon program activities (e.g., number sessions taught, total hours taught, etc.) and program participation (e.g., number youth ages 5-12 taught, numbers of teen and adult volunteers teaching, etc.). They also collected qualitative data describing program participants' (e.g., youth ages 5-12, teen

volunteer teachers, etc.) initial reactions to the teaching sessions. These data satisfied the program funder's basic stipulations for required formative and summative project reports.

However, the researchers also sought to develop an outcome-focused impact evaluation model largely on knowledge and attitude changes affected by the program upon the program's teen volunteer teachers rather than the 5to-12-year-old youth they taught. While not the ideal impact evaluation focus, such impact data would be extremely useful in documenting valid and reliable outcomes of the program upon a targeted stakeholder group (i.e., the teens actively engaged in the cross-peer cross-generational program).

Purpose and Methodology

The purpose of this exploratory study was to assess the impact of teens' participation as volunteer teachers of youth ages 5-12 in a community-based obesity and overweight education program upon the teen volunteers' knowledge and attitudes regarding obesity, fitness, and nutrition. The researchers developed an exploratory mixed-method design (Creswell, 2003) using a written questionnaire to collect quantitative data (de Vaus, 1996), and an interview schedule to collect qualitative data (Marshall & Rossman, 1999).

The researchers developed a written questionnaire based upon guidelines described by Fowler (1988) and Dillman (1999). The questionnaire was constructed based upon the four constructs identified as the program's major goals and included three sections. Section I included 10 items investigating teen volunteers' knowledge of obesity prevention and physical fitness, and

proper nutrition. Section II included 10 items investigating teen volunteers' attitudes toward both obesity prevention and physical fitness, and proper nutrition. Section III included five items investigating teen volunteers' selected personal and 4-H program traits and characteristics. Items in both Sections I and II used a five point Likert-type scale (categorized as 1 = Totally Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; and 5 = Strongly Agree) to measure respondents' knowledge and attitudes toward obesity, fitness, and nutrition.

The researchers established the instrument's face validity using a panel of obesity, nutrition, fitness, and volunteer experts in Cooperative Extension, and modified the instrument based upon input from the panel. The researchers calculated Cronbach's alpha ex-post facto for the instrument ($\alpha = .78$) as an indicator of reliability. Nunally (1976) stated that for purposes of exploratory research, a Cronbach alpha of .60 or greater as a measure of internal consistency is permissible.

The interview schedule was developed by the authors based upon Marshall and Rossman (1999); Safrit, Schmiesing, King, Villard, and Wells (2003); and an initial set of open-ended questions required by the program funder. The schedule consisted of five open-ended questions that investigated participating county 4-H Youth Development agents' perceptions of the program's successes, challenges, and impacts upon the teen volunteer teachers, 5- to-12-year-old youth taught, organizational partners and collaborators, and the county 4-H program. In October 2005, the authors collected qualitative data using the interview schedule. Due to the resulting small volume of qualitative data collected (i.e., 26 double-spaced pages), the authors analyzed the data

using the methods described by Creswell (2003).

The researchers used a convenience sample ($n = 43$) and the written questionnaire to collect data using Campbell and Stanley's (1963) Separate-Sample Pretest-Posttest Design (Design 12). The pretest was administered at the beginning of a Friday-Sunday content training retreat conducted in April 2005. The posttest was administered at the end of the six-month grant funding period in October 2005, where 4-H staff members administered the written questionnaire at final county Obesity TRY-IT! Team meetings for the program. Quantitative data collection followed procedures suggested by Kraut (1996), McNabb (2002), and Rea and Parker (1997). The researchers entered all quantitative data into a personal computer and calculated descriptive statistics for central tendency, variability, and effect size (Cohen, 1988; Gall, Gall, & Borg, 2003) and inferential statistics for comparing group means.

Quantitative Findings

The findings from the study were summarized and are presented in Table 1. The data showed an average gain of approximately .11 point ($C.I. [-.19 \leq \mu \leq .41] = .95$) between the pretest and the posttest but was not statistically significant. The lack of statistical significance was likely the result of low statistical power (approximately 10%) due to the small sample size. Cohen's d (1988) was calculated and resulted in an effect size of .2, which would be classified as small.

Qualitative Findings

The researchers suggest two overall themes resulting from analysis of the

qualitative data. First, the teen volunteer teachers learned new basic knowledge regarding fitness and nutrition. One participating county 4-H agent quoted one of her teen volunteers as stating, "I learned how to read labels. The kids [we taught] loved making low-fat ice cream sandwiches. They learned how to move more and eat healthier." Another responded, "They [the teen volunteer teachers] also learned about the new [U.S.D.A.] 'My Pyramid' and how it can be tailored to meet individuals' needs based on age and gender." Another 4-H agent responded that while one of her teens admitted, "I need to change my own eating habits!", that overall her teen volunteers "reported that the youth they taught really enjoyed the snack ideas that they got to try out." Still another county 4-H agent reported that her Team "learned nutrition, how to teach, the new food pyramid, and exercises." A sixth county 4-H professional shared that her "TRY-IT! members and the youth [they taught] shared what they had learned with others; many would ask their own parents to make the healthy snacks at home for them."

The second overarching theme is that the teen volunteers learned more about themselves as volunteer teachers of younger youth. A 4-H agent reported that her TRY-IT! Team's teen members learned that "different age groups require different techniques to keep them interested in what they are trying to teach them." She reported that several of her teen volunteers commented that it took "more effort and energy to work with the youngest youth, but was still fun." Another county 4-H agent reported that, "My TRY-IT! Team discovered they could teach and reach other youth." Finally, a third county 4-H agent reported that her TRY-IT! Team members "all indicated that they developed leadership skills".

Conclusions and Implications for Volunteer Administrators

The reader is cautioned about generalizations of the study findings beyond the N.C. teen volunteer participants due to the study's exploratory nature.

The research findings suggest that beyond the teaching activity success of the NC 4-H TRY-IT! obesity and overweight education program as measured by number of youth ages 5-12 taught (i.e., 278 instructional hours for 1,579 youth), the program also was successful in impacting positively the program's teen volunteer teachers regarding the program's targeted knowledge and attitudes regarding obesity and fitness, and proper nutrition. This finding is supported by both the quantitative and qualitative data.

The researchers suggest that although the data showed an average gain of approximately .11 point between the pretest and the posttest that was not statistically significant, the lack of statistical significance was likely the result of low statistical power due to the small sample size. The resulting effect size of .2, while considered small, does indicate that the teen volunteers' participation as peer teachers in the program did have some effect upon their knowledge and attitudes regarding obesity, fitness, and nutrition. While the purpose of this research was not to investigate possible cause-and-effect relationships, subsequent research using a true experimental design with a larger sample could further clarify such possible causality.

Educators of adults (Bloom, 1976; Heck & Williams, 1984) have commented

about the role of the teacher of adults as part of the “hidden curriculum,” or messages that are conveyed by the teacher passively or even subliminally beyond formal content to both students and teacher alike during the learning experience. This phenomenon may be described by the often-used cliché, “the best way to learn something is to teach it to others.” Thus, while knowledge and attitudinal changes were not assessed in the younger youth being taught, they were documented with methodological rigor in the older youth doing the teaching.

While the reader may well argue that the initial goals of the TRY-IT! obesity and overweight educational program were not to affect knowledge and attitude in 43 teen volunteer teachers, but rather to do so in a minimum of 500 5-to-12-year-old youth taught by the teen teachers, one narrowly-focused yet well-documented impact of the program was the positive effects it had upon the teen volunteer teachers regarding the program’s initial objectives for the younger youth.

The study findings support the practice of engaging teens as volunteer teachers of younger youth identified by Lee, Murdock, and Paterson (2002). By the actual design of the N.C. 4-H TRY-IT! Program, county 4-H TRY-IT! Teams trained through the obesity and overweight education program have continued to teach obesity, fitness, and nutrition curricula to 5-to-12-year-old youth after the grant period formally ended in October, 2005. The teen volunteer teachers will also be involved in training new county 4-H TRY-IT! Teams in the areas of obesity, fitness, and nutrition. All 13 participating counties’ respective 4-H agents indicated that the TRY-IT! Teams will continue to teach the curricula in the next six months (at a minimum), and the State 4-H Office will continue to collect and compile longitudinal

outcome and impact data describing the TRY-IT! Teams’ teaching activities. During the next 12 to 24 months, the ultimate impact of the program upon the knowledge and attitudes of the 43 teen volunteer teachers involved could be documented by investigating actual changes in personal fitness or diet habits based upon the knowledge gained and attitudes formed through the program. The researchers look forward to contributing to a healthier citizenry in a state with young people who are physically active, nutritionally savvy, and ready to share their expertise with others.

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Table 1
Summary Statistics and Independent Samples t Test

Group	n	Mean	S. D.	S.E.	t	df	p	Mean Difference
Control	22	3.58	.37	.08	.718	41	.48	.106
Experimental	21	3.68	.58	.13				

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