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Young Women's Perceptions of Heart Disease Risk

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Abstract

Background: Heart disease is the number one cause of death in women. Little is known about how adolescent and young adult women perceive their risk of heart disease.

Methods: We conducted eight online, semi-structured focus groups with 35 young women ages 15-24 years recruited from two primary care practices in Boston, MA. Focus group discussion topics built upon data from a larger sample of women who completed the American Heart Association Women's Health Study survey. Topics included health concerns salient to young women, perceived susceptibility to heart disease, and barriers to heart healthy behaviors. We used qualitative coding and thematic analyses to synthesize data.

Results: Participants were surprised to learn that heart disease is the leading cause of death for women. Young women discussed age ("I feel like those are things I associate with older people like 40"), gender ("I usually hear more about men suffering from heart problems than women"), and social norms ("we're so pressured just to grow up and [be] more focused on pregnancies or depression or our weight") as reasons for their low perceived risk for heart disease. Participants noted several barriers to adopting heart healthy behaviors including stress, lack of time, and low

IMPLICATIONS AND CONTRIBUTION

This study adds to literature on women's cardiovascular disease (CVD) awareness by identifying contextual factors relevant to younger women. Participants displayed low rates of CVD awareness. Age, gender, societal pressures, and competing health priorities were key factors in understanding CVD risk. Several barriers to adopting heart healthy behaviors were noted.

Disclosures

No competing financial interests exists.

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perceived risk. “We just don’t have time to worry about hearts. Especially if our hearts aren’t bothering us to begin with and we can’t see it.”

Conclusions: Perceptions of age, gender, and social norms contribute to low heart disease awareness among young women, which in turn may limit heart healthy behaviors.

Keywords

Adolescent; Young Adult; Heart Disease; Women’s Health

Cardiovascular disease (CVD) is the leading cause of death in American women.¹ Unfortunately, many women^{2,3} and physicians^{3,4} underestimate women’s CVD risk. While awareness of CVD among women overall has improved over the past two decades, as documented in the American Heart Association (AHA) Triennial Women’s Health Survey,⁵ it remains low among women ages 25-34 years.⁵ This is concerning given increases in cardiovascular events among women ages 35-54 years⁶ and young women’s high lifetime risk for CVD.⁸

Little is known about CVD awareness in adolescence and earlier young adulthood. A study of 873 US high school students found that only 14% identified CVD as the leading cause of death in women, and girls were less likely than boys to do so.⁷ Young people’s awareness of CVD risk factors is also low. According to a 2018 systematic review, just over half of young adults identified smoking (55%) and diet (55%) as risk factors for CVD; even fewer identified physical inactivity (39%), high cholesterol (33%), obesity (27%), and hypertension (25%).⁸ Alarming, 20-40% of women ages 18-39 years participating in the National Health and Nutrition Examination Surveys who had hypertension, hypercholesterolemia, and diabetes were unaware of their condition.⁹

In 2017-2018 we surveyed 331 women ages 15-24 years in Boston, MA using a modified version of the AHA Women’s Health Survey.¹⁰ Only 10% of these young women identified CVD as the leading cause of death in women; nearly half (40.8%) believed the leading cause of death was cancer. Few identified CVD as the top health concern for all women (4.8%) or women in their age group (0.9%). Most participants (84.6%) performed at least one preventive behavior in the last year, including visiting a doctor (78.9%), getting physical exercise (74.6%), and reducing stress (52.6%). Not perceiving oneself at risk for CVD (39.3%) was the most commonly reported barrier to heart healthy actions, followed by being too stressed (33%), not knowing what to do (20.2%), and not being confident in one’s ability to change their behavior (19.6%).

Educational initiatives are clearly needed to improve awareness of CVD and its risk factors among adolescent and young adult women. Unfortunately, increased knowledge alone is unlikely to result in sustained cardiovascular health promoting behaviors, as our survey results suggest. The Health Belief Model (HBM), an extensively studied theory of individual health behavior, suggests that perceptions of one’s susceptibility to a disease, the perceived severity of that disease, and the perceived benefits of and barriers to prevention actions are key factors influencing health behavior.¹¹ Factors modifying these perceptions include age, gender, race/ethnicity, and sociocultural influences. While previous studies have examined

CVD awareness and prevention applying the HBM,¹²⁻¹⁴ none have focused specifically on young women. To address this research gap and contextualize our quantitative findings from the parent AHA Women's Health Survey study described above¹⁰, we conducted focus groups with young women ages 15-24 years. We aimed to better characterize factors fundamental for improving cardiovascular health among this demographic and report our qualitative findings here.

Methods

We employed a sequential explanatory mixed methods design, which uses qualitative data collection to “generate further insights or clarification that may assist in explaining the quantitative findings” (Curry et al, page 16).¹⁵ Full details of the study design according to the consolidated criteria for reporting qualitative studies (COREQ) are available in Supplementary Table 1. All English and Spanish speaking patients ages 15-24 years who self-identified as female and visited an academic adolescent medicine practice or an affiliated community health center in Boston, MA between September 2017 and October 2018 were eligible to enroll. Among participants surveyed in the parent AHA Women's Health Survey study¹⁰, 109 agreed to be contacted for the qualitative portion of the study, and 13 participated. We recruited 27 additional participants from the same clinical sites using the same eligibility criteria. Of these 40 participants, 35 completed a discussion in one of eight online focus groups. Demographic characteristics of the participants are presented in Table 1. The institutional Office of Research Investigation approved this study.

Building upon results¹⁵ from the AHA Women's Healthy Survey,¹⁰ we developed a semi-structured focus group guide (Supplementary Table 2). We identified conceptual domains to explore including health concerns salient to young women, their perceived risk of CVD, their experienced facilitators and barriers to heart healthy behaviors, and their preferred medium for receiving heart healthy information. We utilized focus groups because they allow dynamic interactions across groups of individuals with similar experiences.¹⁶ Focus groups were conducted using an encrypted online platform (InsideHeads, Inc) to accommodate the busy schedules and preferences for digital communication among our target demographic.^{17,18} Participants self-selected into one of eight pre-specified groups (Table 2). Groups comprised of four to eight participants were moderated by a PhD trained qualitative research scientist and lasted approximately 110 minutes. Participants provided informed consent for their data to be recorded and transcribed for analysis.

The coding and analysis team included an adolescent medicine specialist MD, a sociology PhD, and a qualitative analysis trained research assistant, allowing for diverse and complimentary perspectives. Coding was performed using Dedoose Version 8.3.10 (Los Angeles, CA: SocioCultural Research Consultants, LLC). This web-based application supports the organization and analysis of mixed methods research and allows for team collaboration in a secure platform. Two members of the analysis team independently coded transcripts. Discrepancies between coders were flagged in Dedoose, discussed as a team, and resolved during coding meetings. For each discrepancy, coders explained their applied codes and a discussion was had to reach agreement. When two coders could not reach agreement,

the third coder helped adjudicate. The team identified 180 coding discrepancies across 1042 excerpts. All cases were reviewed until 100% consensus was achieved.

We used a comprehensive multi-stage thematic approach, incorporating both inductive and deductive constructs to coding and analysis by borrowing from grounded theory^{16,19} and nature framework analysis.^{20,21} This combined approach enabled the qualitative and quantitative aims of the study to connect. Using comprehensive indexing, charting, and mapping^{20,21} the team identified patterns, predominant themes, and divergent perspectives that emerged within and across codes and transcripts. We derived codes from the focus group guide, the HBM,¹¹ and an inductive, open coding approach to incorporate categories that emerged from the data. These codes were combined, defined, and re-organized to form a comprehensive structure that was systematically applied to all transcripts (Supplementary Table 3). The final themes are represented by a modified version of the HBM (Figure 1) and summarized below.

Results

Heart Disease Awareness

Participants were typically unaware that CVD is the leading cause of death for American women. Low awareness was closely linked to low exposure to the topic and society's perspectives on women's health. Most participants thought cancer (including breast cancer) was the top health problem facing women. Awareness of health problems was closely tied to media representation and personal or family experience with various ailments. Participants noted *"...cancer is talked about a lot in the news. It was a toss up, for me, between cancer, heart health and obesity"*, *"Two of my aunts have breast cancer when is why I thought of it"*, and *"...there's a whole month for breast cancer awareness alone"* (YA-G).

Personal experience with CVD was often discussed in the context of gender as many participants indicated that their male family members experienced CVD. In female relatives, though rarely mentioned, CVD was usually present in the context of stroke and diabetes. *"Most of the people with heart problems in my family are men...If not all only the men"* (Adol-G).

Participants consistently identified weight, body image, and mental health as leading health problems for women in their age group. As shown in Figure 1, gender was related to perceptions of health risks. Participants discussed stereotypes about women and women's health, and indicated social norms as a factor causing young women to worry about body image, weight, eating disorders, sexually transmitted diseases (STDs), and pregnancy more than heart health. Adolescents noted *"Depression and weight problems, either with the lack of eating, too much eating, being too skinny, or even being over weight"* and *"woman face many heath [sic] problems today, such as obesity, anxiety as well as depression."* (Adol-G)

Perceived Susceptibility, Severity, and Threat

Participants expressed disbelief, expectation, sadness, nervousness, and acceptance after learning that CVD is the number one killer of American women. Participants also expressed a disconnect between CVD prevalence and their lack of exposure to information. Many

questioned why CVD is not discussed at school or during primary care appointments. Adolescents stated *“That’s crazy to think 1 every 3 minutes [a woman has a heart attack or stroke]”* and *“It’s shocking to me how someone is dying as we speak because of this”* (Adol-L). Despite limited awareness, participants recognized CVD as a severe health issue. *“I think it’s the most dangerous because your heart and brain are the two most dangerous places to mess up,”* (Adol-G). For some, learning that CVD is the top killer of women made them want to learn more about it and be more proactive about their health; *“It makes me want to be a little more proactive when it comes to heart health, a lot of people tend to look over the fact that the heart is a major organ and also needs to be monitored during routine check ups aside from checking blood pressure”* (YA-G).

However, most participants did not feel vulnerable to CVD even after learning its severity. Low levels of perceived CVD susceptibility were driven by factors including age, gender, sociocultural expectations of women, levels of CVD awareness/knowledge, competing health concerns, and family history (Figure 1). Participants noted *“I don’t focus on heart disease because this is something that you don’t hear about very often”* and *“We don’t worry about things until it’s too late or their actually relevant to our personal health. Preventative measures aren’t usually taken.”* (YA-B).

CVD was perceived to be of minimal threat compared to competing health concerns including cancer, stress, body image, mental health (anxiety, depression) and sexual health issues (STDs and menstrual cycle problems). These competing concerns were characterized as more immediate and personal and often related to gender and age. *“Usually I worry about how my stomach looks, my stress levels and when I get flus so heart health is the last thing on my mind...”* (YA-B). Others indicated that emotional health and STDs are things they worry about now, but acknowledged that this would shift as they aged.

Gender and age emerged as key modifiers of perceived CVD susceptibility as well. Some participants viewed women as healthier than men, while others saw CVD as an exclusively male problem. Beliefs that women are afraid to be a burden, will do anything to conform, and do not listen to their bodies were also present. Adolescents commented, *“There are higher standards placed on women than men. They usually pertain to women needing to have a body type”* (Adol-G). Participants also associated CVD with being older, and many believed that CVD was not something to worry about until after age 40. *“If it was shown that heart problems happen more for young ppl, it would be more relevant, but bc it’s shown as a problem for older ppl, it’s not taken seriously by young ppl”* (Adol-L).

Those with a family history of CVD mentioned being more worried about their heart health, feeling like it can happen to anyone, being more aware of stroke, and having more incentive to conduct heart healthy behaviors. Some participants whose family members had positive outcomes post-stroke mentioned a lack of worry despite the hereditary nature of heart disease. *“Personally, I don’t worry too much about heart disease and/or stroke. However, it has recently crossed my mind since both my great-grandmother and grandmother had a stroke, but luckily it was caught on time”* (Adol-G).

Perceived Benefits and Barriers to Preventive Actions

Participants used broad terms for preventive actions, emphasizing *“eating healthy and exercising at least 3 times a week even if it’s just 30 mins”* (YA-L). Occasionally, participants were more concrete, indicating that one must adopt *“a plant based diet”* (YA-G) or *“incorporat[e] the whole food pyramid into one’s diets”* (Adol-B). Many participants equated the importance of emotional and physical health, noting *“some people forget that mental health actually plays a large roll in physical health. It can hinder your view on yourself and how you physically exert yourself”* (Adol-G)

Participants suggested that the main benefit of addressing CVD risk early was establishing healthy habits. Having time to exercise or prepare meals was seen as important for realizing the benefits of heart healthy behavior. *“Changing this early on and eating healthier at a young age could prevent heart disease, or exercise, if one gets into the habit of exercising now then they will have already created a healthy lifestyle this way too”* (YA-L). Participants also discussed the importance of support from friends and family, including verbal motivation, accompanying participants to the gym, or helping them prepare healthy meals.

Three main barriers to a heart healthy lifestyle emerged from discussions: lack of access or affordability of material resources needed for a heart healthy lifestyle, life stressors and competing mental health issues, and lack of time. Teens stated *“Healthy food[s] are more expensive than cheap food such as tv dinners and other junk”* (Adol-B) and *“I think that women in particular feel like they have juggle everything from work to home life which causes a lot of stress and probably lack of healthy habits”* (Adol-G). Other less commonly cited barriers included normative smoking and alcohol use, lack of social support or motivation from friends and family, lack of knowledge about how to cook healthy food or general steps to take, discrimination against women by doctors not taking their health issues seriously, and not feeling up to it when menstruating.

Stress emerged as a dual facilitator and barrier to heart healthy actions. Several participants described stress-induced eating of unhealthy or larger food quantities. Some discussed depression and anxiety as reasons for decreased physical activity and self-management. Teens lamented, *“...too much stress causes me to gain weight and make[s] me feel negative about myself more”*, *“I’m just honestly a very stressed person, I over eat, I get depressed”*, and *“I am going through the process of applying for colleges, taking SAT’s, and doing other activities which increases my stress level which probably impacts my overall health including cardiovascular health”* (Adol-G). One participant described stress as a motivator for physical activity, stating *“when I’m stressed I like to exercise to get my mind off it.”* (YA-G). Others suggested minimizing stress surrounding competing adolescent health concerns to facilitate overall heart health. *“If we are educating in a better manner on addressing body image, we are able to have a more positive heart healthy behavior since we know that is good for us and our body,”* (Adol-G). Some participants indicated getting older, having family, and life commitments as barriers to heart healthy behavior. *“When you have bigger life stresses like families and jobs and houses to take care of then one might not remember to make enough time to exercise or eat healthy”* (YA-L).

Socioeconomic status and position were discussed in the context of access to affordable healthcare, gym facilities, healthy food, and community resources. *"Income plays a big role in health. I've read many studies how poc [people of color] are more obese than white people in suburban areas"* (Adol-G). Many participants made the connection between the cost of food and its nutritional value, noting cheaper foods as less healthy than expensive foods. *"We gotta pay more to be healthy"* (YA-B). Similarly, participants described knowing people *"too poor to afford healthy food"* (Adol-B). Participants highlighted how cheaper, unhealthy foods are commonly marketed to young people, and how low-income urban areas have more fast food restaurants compared to higher income areas. *"I think marketing is a huge problem for healthy food. Healthier options are often more expensive because they're more desirable. And unhealthy food is cheap to produce"* (YA-G).

Discussion

In this qualitative study of adolescent and young adult women's CVD awareness, participants were surprised to learn that CVD is the leading cause of death for women. Age, gender, societal pressures, and competing health priorities emerged as key factors in understanding young women's low perceived CVD risk. While participants were generally aware of the benefits of heart healthy behaviors, they often spoke about them in non-specific terms. Participants also noted several barriers to adopting these behaviors including stress, lack of resources, and differential access to resources. These results complement our quantitative findings and provide additional context, thus strengthening our conclusions and improving our understanding of young women's low CVD awareness.

Our results are consistent with those from other studies of CVD awareness and prevention applying the HBM. A quantitative study of 172 black young adults, 65% of whom were women, found that women were more knowledgeable about CVD but had lower perceived susceptibility to CVD, compared to men.¹² A qualitative study of 30 middle-aged women revealed participants associated CVD with men who were obese, smoked, and had high stress levels, consistent with participants' experiences with family members with CVD and media portrayals of CVD patients.¹³ Similar to the younger women in our study, these middle-aged women spoke in general terms about heart healthy behaviors, and most assessed their personal risk for CVD as low. A mixed methods study of 312 middle-aged women similarly found that perceived susceptibility to CVD was strongly associated with perceiving oneself to be similar to the typical person affected by CVD (i.e., an older man).¹⁴

Our study adds to the literature on women's CVD awareness by identifying additional contextual factors relevant to younger women. Three global and inter-related issues emerged as key factors modifying young women's beliefs about CVD and preventive health behaviors: gender, age, and sociocultural norms. Participants generally associated CVD with men or older people, perceiving CVD as something they can worry about until later in life. Participants explained how current social norms and pressures facing young women primed them to focus on issues such as stress, body image, and sexual health rather than their hearts. Many commented on both the connection between and significance of emotional and physical health, especially in young women, highlighting the need to address mental health as a component of cardiovascular health promotion.

Our study has several strengths including its unique focus on young women and the utilization of a mixed methods approach. While 46% of adolescent girls meet the AHA's definition of ideal cardiovascular health, only 21% of adult women do, highlighting this life stage as a critical time period for cardiovascular health preservation.¹ Limitations to our study include recruitment from a population with access to primary care and technological devices necessary for participation in an online focus group. Findings may not be generalizable to more marginalized populations without regular access to healthcare. We relied upon self-reports of preventive actions, therefore potentially introducing desirability bias. Qualitative research requires interpretation, therefore inherently raising concerns for coders to introduce their biases to the research. To address this, we double coded all transcripts, used a three-person multidisciplinary coding team, kept a clear audit trail, and used open lines of communication and rigorous methods to produce trustworthy results (see COREQ guidelines in Supplementary Table 1).

Our study has implications for the promotion of cardiovascular health during a critical time in the life course. Health care providers should incorporate cardiovascular health screening during young women's annual visits using the National Heart Blood Lung Institute Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents.²² Unfortunately, few pediatricians²³ and gynecologists³ are aware of CVD screening guidelines for adolescents and women, highlighting an additional need for provider education. CVD prevention should be included in the list of key topics presented in schools. Moreover, prevention campaigns for youth should link the benefits of heart healthy behaviors to issues that matter to young women, including body image and mental health. Given the key role of family members and personal connections to someone with CVD, older women could be encouraged to discuss their experiences with CVD to increase visibility among the young women in their life. Finally, individual and societal barriers to heart healthy behaviors should be addressed, including increasing perceived risk and self-efficacy for the behaviors alongside expanding access to healthy foods and physical activity.

Young women are largely unaware that CVD is the leading cause of death in women. As the antecedents of CVD begin in childhood, our findings demonstrate a major unmet need for education and prevention. Future research should investigate effective strategies for incorporating cardiovascular health screening into primary and reproductive health services for adolescent and young adult women. Effective communication strategies for educating young women about their future risk for CVD should be rigorously tested, and coupled with evidence-based behavioral interventions to promote healthy dietary behaviors, physical activity, and abstinence from tobacco. Campaigns to promote heart healthy behaviors in young women should directly address this population's low perceived risk, the importance of lifetime CVD risk, barriers to preventive action, and competing health priorities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1. Modified Health Belief Model as applied to young women's perceptions of cardiovascular disease (CVD) risk and preventive behaviors

Note: Arrows originating from the intersection of age, gender, and societal and cultural expectations indicate that all three modifying factors impact an individual belief.

Table 1.

Demographic characteristics of 35 adolescent and young adult women participating in online focus groups as part of a mixed methods study of young women's awareness of heart disease

Age	N(%)
15-17y	3 (8.6)
18-21y	16 (45.7)
22-24y	15 (42.9)
25-34y	1 (2.9)
Race/Ethnicity	
Black	16 (45.7)
White	6 (17.1)
Other	5 (14.3)
Hispanic	8 (22.9)
Household income	
\$< 35,000	12 (34.3)
35,000 - <50,000	5 (14.3)
50,000 – <75,000	3 (8.6)
75,000	6 (17.1)
Don't know/Missing	9 (25.7)
Health insurance status	
Yes	34 (97.1)
No	0 (0.0)
Don't know/Missing	1 (2.9)

Table 2.

Definitions of Eight Focus Group Categories

Group	Label
<i>15-19 Years (Adol)</i>	
Black (1 group)	Adol-B
Latina (1 group)	Adol-L
Any race/ethnicity (2 groups)	Adol-G
<i>20-25 Years (Young Adult/YA)</i>	
Black (1 group)	YA-B
Latina (1 group)	YA-L
Any race/ethnicity (2 groups)	YA-G