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From Adolescent Daughter to Mother: Exploring Message Design Strategies for Breast and Cervical Cancer Prevention and Screening

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Abstract

Early detection of breast and cervical cancers is one preventive behavior that may provide the adolescent daughter with a unique opportunity to provide encouragement to her mother or guardian to obtain screening. This study explored the design strategies necessary for developing an effective daughter-initiated message about screening for breast and cervical cancers. Thirty-two (N=64) African-American mother-daughter dyads were interviewed about parenting style, goodwill, and daughters' credibility and risk behaviors that might influence receptivity toward a screening appeal. Mothers indicated that a tailored, emotional appeal combined with cancer facts delivered in a private setting would be most effective. Daughters were perceived as highly credible messengers and were perceived to have high levels of goodwill toward their mothers, regardless of risk behaviors.

Introduction

Effectively communicating persuasive appeals among adults is not only challenging, but also highly dependent on the relational aspects and strength of the interpersonal communication [1]. Therefore, developing effective persuasive appeals communicated in an upward direction from child to parent presents unique challenges. Cancer mortality rates continue to be of great concern and early detection plays a critical role in abating the ever rising cancer burden [2]. Furthermore, the continued higher mortality rates of breast and cervical cancer in African-American women provides strong impetus for developing family-based interventions that can increase early and regular screening [3]. Routine screening for the early detection of breast and cervical cancers is one preventive behavior that may

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provide daughters an opportunity to provide encouragement to her mother to obtain screening [4].

Background

The mother-daughter relationship and communication norms within the family provide the primary context for exploring message design strategies for developing an adolescent-initiated screening appeal. The long-term goal of this study was to reduce cancer disparities and address the high breast and cervical cancer mortality rates of African Americans. Therefore, understanding key facets about the African-American family, in particular, is essential. While there is no monolithic family structure that applies to all families in the United States, marriage remains the most common living arrangement for raising children [5]. However, this configuration is not a social reality for many poor families [6]. Economic and cultural conditions have greatly influenced how families are constructed [5, 6], as well as the boundaries of parent-child communication [7] and parenting style [8] – as might be showcased by many a parental lament, “I never talked to my parents about that!” or “I would never have said that to my parents!”

The poverty rate for African Americans greatly exceeds that of the national average and poverty rates are highest for families headed by single women, particularly if they are African-American or Hispanic [9]. The simple dictates of economics has had a huge influence on family configuration and is partly responsible for the strong matrifocal family structure, often typified by females as single heads of household [10]. While the narrative of the African-American female as head of household is often viewed in deficit terms, it is precisely this adaptive family structure that has provided the impetus for exploring the feasibility of a daughter-initiated message design. Furthermore, making widespread assumptions about families based on family structure alone is restrictive [11] and fails to recognize the potential assets for health promotion. This research recognizes the varying parental configurations within the African-American family, especially the matrifocal focus [10], as well as the general shift of communication boundaries between parent and child [7, 11]. These features are assets that can be explored to increase early detection of cancer among African-American women.

The conceptual framework that guides the message design strategies for this study is best captured by the Elaboration Likelihood Model [12]. This model posits that attitude changes are linked to the strength of the message and perceived saliency of the topic. There are a number of variables that can affect someone’s motivation to attend to a persuasive message, including personal relevance of the message and argument repetition [13]. Optimizing these variables during message delivery can increase the likelihood of message effectiveness.

The mother-daughter relationship signifies a personal relationship characterized by a unique bond [14]. We posit that when daughters make an appeal, the distinctive features of the mother-daughter relationship may increase the saliency and relevancy of the message. Personal relevance combined with a delivery approach (e.g., emotional or factual) that has maximum impact on a person’s thoughts and behaviors is argued to be more potent [15]. Similarly, appeals that are tailored to the recipient are better received than those not tailored [16].

Source credibility has the potential to affect the perceived validity of the information being shared [17]. Source credibility can be defined in terms of expertise and trustworthiness of the entity providing the information [18]. The presence of high source credibility may be a distinct advantage when one's child is making the appeal. Furthermore, children may be perceived as having high levels of goodwill towards their parents. Goodwill refers to the perceived benevolence of the messenger or the messenger's intent toward the receiver, and is often seen as the absence of ulterior motives in the messenger [19].

Finally, parenting style has been linked to parent-child closeness and is associated with communication openness [20]. Baumrind defines four distinct parenting styles: authoritative, authoritarian, permissive and rejecting-neglecting [21]. Authoritative parents are demanding and responsive, and convey clear standards of conduct for their child. They are assertive, but not restrictive, and their approach to discipline is supportive rather than punitive. To the contrary, an authoritarian approach to parenting discourages give-and-take between the youth and parent, and rarely takes the young person's desires into account [22]. In comparison to European American families, research suggests that African-American parents are more authoritarian and employ a stricter approach to discipline [23]. Moreover, it may also be that many African Americans view a stricter parenting style as necessary to aid the development of effective coping abilities in the face of the harsh realities of racism and discrimination [8].

This community-based study assembled a mother-daughter health collaborative to assist in the design, implementation, data analysis and dissemination. In an attempt to address the high cancer mortality rates in African Americans, this study recruited African-American mother-daughter pairs from low-income urban neighborhoods. In this study, our goal was to specifically explore the message design strategies necessary for developing a normative daughter-initiated appeal. Specifically, we examined how perceptions of parenting style are associated with message appeal preferences. We highlight risk behaviors, operationalized as source credibility of daughters, and its association with messenger credibility.

Materials and Methods

Sample

This study was conducted in a Midwestern city in the United States and targeted neighborhoods with an annual average income of \$16,399 which was the poverty threshold for a family of 2 at the time the study was conducted [24]. Eligibility requirements included mothers or female guardians with daughters in grades eight through ten, living in the same household and self-identified as low-income. Low-income dyads were a focus as these represent women more likely to be non-compliant with recommended screening. We received ethics approval for the study.

Recruitment—Recruitment was conducted through various methods including flyers, emails to community centers and conducting information sessions with eligible girls at recreational centers. Interested girls were given an informational letter. Interested mothers called the office of the principle investigator and a brief eligibility assessment was conducted on the telephone. For those eligible, we arranged a face-to-face meeting to review

and complete the informed consent. Participation was 100% for those who called and met the eligibility requirements. Interviews were conducted separately by trained interviewers. Mothers received remuneration of \$50.00 and daughters \$35.00.

Measures

We collected demographic information regarding age, race and grade in school from the youths and age, race, education, employment, number of children, relationship to youth (i.e., biological mother or not), marital status, household income, health insurance coverage and receipt of government assistance from mothers.

Risk behavior—We assessed whether or not the daughters had engaged in risky behaviors. For example, daughters were asked, “Have you been suspended from school in the last 12 months?” and “Are you, or have you previously been, sexually active?” Other behaviors youth were asked about included: smoking, drinking alcohol, using drugs and condom use. Response choices were either “Yes” or “No.”

Parental Authority—To assess parental authority, both mothers and daughters were administered five items from the Parental Authority Questionnaire (PAQ) [25]. All of the items were from the authoritarian parenting style subscale. For example, “When I ask my daughter to do something, I expect it to be done immediately without questions” and “I do not allow my daughter to question the decisions that I make.” The wording of each item was revised for the daughters. Respondents used a 5-point scale ranging from Strongly Agree (1) to Strongly Disagree (5). The first 4 items were reverse scored and the mean of the items was computed, making higher scores reflect higher degrees of authoritarianism.

Goodwill—To measure the amount of perceived goodwill, mothers were administered six items from the ethos/source credibility construct of the goodwill measure [19]. Mothers were asked to, “Indicate your impression of your daughter by circling the appropriate number between the pairs of adjectives below. The closer the number is to an adjective, the more certain you are of your evaluation,” along a 7-point scale. For example, mothers were asked to indicate the extent to which they believed their daughter holds their interest at heart, with 1 indicating the daughter has her mother’s interest at heart, to 7 indicating that the mother does not believe her daughter has her interest at heart. Necessary items were reverse scored, and the mean was computed so that higher scores reflected greater perceived goodwill on the part of the daughter.

Messaging characteristics—Drawing upon the Elaboration Likelihood Model framework [12], we collected messaging characteristics. We assessed openness to receiving and giving a screening appeal (e.g., “How open would you be to receive advice about breast and cervical cancer screening from your daughter?”). This was recorded as 1 = very open, 2 = somewhat open or 3 = not open at all. We assessed comfort with discussing Human Papillomavirus (e.g., “If this daughter talked to you about the Human Papillomavirus (HPV), how comfortable would you feel?”) This was rated on a 4 point scale as follows: 1 = very comfortable, 2 = somewhat comfortable, 3 = somewhat uncomfortable and 4 = very uncomfortable. Participants were queried regarding preferences for the *approach* to the

screening appeals. Approach preference was assessed by asking if the participant would prefer to receive the message verbally, in written form or both verbal and written. Furthermore, both mothers and daughters were asked closed-ended questions about the kind of persuasive appeal that would be most effective (emotional, rational, or combination) (*framing*). Participants were asked an open-ended questions on the following topics: preference for the location of the message delivery with (e.g., home, car) (*privacy*); how frequently the daughter could ask the mother to get a Pap smear before the mother became aggravated; the number of times she thinks the mother will need to hear the appeal before she would actually obtain screening (*persistence*). Participants were asked to provide examples of emotional and factual statements that would persuade the mother to obtain a Pap smear.

Data Analysis

Descriptive statistics for demographic characteristics are presented in the form of means and standard deviations for continuous and frequency distributions for categorical variables. Details on the distribution of responses to message framing, persistence, approach, and privacy are presented for mothers and daughters as are risk behaviors (daughters), goodwill ratings (mothers) and parental authority ratings using means and standard deviations for continuous and frequency distributions for categorical variables. Open-ended responses given regarding certain messaging characteristics were identified, categorized, and coded manually. Two coders reviewed the responses, discussed the emerging themes, and independently coded the responses. There were no unresolved discrepancies.

Both members of the dyad were rating parental authoritarianism for the same target (e.g., mother's authoritarian parenting), thus an assessment of rating concordance is appropriate. As a means of assessing how similarly the mother-daughter dyad rated the mother's use of authoritarian parenting, discrepancy scores for the PAQ were computed for each dyad. The daughter's score was subtracted from the mother's; yielding a difference score that could be either negative (higher adolescent report of mother authoritarian parenting) or positive (higher mother report of mother authoritarian parenting). The differences on the PAQ score were then categorized using the standard deviation of the dyad's difference scores. Dyads with raw discrepancy scores ranging from one-half standard deviation above to one-half standard deviation below zero were classified as having similar reports. Those with raw difference scores greater than one-half standard deviation below zero were classified by the daughter reporting the mother as being more authoritarian than the mother reports herself as being. Those with raw difference scores greater than one-half of a standard deviation above zero were classified by the mother reporting herself as being more authoritarian than the daughter reported.

We examined the mean goodwill rating in the presence/absence of risk behavior and degree of association between risk behavior and parental authoritarianism discrepancy categories (agree, mother higher, daughter higher) using chi square analysis. Finally, possible differences in message framing, persistence, approach and privacy were examined for risk behaviors, parental authority (chi-square) and goodwill (means).

Results

Demographics

Thirty-two African-American mother-daughter dyads (N=64) participated. Mothers were between the ages of 37 and 59 (Mean = 45.6, SD = 5.6) and had between one and eleven children (Mean = 3.5, SD = 2.2). Daughters' were between the ages of 12 and 17 (Mean = 14.75, SD = 1.5, median = 14) and most of them were in grade 9. All but one of the mothers (97%) reported being the biological mother of the daughter with whom they were participating. Ten (31%) were married, 13 (41%) single, and nine (28%) divorced. The majority of mothers had a high school education (n = 19, 59%), four (13%) had some college, and nine (28%) had a college degree. Fourteen mothers (44%) were employed full-time.

Reported household income was as follows: less than \$9,000 (n = 10, 32%), >\$9,000 to 20,000 (n = 7, 22%), >\$20,000 to 30,000 (n = 4, 13%), >\$30,000 to \$40,000 (n = 3, 9%), >\$40,000 to 50,000 (n = 1, 3%), and >\$50,000 (n = 7, 22%). The majority (n=28, 87%) reported having health insurance, with 10 (31%) being covered by private insurance, 18 (56%) having governmental or state subsidized health insurance, and four (13%) reported being uninsured. Half (n = 16) reported receiving some form of governmental assistance; mostly from the Supplemental Nutrition Assistance Program (SNAP) (n = 13, 41%) and three (9%) reported receiving social security.

Youth Risk Behaviors

Thirty-four percent (n = 11) of the girls reported being sexually active and twenty-five percent (n = 8) had been suspended from school in the past year. Most denied engaging in a majority of the risk behaviors queried including smoking (n = 2, 6%), drinking alcohol (n = 1, 3%), using drugs (n = 0, 0%), and condom use (of those acknowledging sexual activity 100% claimed condom use). As such subsequent analyses rely on being sexually active and school suspension due to insufficient variance in the remaining behavioral categories.

Parental Authoritarianism and Congruency Scores

The mother's average PAQ score was 3.138 (SD = 0.63; Range 2.2 to 4.8). The daughters' average PAQ score was 3.106 (SD = 0.782; Range 1.4 to 5.0). The results of the discrepancy analyses reveal that 11 daughters (34%) rated their mothers as more authoritarian than the mothers rated themselves. Eight mothers (25%) rated themselves more authoritarian than their daughters rated them. In a plurality of cases (n = 13, 41%), the daughter and the mother rated the mothers' authoritarianism similarly.

Message Framing Characteristics Mothers

Message receptivity—There was nearly complete concordance among the dyads (31 of 32, 97%) that the mother will obtain a Pap smear or mammogram if asked by the daughter. The majority said they would be very open to (94%, Mean=1.06, Median=1, SD=.246) and comfortable with (97%, Mean=1.03, Median=1, SD=.176) receiving breast and cervical cancer screening advice from their daughter. When asked why they would be receptive to

the message about half ($n = 17$, 53%) said it would benefit their health and 22% ($n = 7$) said it was important to listen to their daughter.

Message framing—Sixty-three percent ($n = 20$) said they would prefer to get breast and cervical screening advice in their daughter's own words accompanied by flyers or pamphlets (Mean=2.25, Median=3, SD=.98). The remainder (37%, $n = 12$) would prefer the daughter to deliver the screening appeal extemporaneously. Seventy-five percent ($n = 24$) said they would prefer their daughter use an appeal that uses both emotional and rational arguments, 16% ($n = 5$) preferred a rational or logical appeal, and 9% ($n = 3$) a strictly emotional appeal.

Message persistence—When asked “How many times do you think you will need to hear this message about getting a Pap smear or a mammogram from your daughter before you actually get one,” 44% of mothers said no more than once, while 41% said at least two to three times. Some (15%) said they would need to hear the message more than three times before they would be screened. When asked “How many times should your daughter ask you to get a Pap smear or mammogram before you get aggravated?” 25% said they would become aggravated if their daughter asked them to obtain a screen more than twice, and 40% said more than three times would cause aggravation. However, 35% of mothers said that they would find it hard to get aggravated no matter how many times the appeal is made.

Privacy—The majority of mothers (68%) indicated they would prefer the message be delivered in a private location such as the home, bedroom or car.

Persuasive content—Mothers were asked what their daughter could do or say that would definitely persuade her to get a Pap smear or a mammogram. Responses included: show concern about her mother's wellbeing (50%), provide support and encouragement (13%) and information on risks (19%) and indicate family history with cancer (25%).

Message Framing Characteristics Daughters

Message receptivity—Similar to the mothers, the majority of daughters said they would be open or very open (90%, Mean=1.6, Median=1, SD=.83) to giving breast and cervical cancer screening advice to their mother. Most also said they would be comfortable or very comfortable (84%, Mean=1.6, Median=1, SD=.75) with giving breast and cervical cancer screening advice to their mother. There were some ($n = 5$, 16%) who said they would feel somewhat uncomfortable.

Message framing—The majority ($n = 20$, 63%) indicated that they would prefer to make a combination appeal (using their own words with the aid of a pamphlet). With the exception of one daughter, the rest would prefer making the appeal in her own words without using written material. Most daughters ($n = 22$, 66%) also indicated that a combination of emotional and rational elements would be most effective. The rest were equally divided between either using only an emotional or fact-based appeal.

Message persistence—Most daughters ($n = 29$, 88%) believed it would require more than one attempt to get their mother to act upon their request. Forty-four percent ($n = 14$)

said they expected to talk to their mother at least three times, and 34% ($n = 11$) stated they would have to ask their mother more than three times before they believed she would respond affirmatively to their request. A smaller group ($n = 7$, 22%) seemed more confident and thought they would need to talk to their mother once for her to listen. Nineteen percent ($n = 6$) indicated her mother would get aggravated if she asked more than two times, and 25% ($n = 8$) said asking more than three times would cause her mother aggravation. On the other hand, more than half ($n = 18$, 56%) felt confident their mother would not get aggravated regardless of how many times she was asked.

Privacy—All daughters said the message would need to be given in a private setting.

Type of persuasive appeal—When asked what content could definitely persuade their mother to obtain a cancer screen, 34% ($n = 11$) said showing emotion and concern, 63% ($n = 21$) said combining concern for the mother with facts about cancer incidence and mortality, and 3% said providing cancer facts ($n = 1$).

Authoritarian Parenting, Goodwill and Risk Behaviors

For the twenty-five percent of dyads in which the girl had been suspended from school, the mother was significantly higher in her reported level of authoritarianism ($F(1, 30) = 11.28$, $p < 0.003$). For mothers whose daughters had not been suspended, their average score was 2.95, compared to 3.70 for those with daughters who had been suspended. Mothers' average goodwill rating was 5.9 ($SD = 1.1$, range 3–7). Mothers' goodwill scores regarding their daughters were significantly lower for dyads in which the daughter had been suspended ($Mean = 6.12$ v 5.21 ; $F(1, 30) = 4.59$, $p < 0.05$).

For the thirty-four percent of dyads in which the girl reported being sexually active, the mother was significantly higher in her reported level of authoritarianism ($F(1, 30) = 6.12$, $p < 0.02$). The mean PAQ score for those mothers whose daughters were not sexually active was 2.95, compared to 3.50 for mothers with daughters that were sexually active. Mother's ratings of goodwill regarding their daughters were also significantly lower for dyads in which the daughter had been sexually active ($Mean = 6.23$ v 5.24 ; $F(1, 30) = 6.95$, $p < 0.02$).

Messaging and authoritarian parenting—Girls who had mothers that rated themselves higher on authoritarianism were more likely to be 'very comfortable' with sharing the message ($\chi^2(4) = 13.9$, $p < .01$) and the dyad was more likely to concur on being comfortable ($\chi^2(2) = 6.45$, $P < .04$). In contrast, when the daughter rated the mother higher in authoritarianism, the dyad was less likely to concur on being comfortable with sharing the message.

Messaging and risk behavior—Daughters who were not sexually active were more likely to report being uncomfortable sharing the message ($\chi^2(2) = 6.1$, $p < .05$). Whether or not the daughter had been suspended from school was not associated with messaging characteristics.

Discussion

This study identifies the message design elements necessary to develop an effective daughter-initiated cancer screening appeal but also one that is culturally appropriate within the context of mother-daughter communication within the African-American family. A most encouraging finding is that the mother-daughter dyads were in strong agreement that a breast and cervical cancer screening appeal from the adolescent daughter made to the mother would not only be acceptable but would also be perceived as credible. Mothers and daughters have a unique bond [14] and parenting style is a strong determinant of the parent-child bond, including their communication openness [26]. The findings indicate high agreement among the dyads as to the mothers' parenting style. For example, in cases where mothers rated themselves as having more of an authoritarian parenting style [25], their daughters indicated that they were more comfortable with making a persuasive breast and cervical cancer appeal. On the other hand, daughters who rated their mothers higher in authoritarian parenting reported being less comfortable with sharing such an appeal. Furthermore, mothers of daughters who had a recent suspension from school or who reported being sexually active reported themselves as significantly higher in their level of authoritarianism. These findings suggest that the perceptions of parenting style could impact their comfort level in sharing a screening appeal. Further research is necessary to explore whether the type of persuasive appeal that is being made to the mother also mediates the daughters' comfort level or if comfort level is strictly affected by parenting style.

This study was guided by the Elaboration Likelihood Model of persuasion that argues that there are two routes to persuasion [12] – the central route, which includes the processing of factual content used to assess the merits of the argument, and the peripheral route, which features the emotional responses and includes emotional appeals. In this study, about two-thirds of dyads indicated that the central and peripheral routes would both be important, and preferable to just using one or the other routes, for processing a screening appeal by their daughter. In addition, these findings supported the argument that source credibility is important to the processing of a persuasive appeal [27–29]. In addition to source credibility, the concept of goodwill or perceived caring has been studied by communication scholars and is regarded as a vital component of source credibility [19]. Daughters were perceived to have high levels of goodwill towards their mothers. Mothers were very open to receiving a cancer appeal from their daughters and even in cases where daughters reported risk behaviors, they were still perceived by their mothers as a credible source. Most mothers indicated that an appeal that was based on her daughters caring for her accompanied by relevant factual cancer information would be perceived as effective. Mothers' perceptions of daughters' goodwill only slightly decreased when daughters engaged in certain risk behaviors and most perceived their daughters as having high levels of goodwill. The perception of their daughters' sincere concern and care is an important element that emerged from these findings and could be harnessed in future daughter-initiated health promotion efforts. There were a few other message characteristics that were determined as being important for developing a daughter-initiated screening appeal. These include the importance of delivering the message in a setting that was considered private and both mother and daughter realized that the appeal would have to be made several times before the

mother would be mobilized into action. Furthermore, both understood that there was an important distinction between being persistent and being perceived as overbearing. Finally, the majority of mothers indicated that they would prefer a personal appeal from their daughter accompanied by supporting literature while others indicated that a personal appeal from their daughter was all that was necessary to make a persuasive appeal.

Although the results indicate promise for this area of study, certain limitations must be recognized. First, this was a convenience sample, which limits the generalizability of the results. Second, the sample size was modest, which limits the ability to fully examine all of the target influences (e.g., not enough daughters reported engaging in many of the risk behaviors). Third, the goal of recruiting low-income dyads was only partly met as more than half the sample had incomes higher than the targeted level. Lastly, the strong agreements between mother-daughter dyads could be an inherent feature of working with dyads that agree with each other enough to participate together in a research study. There was also some incongruence, especially with message persistence, suggesting again the presence of respondent bias, which further necessitates additional research in this area.

While this study provides preliminary answers to some important questions, future research needs to explore how the daughter's characteristics and risk behaviors affect how the appeal is received and responded to. More specifically, intervention studies are needed to examine how the intention to obtain screening influences actual screening when the adolescent daughter is the messenger. Only in an intervention study will researchers be able to assess if the stated intentions of mothers are due to a response bias. Given the early stage of this type of research, future studies will need to examine other outcomes besides actual behavior, such as mothers being motivated to call a doctor, make an appointment and/or discuss the need for a screening with a health professional – all of which are important steps toward obtaining screening. Other areas that need to be explored comprise aspects related to the message delivery itself, including what factors influences how mothers interpret the screening appeal and at what point an appeal would be considered nagging. Most importantly, future studies need to focus on developing and testing these appeals within the African-American family as well as families of other ethnic groups and various socio-economic levels and configurations.

Conclusion

The study findings are encouraging in that daughters are perceived as credible messengers with high levels of goodwill toward their mothers. Mothers appear to be especially responsive to a personal, emotional appeal from the daughter. Furthermore, the findings indicate that upward communication, from child to parent, is not viewed as culturally inappropriate. It appears that a daughter's concern and goodwill toward her mother may offset any apprehension about the age of the adolescent. This finding itself has major implications for health promotion messages within the family unit and directed toward parents. Research in this area is promising and future studies will need to explore the many intricacies of upward communication and its potential to increase screening behavior of mothers.

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