

**Pilot Evaluation of CAPS:
A School-based Intervention for Pregnant and Parenting Teens**

Heidi E. Stolz, Ph.D., Denise J. Brandon, Ph.D., Patricia N. E. Roberson, M.S.
University of Tennessee

ABSTRACT. Teen pregnancy is associated with numerous problems for teen mothers and their children. Though annual rates of teen pregnancy have declined recently in the United States (U.S.), they still remain high compared to other industrialized nations, with the southeastern part of the U.S. having particularly high rates. Given these rates and the challenges associated with teen pregnancy, prevention and intervention programs have been developed and implemented. This study evaluated one such program – Child and Parenting Skills (CAPS) – a school-based program for pregnant and parenting high school students in a metropolitan area in Tennessee. A retrospective post-then-pre design was used to assess program participants' ($N = 25$) perceptions of the program and changes in (a) perceived knowledge of child health/safety, (b) parental hopefulness, and (c) self-esteem. Results indicated high levels of program satisfaction and group cohesion as well as significant increases in all three outcomes.

Keywords: school-based intervention, teen pregnancy, self-esteem

Across the United States (U.S.), the rate of teen pregnancy declined 41% between 1990 and 2005 and has subsequently remained relatively stable. This decline is attributed to the delay of teen sexual activity and increased rates of teen contraceptive use (Forum on Child and Family Statistics, 2010). However, there is still cause for concern because the U.S. continues to rank highest in the rate of teen pregnancy among all industrialized nations (Santelli & Melnikas, 2010). In the U.S., 10% of all pregnancies are to teens, with approximately 750,000 teens becoming pregnant each year. Nationally, slightly over 2% of all teens (ages 15-19) become pregnant annually, though 27% of those pregnancies end in abortion and 17% end in miscarriage. For Black and Hispanic minorities, the annual percentage of teens who become pregnant is higher than the national average, 4.6% and 3.5% respectively. When looking regionally, the percentage of teens who become pregnant is highest in the Southern states (Guttmacher Institute, 2010). Specifically, Tennessee has roughly three times the national average with 6.1% of teens becoming pregnant annually (Holcombe, Peterson, & Manlove, 2009). Thus, teen pregnancy remains a problem, especially among southerners and racial minorities.

Direct correspondence to Dr. Heidi E. Stolz at hstolz@utk.edu

The high rate of teen pregnancy is cause for concern because there are negative outcomes for teen mothers as compared to women who delay pregnancy until their 20s. Risks include poorer health, social stress, low scholastic achievement, and economic strain (Guttmacher Institute, 2010). For children born to teen mothers as compared to those born to mothers who delay pregnancy until their 20s, there are health concerns in infancy, and longer term risks such as delays in emotional development, problems in scholastic achievement, and more frequent displays of anti-social behaviors (Levine, Emery, & Pollak, 2007). In sum, childbearing during teen years is a predictor of multiple risk factors for both the mothers and their children.

Given these risk trajectories for teen mothers and their children, professionals have implemented prevention programs that are designed to reduce rates of teen pregnancy (Hulton, 2007). Additionally, because teens do become pregnant despite prevention efforts, intervention programs have been implemented to prepare and assist pregnant teens and teen parents (Deutscher, Fewell, & Gross, 2006; McDonnell, Limber, & Connor-Godbey, 2007). Given the challenges facing teen parents and the importance of these programmatic efforts, the purpose of the present study is to provide a pilot evaluation of one such program for pregnant and/or parenting teens, the Child and Parenting Skills (CAPS) program.

Consequences of Teen Pregnancy

Intervention programs for teen parents focus on reducing the negative consequences associated with teen pregnancy for both teens and their children. Below, we review literature related to two consequences of teen pregnancy that the CAPS program targets: (a) limited knowledge of child health and safety, and (b) low socioemotional well-being. It should be noted that a review of the literature suggested a third category of risk associated with teen pregnancy (reduced academic aspirations and achievement); however, that outcome is not targeted by the CAPS program in the semester of our pilot study and is therefore not included in this review. In the next two sections we review, for each of the two broad risk categories, the specific negative outcomes for teens and their children. Also, we review results of past programmatic efforts to target these outcomes.

Limited Child Health and Safety Knowledge

Teen parents are at risk of having inadequate knowledge of their children's developmental, health, and safety needs, and this limited knowledge places children at risk for parental neglect and poor child health outcomes. Morrongiello and Corbett (2008) identified parent age as a key factor in their empirically-informed conceptual model of parents' decisions to implement safety and injury prevention precautions, suggesting that younger parents are less likely than older parents to take child safety precautions. Additionally, Peterson and Brown (1994) reported that parental age was (negatively) related to the number of childhood injuries, and that many accidental childhood injuries are a result of parental neglect. Poverty status and marital status of caregiver – two variables that co-vary with teen parent status -- were also related

to childhood injury rate (Peterson & Brown, 1994). Parental age was also found to be positively correlated with parental knowledge about child development and safety, quality of parenting, and a range of positive child outcomes (Bornstein, Cote, Haynes, Hahn, & Park, 2010). Thus, there is substantial evidence that young parents have low levels of child health and safety knowledge and that this type of knowledge is related in important ways to positive child outcomes.

Researchers have reported evidence that knowledge of child safety is amenable to change. As part of a parent education program focused on childhood safety, parents of children under age four received either generic or “tailored” injury prevention information from their primary care physician at their child’s well-child check-up. “Tailored” messages were individualized to match the characteristics and needs of the recipient. One month later, both groups of parents reported adopting a new injury prevention behavior (45% of those receiving tailored messages about specific risks; 32% of those receiving generic information). Parents who showed the most dramatic changes were those who were the least educated (Nansel, Weaver, Jacobsen, Glasheen, & Kreuter, 2008).

After a thorough review of the literature, we were unable to find studies on teen parents that specifically target child safety and health knowledge; however, school-based intervention programs for pregnant teens have been effective in increasing general knowledge of parenting (Sangalang, 2006) and improving children’s health. Specifically, teen parents who were enrolled in the Laurence Paquin school for pregnant and/ or parenting teens (a comprehensive school-based program) had better reproductive health and were more likely to try, or report wanting to try, to breastfeed their infants (Amin, Browne, Ahmed, & Sato, 2007). Also, infants born to participants in the Early Intervention Program were healthier in the first year after birth, including fewer infants hospitalized and more infants properly immunized, than those born to teens who did not participate in an intervention program (Koniak-Griffin et al., 2002). In sum, teen mothers’ limited knowledge of children’s health and safety needs places their children at risk for poor health outcomes, but programmatic interventions for teens have demonstrated some success in altering children’s health outcomes.

Reduced Socio-emotional Well-being

Teen parents also face challenges to their socioemotional well-being. Compared to non-parenting teens, teen parents experience higher rates of depression (Figueiredo, Bifulco, Pacheco, Costa, & Magarinho, 2006), anxiety (Jaffee, 2002), and perceive limited support from family members (Beers & Hollo, 2009) and others (Jaffee, 2002). Two out of five pregnant teens (39.1%) reported feeling stigmatized by their pregnancy (Wiemann, Rickert, Berenson, & Volk, 2005). One specific socio-emotional risk factor for pregnant and parenting teens is low self-esteem. Drummond and Hansford (1991) found that pregnant teens enrolled in Grades 10–12 of an alternative high school program reported average self-esteem levels that were below the scale norm. These authors suggested that “interventions for this group should focus on positive self-concept, physical and safety needs, the family unit, and career goals” (p. 65). Although this particular study is now somewhat dated, reviewed literature suggests that their recommendations,

which are closely adhered to by the CAPS program, are still supported. A more recent study of disadvantaged African American adolescent females indicated that having low self-esteem was a significant predictor of wanting to become pregnant (Davies, DiClemente, Wingood, Harrington, Crosby, & Sionean, 2003). Thus, low self-esteem might contribute to teen pregnancy and subsequently continue to place both teen mothers and their children at risk.

These socio-emotional challenges make it difficult for pregnant or parenting teens to remain hopeful and optimistic about their future. Hope is defined as the belief that one has the ability to prevent or cope with difficulties in life (Riley, Stromberg, & Clark, 2009; Stoltland, 1969); thus, parental hopefulness refers to a parent's belief in his or her ability to prevent or cope with parenting difficulties, as well as optimism about the future as a parent. It is reasonable to expect that, in the absence of a planned intervention, teen parents will experience lower levels of hopefulness about their role as a parent than individuals who delay parenthood.

Reduced socio-emotional well-being of teen mothers has negative consequences for their children of as well. Depression and other symptoms associated with poor mental health may influence a parents' ability to be nurturing and responsive which can influence brain development in early childhood (Rao, Betancourt, & Gianetta, 2010). Low parental self-esteem is especially problematic for children. First, there is evidence that low maternal self-esteem during pregnancy is related to children's physical health risks. Bödecs, Horváth, Szilágyi, Gonda, Rihmer, and Sándor (2011) reported that maternal self-esteem during pregnancy was positively related to both infant birth weight and length, controlling for relevant demographic data. These authors suggested that a "lower level of maternal self-esteem possibly leads to a higher level of maternal stress which may reduce fetal growth via physiologic changes" (p. 45). Maternal self-esteem is also related to later child well-being including cognitive and psychomotor development at age two (Surkan et al., 2008). Additionally, low parental hopefulness can lead to diminished child hopefulness and also reduce the parents' ability to provide a sense of security for their child (Venning, Elliot, Whitford, & Honnor, 2007). Wilkinson (2005) similarly suggested that a lack of parental hope can engender futility in children.

Given these risks to teen mothers' socio-emotional well-being, and the related risks to their children, it is encouraging that intervention programs have been effective in improving teen mothers' social and emotional well-being. McDonnell et al. (2007) found that teens reported heightened social support when program providers collaborated with the teens' parents. Teens who participated in this intervention program also reported higher self-efficacy and improved future outlook compared to teen parents who did not participate (McDonnell et al, 2007). Because social support is linked to lower levels of stress among teen mothers (Devereux, Weigel, Ballard-Reisch, Leigh, & Cahoon, 2009), interventions in group settings where participants report high group cohesion may serve to bolster social support and lower stress. Overall, teen parents are at risk for low socio-emotional well-being, and there is evidence that programmatic efforts can successfully intervene in this domain.

CAPS Program

Given the rate of teen pregnancy and the associated risks discussed above, effective prevention and intervention programs are essential. This study provides a pilot program evaluation of one such intervention effort -- Child and Parenting Skills (CAPS). CAPS is a school-based parent education program offered to pregnant and parenting teens through the Florence Crittenton Agency (FCA) in Knoxville, Tennessee (Bremseth, personal communication, 2010). The program aims to increase parental knowledge of children's health and safety needs (fall semester), increase educational aspirations and family relationship skills (spring semester), and enhance the socio-emotional well-being of program participants (both fall and spring semesters), all in an effort to reduce child neglect and improve the overall well-being of both teen parents and their children.

The CAPS program began as a community-based program in 1988 and became school-based in 1992. All CAPS facilitators receive FCA general training as well as training in a designated evidence-based parenting program (at the time of data collection, this was Active Parenting). They also receive ongoing training including the annual full-day Teaching Teens Outstanding Parenting Skills (T-TOPS) workshop. CAPS participation is limited to (a) female adolescents who are enrolled in high school and are either pregnant or parenting, and (b) male adolescents who are enrolled in high school and are either fathers-to-be or parenting. Potential CAPS participants are typically referred to school guidance counselors by students and/or teachers. The guidance counselors, in turn, describe the CAPS program and refer interested students to the CAPS facilitators. Trained facilitators from FCA presented all of the CAPS classes. The agency provides services to approximately 120 teens per semester in 17 high schools across six contiguous counties in Tennessee.

To achieve the aforementioned aims, facilitators present weekly lessons on various topics throughout the school year, emphasizing child health and safety information in the fall and academic goal-setting and family relationships in the spring. Facilitators are given fact sheets and a general outline of material to be covered in each session, but they develop their own independent lesson plans (a sample lesson plan is provided in the Appendix). Specific fall semester topics include Sudden Infant Death Syndrome (SIDS), lead poisoning, fever, immunizations, car seats, and toy safety. Each weekly lesson takes place in the same location (these locations vary by school but are often a conference room, guidance counselor office, or classroom) and lasts 45-50 minutes. The program is integrated into the school day differently based on the school scheduling system. Sometimes CAPS classes take place during an advising time. If academic classes must be missed, the CAPS sessions are typically scheduled such that different classes are missed each week, and often a CAPS session will span the end of one class, the between-class break, and the beginning of the next class. Scheduling CAPS in this way allows students to attend part of every academic class and touch bases with every teacher. Health and safety information is communicated via DVDs, handouts, workbooks, and visual aids (e.g., outlet plugs are brought in for the session on baby proofing the home). After information is presented, the CAPS facilitator leads a discussion of the material, encouraging participants to identify their own strategies and solutions. For example, after learning about second-hand

smoke, the facilitator might start the discussion with, “How many of you live in a house where someone smokes?”

Facilitators attempt to enhance the socio-emotional well-being of participants, not through inclusion of specific material (as is the case for health/safety knowledge, academic goals, and family relationship skills), but rather via the format of the program itself. First, the night before each weekly session, a phone call is made to each student’s home. This allows the facilitator to talk to participants and their parents privately about individual needs of the student or questions that could be addressed during the weekly session and to develop a supportive relationship with participants and their parents. Second, each weekly class session begins with an opportunity for the participants to share events and changes in their lives. This sharing time fosters group cohesion and allows participants to form bonds with one another. Based on participants comments, program administrators discovered that this sharing session allows participants begin to feel that others are in equally challenging situations and that positive life outcomes are still possible for them. Third, each substantive lesson (which takes place after sharing time) begins with a brief quiz. After the lesson and related discussion, participants are again quizzed on the lesson content. This structure is designed to provide positive reinforcement for even small knowledge gains in order to help participants connect to their learning, feel empowered by their progress, and experience higher overall self-esteem.

Intervention programs play an important role in buffering teen parents and their children from the negative consequences of teen pregnancy, and this agency’s long-standing effort in this regard is commendable. Given the dearth of teen parenting programs targeting child safety and injury prevention, it is especially noteworthy that CAPS has stepped in to address this information void. However, it is unknown whether the program information produces meaningful knowledge change or whether the specific support provision that results from the program delivery format results in improved socioemotional well-being for these at-risk teens.

Research Questions

1. Do participants report an increase in level of child health and safety knowledge on key program topics (SIDS, lead poisoning, fever, immunizations, car seats, and toy safety) after the program compared to before the program?
2. Do participants report a change in socio-emotional outcomes (parental hopefulness and self-esteem) after the program as compared to before the program?
3. What level of program satisfaction and group cohesion do the participants report?

Methods

Sample

The CAPS intervention was conducted at high schools in six Tennessee counties during the fall of 2010; all six counties were represented in the study. Participants were referred to the program by a school counselor, teacher, or other staff member. The CAPS facilitators encouraged all female CAPS participants to consider participating in the evaluation study. Given

the very small number of male CAPS participants expected during Fall semester, we limited the study to only female CAPS participants. The sample for the present study included all Fall 2010 female CAPS participants who (a) had at least one parent consent to the study, (b) provided assent to participate, (c) attended the majority (at least half) of the Fall semester weekly sessions, (d) were not parents at the start of the Fall semester, and (e) were still pregnant at the time of the evaluation survey (e.g., had not yet become a parent). These limitations were necessary to eliminate the known major life changes that might confound the pre/post comparisons, but the restrictions resulted in a relatively small sample of 26 pregnant teens. Of the 26 participants who both received parental consent and then assented to participate in the research study, 25 completed all of the subscales. The mean age of the sample was 16.72 years ($SD = 1.14$) with an age range of 15-19 years. The sample was comprised of 76% European-American, 12% African-American, and 12% Latina-American teens. All participants were living with at least one parent. All study participants were currently pregnant, and none was simultaneously parenting a child.

Procedures

Parental consent and youth assent were obtained during the fall semester. After the fall semester topics were covered, facilitators administered the survey during a CAPS weekly session. After completing the survey, participants received a 'parenting tips' handout and a small parenting related gift provided by the facilitator. Those who did not participate were given the same 'parenting tips' handout and remained in the room while participants completed the survey. The facilitators were trained by the researchers regarding how to collect and properly store the informed consent/assent forms and how to ethically proctor the surveys, all in accordance with the approved IRB procedure.

Data were collected through a survey with a retrospective post-then-pre design to assess perceived knowledge and attitudes at two times: "Now," was defined as after completing one semester of the program, and "before," was defined as the period of time after the participant knew she was pregnant but before she began the program. An additional "warm-up" survey was administered prior to the actual survey to practice responding to post-then-pre-survey items. A traditional pre-then-post design requires assessments at two different times. However, we chose the single assessment time for three reasons: First, this retrospective post-then-pre design disrupted the weekly class session at only one time whereas the traditional method would have used more class time; both the lost time and disruption aspects were of concern to program facilitators. Second, this retrospective design was selected to reduce participant response-shift bias. This can occur in a traditional pre-test/post-test format because participants cannot accurately report their level of knowledge before the program until after they are exposed to the information. Therefore, participants initially may report inaccurately the amount of knowledge they have of a specific topic because they are not aware of the scope of information available (Rockwell & Kohn, 1989). We considered the six safety knowledge variables to be at substantial risk for this type of bias with our study participants. Third, given the rolling enrollment of participants in CAPS, and the need to be especially inclusive and sensitive to new program participants during their first CAPS class, we determined that a traditional pre-test was not an appropriate initial program experience for a pregnant adolescent.

Pratt, McGuigan, and Katzev (2000) documented that the response shift mentioned above occurred in their sample of mothers participating in a child abuse prevention program. By gathering both traditional “pre” data as well as retrospective “pre” data, these researchers documented that on several measures participants reported (via their retrospective report) having started the program with less knowledge than they reported on the initial pre-workshop survey. This might be because, at the time of the traditional pre-workshop survey, they were unaware of the scope of material that they didn’t know and had yet to learn. Hill and Betz (2005) explored the various types of potential bias inherent in both the traditional pre-test and the retrospective post-then-pre test, considering the type of items under consideration (attitudinal vs. behavioral, and desirable behaviors vs. undesirable behaviors). Overall, they suggest that neither approach is bias-free, but they recommend a retrospective approach when assessing an individual’s subjective experiences related to an intervention. Bamberger, Rugh, Church, and Fort (2004) also indicate that use of recall to retrospectively construct pre-intervention data can be informative when the timeline and/or budget concerns prohibit collection of traditional pre-data, though they caution that program effect may be overstated somewhat. Other researchers have suggested that, “as an alternative to an independent control or comparison group, study participants may serve as their own controls” (Doll, Bartenfeld, & Binder, 2003, p. 54) in a retrospective post-then-pre design, and that “research has shown that a retrospective pretest design can provide accurate information” (p. 54). Overall, though all survey designs have strengths and weaknesses, we believe the retrospective post-then-pre design is adequate and appropriate for this particular investigation.

Instrument and Measures

The survey instrument consisted of 48 items spanning five pages and designed to tap demographics, CAPS program topics, academic goals, socioemotional well-being, and experiences with the CAPS program. Additionally, participants were given the following open-ended question, “Please let us know if there are other topics you would like the CAPS program to cover or if there is any other help you need.” Specific measures of interest are discussed below.

Perceived knowledge of child health and safety. We measured pre-intervention and post-intervention perceived knowledge of six child health and safety topics (i.e., SIDS, lead poisoning, fever, immunizations, car seats, and toy safety), each with a single item. Participants were asked to report how much they knew about each topic before and after the intervention using a 3-point scale (1 = *a little*; 2 = *some*; 3 = *a lot*). Past research indicates moderate to strong correlations between actual knowledge and perceived knowledge on other health related topics such as prostate cancer (Agho & Lewis, 2001), diabetes (El-Deirawi & Zuraikat, 2001), and condom use (Rock, Ireland, Resnick, & McNeeley, 2005), thus indicating that perceived knowledge is a valid, though imperfect, proxy for actual knowledge on these health and safety related topics.

Self-esteem. Self-esteem was measured by a subset of 10 items from the Rosenberg Self-Esteem Scale (Rosenberg, 1989) adapted to fit the post-then-pre format. The Rosenberg Self-Esteem scale has been previously used with teen mothers; adequate reliability (ranging from .77-.88) indicates an appropriate fit with this population (e.g., Hess, Papas, & Black, 2002;

McVeigh & Smith, 2000). This particular subset of items has been used in research with adolescents around the world (see for example, Barber, Stolz, & Olsen, 2005). Participants were asked to assess their level of agreement with regard to each item after the program and prior to the program using the post-then-pre-survey method. Scale items (e.g., “I feel I have a number of good qualities”) were measured on a 3-point scale ($1 = disagree$; $2 = neutral$; $3 = agree$). Items were reverse-coded as needed, and all items were averaged to produce two self-esteem scales. For this study, the Cronbach’s alphas for the pre-test and post-test scales were .87 and .70, respectively, indicating adequate reliability.

Parental hopefulness. Parental hopefulness is intended to measure participants’ self-efficacy and optimism regarding their current or future role as a parent. This construct was measured by the Parent Hopefulness Scale (Stolz, Vargas, Clifford, Gaedt, & Garcia, 2010). This five-item scale was adapted to the post-then-pre format. The scale items (e.g., “Overall I feel hopeful about my future as a parent”) were measured on a 3-point scale ($1 = disagree$; $2 = neutral$; $3 = agree$). Items were averaged to create two parental hopefulness scales. The Cronbach’s alpha for pre-intervention parental hopefulness was .88 indicating moderate to high internal reliability. Given the lack of variability on the items for post-intervention parental hopefulness (three items were rated as 3 by all participants) we were unable to calculate internal reliability.

Program satisfaction. Participants’ perspectives of the quality of the information presented and the ability of the facilitator to present the material were measured with the six item Parenting Program Satisfaction Scale (Stolz, Vargas, Clifford, Gaedt, & Garcia, 2010). These items (as well as those tapping group cohesion) were not part of the post-then-pre format; rather, participants were asked to “give feedback on the CAPS program.” Participants were asked to rate each item (e.g., “The information was presented clearly”) on a 5-point scale ($1 = strongly disagree$ to $5 = strongly agree$). The six items were averaged to create a program satisfaction scale. Cronbach’s alpha was .93 indicating high internal reliability.

Group cohesion. Group cohesion reflects participants’ perceptions of the group as a source of social support. This construct was measured with the six item Parenting Program Group Cohesion Scale (Stolz, Vargas, Clifford, Gaedt, & Garcia, 2005). Participants were asked to rate each item (e.g., “I felt comfortable sharing my stories with the other group members”) on a 5-point scale ($1 = strongly disagree$ to $5 = strongly agree$). The six items were averaged to create the group cohesion scale. The resulting Cronbach’s alpha of .91 indicates high internal reliability.

Statistical Analyses

Research questions 1 and 2 were analyzed with paired t-tests. To address question 3 we reported descriptive statistics of the program satisfaction and group cohesion scales.

Results

Participants' perceived knowledge of child health and safety. Table 1 provides descriptive statistics and test statistics for all knowledge topics and socioemotional outcomes of interest. For each knowledge topic, participants reported a statistically significant increase in knowledge after the program as compared to before the program. (See Table 1).

Participants' socioemotional outcomes. The results of the paired t-tests indicate significant increases in both parental hopefulness ($t(24) = 3.90, p < .001$) and self-esteem ($t(24) = 3.72, p < .001$).

Participants' program satisfaction and group cohesion. The mean reported level of program satisfaction was 4.82/5.00 ($SD = .33$), and the mean reported level of group cohesion was 4.64/5.00 ($SD = .50$).

Discussion and Implications

The purpose of this study was to provide an initial evaluation of the CAPS program, specifically addressing the extent to which the program achieved the stated goals with regard to promoting gains in teen participants' socioemotional well-being and knowledge of children's health and safety needs. Perceived knowledge of each child health and safety topic (SIDS, lead poisoning, fever, immunizations, car seats, and toy safety) was higher after the program compared to before the program. Thus, there is guarded evidence that the program's coverage of these topics is appropriate for the population and translates into participant reports of a more informed understanding of the safety needs of young children. This is important for two reasons. First, though parenting programs for older parents have addressed child safety and injury prevention (c.f., Nansel et al., 2008), and parenting programs for teen parents have addressed general parenting knowledge (c.f., Amin et al, 2007; Sangalang, 2006), no study was found evaluating a child safety program for teen parents. Providing child safety information to pregnant teens and teen parents is essential given the relationship between parental age and childhood injury and illness (Morrongiello & Corbett, 2008; Peterson & Brown, 1994). Second, knowledge is empowering to parents and is related to reduction of parental stress and improvement in child health outcomes (Chang & Fine, 2007).

Teen participants also reported higher levels of parental hopefulness and self-esteem after the program as compared to before the program. These findings provide important feedback to CAPS facilitators and administrators, and they also suggest recommendations for other programs for pregnant and parenting teens. There is cautionary evidence that the planned support that is part of the CAPS process (weekly phone call to participants and parents, group sharing, positive feedback on even small amounts of knowledge gain) accomplishes the goals of the program by enhancing participants' feelings of optimism and confidence as a parent and worth as an individual. These are important goals for a program for pregnant teens given that hope and self-

esteem are positively related to a host of parent and child outcomes (Venning et al., 2007). Additionally, teens who remain in the program for longer periods of time may experience even greater gains in these two areas.

Teens reported a high level of satisfaction with the program (4.82 / 5.00). This suggests that the program format and content are appropriate for the participants and provide a positive experience for teen mothers faced with similar challenges. Targeted program format is essential because pregnant teens have distinctive needs that stem from their unique situations and vulnerabilities, making it imperative that intervention programs are designed to meet the specific needs of teenage parents (Figueiredo et al., 2006). Additionally, since safety behaviors are best acquired when the information provided matches the participants' characteristics and needs (Nansel et al., 2008), programs to teach pregnant teens very basic information about infant and toddler safety are essential.

Participants also reported relatively high group cohesion. It is heartening that these youth reported that the CAPS group is a source of social support, because adolescent mothers are more likely to be rejected by peers and have strained support networks (Chang & Fine, 2007) including perceived lack of support from family members (Beers & Hollo, 2009). Given the relationship between social support and reduced stress among teen mothers (Devereux et al., 2009), it is possible that the social support provided by the group acts as a buffer against the socio-emotional challenges that accompany teen pregnancy and parenting.

Among the limitations of this study was the small sample size, which limits our ability to detect changes in the constructs measured and to generalize beyond the participants in the study. We are not able to evaluate whether our sample is representative of program participants; it could be that participants whose parents returned the informed consent form differ in a meaningful way from potential participants whose parents did not. We utilized self-report data, which has the potential to elicit socially desirable responses. In other words, it could be that program participants bonded with the facilitators and wanted to provide answers that would reflect favorably on the program. Additionally, factors other than the intervention (specific events or the passage of time) may have influenced the changes reported by participants. The surveys were administered by program facilitators, rather than the researchers. Though we took measures to ensure fidelity, including providing training, scripts, and specific instructions, we cannot be sure that the evaluations were conducted as designed. The CAPS program is conducted over the course of the school year. This evaluation covered only the first semester of the program. A survey of participants completing a full year of the program might yield different results.

It is possible that the retrospective post-then-pre design introduced recall bias and/or overestimated program effects due to motivational factors (e.g., the tendency to view ourselves as better now than before, the tendency to report change when we have exerted effort and have expectations of change, and/or the enhanced tendency to provide socially desirable responses given that the two reports were collected simultaneously). However, retrospective post-then-pre evaluation has the advantages of consuming less program time, reducing interference with initial rapport building between facilitators and program participants, and promoting self-reflection that

may reinforce participant efficacy (for a review of strengths and weaknesses, see Hill & Betz, 2005). Response shift (the condition of disparity between traditional pre-scores and retrospective pre-scores) has been documented (Pratt et al., 2000), and it is possible that this shift occurred because the program itself exposes participants to changes in the evaluation standards. Hill and Betz (2005, p. 514) indicate that, “If a goal of the program is to describe change as experienced subjectively by the intervention participants, a retrospective pre-test is more appropriate.” Given our focus on perceived change, and our goal of encouraging both (a) initial rapport with teen mothers and (b) post-intervention participant personal reflection and efficacy, we believe our retrospective design, though not without limitations, is appropriate.

Family and Consumer Sciences teachers, educational counselors, social workers, and family professionals often provide in-school programs for pregnant and parenting teens. The findings from this research indicate that participation in an in-school program was associated with increased reported levels of knowledge of child health and safety, feelings of self-esteem, and parental hopefulness. Other factors may be amenable to change as well, depending on program content and design. If funding is identified to move past an initial pilot evaluation and provide adequate facilitator and participant incentives, we recommend (a) participant incentives that are salient and sufficient to substantially boost participation in the study, (b) the inclusion of actual knowledge tests in addition to measures of perceived knowledge (the daily pre/post quizzes were not included in our IRB), (c) extension to the second semester material, including evaluation of potential change in educational expectations and family relationship knowledge and skills, and (d) a post-birth longitudinal follow up to measure actual injury prevention and parenting behavior. Additional research with larger sample sizes and covering the full scope of the program could provide greater evidence of the effectiveness of such programs. Evidence that in-school-programs for pregnant and parenting teens are effective at improving teens’ child safety and parenting skills, self-esteem, and parental hopefulness – all of which result in better outcomes for their children – may help lobbying efforts with policy makers to increase the availability of these programs.

Heidi E. Stolz, Ph.D. is an Associate Professor and Co-Director of the Center for Parenting in the Department of Child and Family Studies at The University of Tennessee, 1215 W. Cumberland Avenue, JHB 115, Knoxville, TN 37996; Phone 865-974-6273.

Denise J. Brandon, Ph.D. is Co-Director of the Center for Parenting in the Department of Child and Family Studies and UT Extension Family & Consumer Sciences, at The University of Tennessee, 119 Morgan Hall, , Knoxville, TN 37996; Phone 865-974-7193.

Patricia N. E. Roberson, M.S. is in the Department of Child and Family Studies at The University of Tennessee, Knoxville, TN 37996.

References

- Agho, A. O., & Lewis, M. A. (2001). Correlates of actual and perceived knowledge of prostate cancer among African Americans. *Cancer Nursing, 24*, 165-171.
- Amin, R., Browne, D., Ahmed, J., & Sato, T. (2007). A study of an alternative school for pregnant and/or parenting teens: Quantitative and qualitative evidence. *Child and Adolescent Social Work Journal, 23*, 172-195. doi:10.1007/s1056-005-0038-1
- Bamberger, M., Rugh, J., Church, M., & Fort, L. (2004). Shoestring evaluation: Designing impact evaluations under budget, time and data constraints. *American Journal of Evaluation, 25*, 503-641. doi: 10.1016/j.ameval.2003.11.001
- Barber, B. K., Stolz, H. E., & Olsen, J. A. (2005). Parental support, psychological control, and behavioral control: Assessing relevance across time, culture, and method. *Monographs of the Society for Research in Child Development, 70*, 4.
- Beers, L. A. S., & Hollo, R. E. (2009). Approaching the adolescent-headed family: A review of teen parenting. *Current Problems in Pediatric and Adolescent Health Care, 39*, 215-234. doi: 10.1016/j.cppeds.2009.09.001
- Bödecs, T., Horváth, B., Szilágyi, E., Gonda, X., Rihmer, Z., & Sándor, J. (2011). Effects of depression, anxiety, self-esteem, and health behaviour on neonatal outcomes in a population-based Hungarian sample. *European Journal of Obstetrics & Gynecology & Reproductive Biology, 154*, 45-50. doi: 10.1016/j.ejogrb.2010.08.021
- Bornstein, M. H., Cote, L. R., Haynes, O. M., Hahn, C. S., & Park, Y. (2010). Parenting knowledge: Experiential and sociodemographic factors in European American mothers of young children. *Developmental Psychology, 46*, 1677-1693. doi: 10.1037/a0020677
- Chang, Y., & Fine, M. A. (2007). Modeling parenting stress trajectories among low-income young mothers across the child's second and third years: Factors accounting for stability and change. *Journal of Family Psychology, 21*, 584-594. doi: 10.1037/0893-3200.21.4.584
- Davies, S. L., DiClemente, R. J., Wingood, G. M., Harrington, K. F., Crosby, R. A., & Sionean, C. (2003). Pregnancy desire among disadvantaged African American adolescent females. *American Journal of Health Behavior, 27*, 55-62. doi: 10.5993/AJHB.27.1.6
- Deutscher, B., Fewell, R., & Gross, M. (2006). Enhancing the interactions of teenage mothers and their at-risk children: Effectiveness of a maternal-focused intervention. *Topics in Early Childhood Special Education, 26*, 194-205. doi: 10.1177/02711214060260040101

- Devereux, P. G., Weigel, D. J., Ballard-Reisch, D., Leigh, G., & Cahoon, K. L. (2009). Immediate and longer-term connections between support and stress in pregnant/parenting and non-pregnant/non-parenting adolescents. *Child and Adolescent Social Work Journal*, 26, 431-446. doi: 10.1007/s10560.009-0175-z
- Doll, L., Bartenfeld, T., & Binder, S. (2003). Evaluation of interventions designed to prevent and control injuries. *Epidemiological Review*, 25, 51-59. doi: 10.1093/epirev/mxg003
- Drummond, R. J., & Hansford, S. G. (1991). Dimensions of self-concept of pregnant unwed teens. *Journal of Psychology: Interdisciplinary and Applied*, 125, 65-69. Retrieved from <http://journals.academia.edu/TheJournalOfPsychologyInterdisciplinaryAndApplied>
- El-Deirawi, K. M., & Zuraikat, N. (2001). Registered nurses' actual and perceived knowledge of diabetes mellitus. *Journal for Nurses in Staff Development*, 17, 5-11.
- Figueiredo, B., Bifulco, A., Pacheco, A., Costa, R., & Magarinho, R. (2006). Teenage pregnancy, attachment style, and depression: a comparison of teenage and adult pregnant women in a Portuguese series. *Attachment and Human Development*, 8, 123-138. doi: 10.1080/14616130600785686
- Forum on Child and Family Statistics. (2010). *America's children in brief: Key national indicators of well-being*. Washington D.C.: Author.
- Guttmacher Institute. (2010). U.S. teenage pregnancies, births, and abortions: National and state trends and trends by race and ethnicity. Author.
- Hess, C. R., Papas, M. A., & Black, M. M. (2002). Resilience among African American adolescent mothers: Predictors of positive parenting in early infancy. *Journal of Pediatric Psychology*, 27, 619-629. doi: 10.1093/jpepsy/27.7.619
- Hill, L. G., & Betz, P. (2005). Revisiting the retrospective pretest. *American Journal of Evaluation*, 26, 51-59. doi: 10.1177/1098214005281356
- Holcombe, E., Peterson, K., & Manlove, J. (2009). *Ten reasons to still keep the focus on teen childbearing*. Washington, DC: Child Trends.
- Hulton, L. (2007). An evaluation of a school-based teenage pregnancy prevention program using a logic model frame-work. *The Journal of School Nursing*, 23, 104-110. doi: 10.1177/10598405070230020801
- Jaffee, S. R. (2002). Pathways to adversity in young adulthood among early childbearers. *Journal of Family Psychology*, 16, 55-94. doi: 10.1037/0893-3200.16.1.38

- Koniak-Griffin, D., Anderson, N. L. R., Brecht, M. L., Verzemnieks, I., Lesser, J., & Kim, S. (2002). Public health nursing care for adolescent mothers: Impact on infant health and selected maternal outcomes at 1 year postbirth. *Journal of Adolescent Health, 30*, 44-54. doi: 10.1016/s1054-139x(01)00330-5
- Levine, J. A., Emery, C. R., & Pollak, H. (2007). The well-being of children born to teen mothers. *Journal of Marriage and Family, 69*, 105-122. doi: 10.1111/j.1741-3737.2006.00348.x
- McDonell, J., Limber, S., & Connor-Godbey, J. (2007). Pathways teen mother support project: Longitudinal findings. *Children & Youth Services Review, 29*, 840-855. doi: 10.1016/j.childyouth.2007.01.001
- McVeigh, C., & Smith, M. (2000). A comparison of adult and teenage mother's self-esteem and satisfaction with social support. *Midwifery, 16*, 269-276. doi: 10.1054/midw.2000.0226
- Morrongiello, B. A., & Corbett, M. (2008). Elaborating a conceptual model of young children's risk of unintentional injury and implications for prevention strategies. *Health Psychology Review, 2*, 191-205. doi: 10.1080/17437190902777594
- Nansel, T., Weaver, N. L., Jacobsen, H. A., Glasheen, C., & Kreuter, M. W. (2008). Preventing unintentional pediatric injuries: A tailored intervention for parents and providers. *Health Education Research, 23*, 656-669. Retrieved from <http://her.oxfordjournals.org/>
- Peterson, L., & Brown, D. (1994). Integrating child injury and abuse-neglect research: Common histories, etiologies, and solutions. *Psychological Bulletin, 116*, 293-315. doi: 10.1037//0033-2909.116.2.293
- Pratt, C. C., McGuigan, W. M., & Katzev, A. R. (2000). Measuring program outcomes: Using retrospective pretest methodology. *American Journal of Evaluation, 21*, 341-349. doi: 10.1177/109821400002100305
- Rao, H., Betancourt, L., & Gianetta, J. M. (2010). Early parental care is important for hippocampal maturation: Evidence from brain morphology in humans. *NeuroImage, 49*, 1144-1150. doi: 10.1016/j.neuroimage.2009.07.003
- Riley, S., Stromberg, A., & Clark, J. (2009). Relationship between caregiver hopefulness and satisfaction with their children's mental health services. *Community Mental Health Journal, 45*, 307-315. doi: 10.1007/s10597-009-9188-5
- Rock, E. M., Ireland, M., Resnick, M. D., & McNeeley, C. A. (2005). A rose by any other name? Objective knowledge, perceived knowledge, and adolescent male condom use. *Pediatrics, 115*, 667-672. doi: 10.1542/peds.2004-0139

- Rockwell, S. K., & Kohn, H. (1989). Post-then-pre evaluation. *Journal of Extension [On-line]*, 27(2), 2FEA5. Retrieved from <http://www.joe.org/>
- Rosenberg, M. (1989). *Society and the adolescent self-image*. (Rev.ed.). Middeltown, CT: Wesleyan University Press.
- Sangalang, B. (2006). Teenage mothers in parenting programs: Exploring welfare outcomes during early transition to parenthood. *Families in Society*, 87, 105-111. Retrieved from <http://www.familiesinsociety.org/>
- Santelli, J. S., & Melnikas, A. J. (2010). *Teen fertility in transition: Recent and historic trends in the United States* (No. 0163-7525). Palo Alto: Annual Reviews.
- Stoltland, E. (1969). *The psychology of hope*. San Francisco, CA: Jossey-Bass.
- Stolz, H. E., Vargas, L., Clifford, L. M., Gaedt, H. A., & Garcia, C. F. (2010). Evaluating "Parent Project:" A multi-site inquiry. *Family Science Review*, 15, 1-12. Retrieved from <http://www.familyscienceassociation.org/familysciencereview.php>
- Stolz, H. E., Vargas, L., Clifford, L., Gaedt, H., & Garcia, C. F. (2005, November). *The "Parent Project:" A multi-method, multi-site parenting program evaluation*. Poster presented at the National Council on Family Relations Annual Conference, Phoenix.
- Surkan, P. J., Schnaas, L., Wright, R. J., Téllez-Rojo, M. M., Lamadrid-Figueroa, H., Hu, H. ... Wright, R. O. (2008). Maternal self-esteem, exposure to lead, and child neurodevelopment. *NeuroToxicology*, 29, 278-285. doi: 10.1016/j.neuro.2007.11.006
- Venning, A., Elliot, J., Whitford, H., & Honnor, J. (2007). The impact of a child's chronic illness on hopeful thinking in children and parents. *Journal of Social and Clinical Psychology*, 26, 708-727. doi: 10.1521/jscp.2007.26.6.708
- Wiemann, C. M., Rickert, V. I., Berenson, A. B., & Volk, R. J. (2005) Are pregnant adolescents stigmatized by pregnancy? *Journal of Adolescent Health*, 36, 352.e1-352.e7. doi:10.1016/j.jadohealth.2004.06.006
- Wilkinson, H. A. (2005). Hope, false hope, and self-fulfilling prophecy. *Surgical Neurology*, 63, 84-86. doi: 10.1016/j.surneu.2004.07.048

Table 1

Means (Standard Deviations) and Results of Paired t-tests

Targeted Construct	Post-intervention	Pre-intervention	<i>t</i>	<i>df</i>
Child Health & Safety Knowledge				
SIDS	2.72 (.54)	1.48 (.51)	11.86***	24
Lead Poisoning	2.44 (.77)	1.36 (.57)	7.11***	24
Fever	2.88 (.33)	2.12 (.67)	6.36***	24
Immunization	2.68 (.56)	1.64 (.76)	6.19***	24
Car Seats	2.84 (.47)	1.92 (.81)	6.06***	24
Toy Safety	2.68 (.56)	1.76 (.78)	5.06***	24
Socioemotional Well-being				
Parental Hopefulness	2.98(.06)	2.62(.48)	3.90***	24
Self-esteem	2.56(.30)	2.32(.45)	3.72***	24

Note *** = $p < .001$.

Appendix

Sample CAPS Lesson Plan

Date:

Lesson: Sudden Infant Death Syndrome	CAPS Area Addressed: 1. Safety 2. Sleep
--	--

Objective:

The student will understand the dangers of Sudden Infant Death Syndrome and be able to identify important prevention techniques.

Opener: At the beginning of the session the students are encouraged to share any events that have occurred in their lives during the past week. Pregnant girls should be asked if they have been to the doctor recently (both to share information and make sure they are receiving prenatal care). Parenting students should be asked about upcoming doctor visits so that they will be prepared and to ensure that the babies are receiving healthcare.

Lesson:

1. Administer the pre-test for Sudden Infant Death Syndrome.
2. Ask the students if they know of a baby who died from SIDS - discuss.
3. Present information explaining what SIDS is and what it is not, including age ranges and other statistics.
4. Discuss dangers and prevention techniques including smoking, sleeping positions, bedding, co-sleeping, etc.
5. After presenting the information ask the students how they will use that information in their homes and nurseries.
6. Administer the post-test

List of Materials:

1. Pre / Post test
2. Smoking handout
3. SIDS handout

Assessment: Administer and grade pre and post-tests.