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ORIGINAL RESEARCH

'Heart attack' symptoms and decision-making: the case of older rural women

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ABSTRACT

Introduction: Women are just as vulnerable to 'heart attacks' (used throughout this study to mean 'myocardial infarction') as men and are often unaware of many associated symptoms. Researchers have illustrated that women have difficulty identifying the symptoms of cardiovascular disease, with patients often delaying treatment after the onset of symptoms. Some individuals wait hours or even days before seeking medical care. This is particularly concerning for older rural women because the rates of death from cardiovascular disease and cancer are higher in some rural areas. Despite idealistic views of country life as being active, less stressful, and possessing strong social and community support, rural Americans are more likely than their urban counterparts to face challenges to maintaining health.

Aim: The purpose of this paper is to utilize information gathered from a qualitative study exploring older rural women's identification of symptoms and health decision-making specific to heart attack vignettes.

Methods: Snowball sampling was the main approach utilized to access participants; after an initial contact was successful, participants contacted additional older rural women to see if they might be willing to participate in an interview. This resulted in a final sample of 33 women who resided in rural Midwestern areas of the USA, were 65 years or older, lived in a county defined as rural by the US Census, and were willing to participate in a face-to-face interview. Each interview included a demographic questionnaire, a health questionnaire, and three health vignettes with follow-up questions. Vignettes provided a way of initiating discussions about health decisions without invading the privacy known to be important to rural residents. The term 'heart attack' was used in the interviews because it was thought to be better recognised than the medical term 'myocardial infarction'. All data were audio taped, transcribed, and coded using line-by-line coding. Data were analyzed using content analysis.

Results: The study showed that women had difficulty identifying heart attack symptoms when they did not have previous exposure to the symptoms either through personal experience or educational programs. Individuals incorrectly identified symptoms of a heart attack by associating symptoms with sleep problems, stroke, arthritis, stiffness in the neck, influenza, nerve damage, osteoporosis,

bone cancer, tooth infection, and a pulled muscle. Misdiagnosis of symptoms most often led to a delay in seeking treatment in these women. Additionally, the women in this study discussed a reluctance to access care because of concerns related to maintaining their privacy, belief that the ambulance would take too long to reach them, and they did not want to bother their relatives for help.
Conclusions: The findings of this study suggest implications for educational programs and interventions in rural environments and provide information that can facilitate better-informed communication between healthcare professionals and rural women.

Key words: heart attacks, older women, rural women, symptom identification, treatment delay.

Introduction

Heart attack (used throughout this study to mean 'myocardial infarction') is the primary cause of cardiovascular disease death, causing a quarter of a million people to die within an hour of symptom onset and before reaching hospital[1]. Cardiovascular disease is exacerbated by lifestyle and is responsible for one-third of all deaths worldwide[2]. Risks contributing to CVD include smoking, obesity, and hypertension[3,4] – risks that are more common for rural residents[5]. Previously considered a man's disease, heart attacks have been found to be significantly more prevalent in women than previously assumed[6], with women's risk surpasssing that of men after menopause[5]. The warning signs identified for women experiencing a heart attack include pain or discomfort in the center of the chest; pain or discomfort in other areas of the upper body, including the arms, back, neck, jaw, or stomach; upper abdominal pain; sudden extreme fatigue; shortness of breath; breaking out in cold sweats; nausea; and light-headedness[7]. Although the most common heart attack symptom is chest pain or discomfort, women are more likely than men to experience the other symptoms, particularly shortness of breath, nausea/vomiting, and back or jaw pain[7].

Additional research provides information about gender differences in heart attacks. For example, Arslanian-Engoren et al. stated that men reported more chest pain and left arm pain, whereas nausea, jaw pain, neck pain, and back pain were more common in women[8]. The authors also reported that women take longer to seek medical care when acute coronary syndrome symptoms began[8]. Using data from the Worcester Heart Attack Study, conducted at Yale University with residents from Worcester, Massachusetts, researchers found gender differences in primary patient complaints[9]. They reported that chest pain was a chief patient complaint (63%), but it was only present in 54% of women as compared with 69% of men. Respiratory symptoms were mentioned as the chief complaint by 20% of women and 16% of men[9]. However, the reason for these gender differences is unclear, and remains an area that should receive greater scrutiny.

Review of literature

Rural context: Despite idealistic views of country life as being active, less stressful, and possessing strong social and community support, rural Americans are more likely than their urban counterparts to face challenges to maintaining their health[10]. Health differences between rural and urban environments are well known and exist worldwide. Reports from several countries, including the USA, Canada, Australia, and Mexico indicate that rural residence is identified as a barrier for health care[11-15]. According to US Census results, approximately 51 million people lived in rural/non-metropolitan counties in 2010[16]. It was estimated that in Australia in 2006, more than 20 million people lived outside of major urban areas[13]. In 2011, more than 6.3 million Canadians were estimated to live in rural areas and small towns[17].

Research specifically focused on cardiovascular disease showed that geographical location was associated with

differing rates of cardiovascular disease as defined by rural and urban residence. Thirty-thousand people from 52 countries were examined in the INTERHEART study[4]. Results showed that 'it is the modifiable risk factors (dyslipidemia, smoking, hypertension, diabetes, alcohol consumption, obesity, stress, diet (eg lack of fruits and vegetables), and lack of exercise), and not ethnic group that are the strongest predictors of heart disease' (p. 1091). For example, Sexton and Sexton reported that Australians in rural areas experienced rates of mortality from coronary heart disease that were higher than those of their urban counterparts: 30% higher for men and 21% higher for women[15]. Others noted that ischemic heart disease was the leading cause of death in Australian women in 2005[5]. Although causes were not identified, the death rate was 7% higher for adults aged 65 years and older who lived in non-metropolitan counties in the USA compared with those residents living in the most urban counties[18]. The health of individuals living in rural areas has improved over the past few decades; however, rural populations still fare worse than populations in other types of urbanization[18,19].

Greater numbers of rural places identified areas with inadequate numbers of healthcare workers as healthcare shortage areas. In the USA across all states, an estimated 2157 health professional shortage areas (HPSAs) are in rural and frontier areas compared to 910 identified for urban areas[20]. Nearly one-quarter of the population lives in rural areas, but currently only about 10% of physicians practise in these areas[20]. Findings from Canada and Australia also report a shortage of physicians in rural areas[12,13]. Researchers reported that rural women did not receive preventive services comparable to women residing in urban areas[2]. In addition, older women and those with less formal education are also disadvantaged with regard to preventative health screenings, both characteristic of women living in rural areas[2].

Other global factors that appear to contribute to barriers in healthcare access in rural population include socioeconomic hardships, distance, and unavailability of transportation. Although access to care can be challenging for both urban and rural women, rural women often face greater challenges because of isolation, lower socioeconomic status, and lack of resources[6,7,13]. In Canada, Universal Health insurance has eliminated many barriers to receiving care, but geography still remains a significant barrier to access[12,21]. Specifically in the USA, research shows that Medicare coverage continues to fall behind that in rural populations. Rural hospitals and physicians earn significantly less in Medicare payments than their urban counterparts, which may relate to the closing of more than 470 rural hospitals in the past 25 years[20].

It is important to note here that rural residence is often tied to higher occurrences of chronic diseases; however, geographical location may not be responsible for these rural–urban discrepancies. Researchers found that demographic and socioeconomic factors were strongly related to health and the differences seen between rural and urban residents[18]. Some of the factors identified as being linked to rural poverty include harsh climate, remote location, resource overuse, degradation, and lack of access to many resources including technology, transportation, and credit[22].

Rural women's knowledge and experience with heart disease: A number of studies have examined women's symptom awareness. Mosca et al. conducted telephone surveys with a nationally representative random sample of women in 2003 and compared these data with their previous studies in 1997 and 2000[23,24]. The authors reported that nearly half of all women correctly identified heart attacks as the leading killer of women. Within this study, a minority of women, approximately 40%, considered themselves to be very well informed about heart disease. Approximately three-quarters of the sample recalled being exposed to information about heart disease within the past 12 months. Christian, Rosamond, White, and Mosca found similar results when they conducted a similar survey in 2006 and compared their data to the data collected in 1997, 2000, and 2003[12,13,25]. Christian et al. found that approximately 42% of women considered themselves to be very well informed about heart disease[25]. However, 11% of women reported that they considered themselves to be not at all informed about heart disease. Knowledge of atypical heart attack symptoms, which were defined as nausea and fatigue, were correctly identified

as heart attack symptoms by a small percentage of women, with 15% identifying nausea as a symptom of heart attack and 7% identifying fatigue as a symptom. King et al. interviewed Canadian women and provided examples of women's failure to recognize atypical coronary disease symptoms and concluded that many rural women continued activities until they were no longer able before addressing their health[21]. Researchers in Australia also found that 70% (44) of their rural female participants were unaware of the severity of heart disease and that it was the leading cause of death[5]. Difficulty with symptom identification is likely responsible for women delaying treatment[26,27]. Findings demonstrate that patients often delay seeking treatment after the onset of symptoms; some individuals wait hours or even days before seeking medical care[27]. Dracup et al. stated that the delay of seeking care could be divided into a variety of phases including a patient bystander recognition and action phase, a pre-hospital action phase, and a hospital action phase[27].

Dracup et al. describes one of the reasons for delay in seeking treatment as the patient/bystander recognition and action phase[27]. This phase encompasses symptom onset to accessing an emergency response system or initiation of travel to the hospital by some other method. During this phase, patients often have difficulty identifying the time of symptom onset. The symptoms reported by patients as difficult to identify are those described as vague and those that wax and wane over time, with some symptoms disappearing completely. These initial symptoms are milder than acute symptoms and often do not cause an individual to seek medical care. During the patient/bystander recognition and action phase, patients may engage in activities that can increase or decrease time to treatment. For example, patients may decide to seek medical care at once or they may decide to wait and periodically evaluate or self-treat symptoms; or they may decide to seek consultation from friends, relatives, and medical personnel[27].

Dracup et al.'s second phase is the pre-hospital action phase and encompasses the interval from accessing emergency medical services to arriving at the hospital. The final phase is the hospital action phase, which is the interval between the patient's arrival at the hospital and the receipt of definitive care[27].

This review has shown that women in rural environments face additional challenges regarding access to health care as well as social conditions that result in a gendered effect on health. This is particularly concerning because the literature has also shown that women often have significant difficulties identifying heart attack symptoms, and represent half of heart attack deaths. Although it is known that women, including rural women, often have these difficulties, a clear understanding has not been forthcoming about women's evaluation of symptoms as well as their identification of factors that determine whether they will seek or delay medical treatment.

The primary purpose of this article is to report on an exploration of older rural women's symptom awareness and health decision-making specific to a heart attack. The qualitative interviews conducted for this study predominantly asked older rural women about symptom recognition and decision-making factors regarding treatment. The study obtained information from rural women about how serious they thought specific heart attack symptoms were and if they would seek medical assistance.

Methods

Participants

Qualitative interviews were conducted with women residing in rural areas in the upper Midwestern states of Minnesota, North Dakota, and Iowa. Interviews were conducted over a two-year period with a final sample of 33 women. University of Minnesota Extension faculty, alumni groups, homemaker groups, and contacts across multiple areas in the identified states all assisted with recruitment of this sample. These initial informants provided study information to older rural women in their areas and requested that they contact the graduate research assistant if they were willing to be interviewed. Information for initial informants as well as participants focused on three major things: women's health decision-making, a brief health history, and their thoughts about specific health conditions and vignettes about someone experiencing a health condition (one of which is reported here). Individuals were also informed about the importance

of understanding health in later life for those living in rural areas.

In addition, a snowball sampling approach was utilized to increase participation; after an initial contact was successful, participants contacted additional women to see if they might be willing to participate in an interview. Participants who met three criteria were eligible for inclusion: (1) they were 65 years of age or older, (2) they lived in a county defined as rural by the US Census, and (3) they were willing to participate in a face-to-face interview.

Procedures

Participants were offered choices regarding interview location, and all requested that interviews be conducted in their homes. Interviews ranged in length from 60 to 90 minutes. Each interview included a demographic questionnaire, a health questionnaire, and three health vignettes with follow-up questions. The demographic questions requested information about age, marital status, proximity to family members, education, and income. Self-assessed health was also measured during this structured part of the interview. Each participant was asked to describe how she perceived her health over her lifetime, experiences with major health-related events, and how these events influenced her life and how she ensured good health. A total of 33 interviews were conducted before saturation was reached.

Vignettes and short narratives were used to gather data regarding health decisions. Vignettes provided a way of initiating discussions about health decisions without invading the privacy known to be important to rural residents. (Use of this vignette approach provided older rural women with the opportunity to focus their comments about a heart attack occurring for the women in the scenario. During the interview, many women provided comments relating their own experiences to the scenario. However, it is important to note that the interview was focused on the rural woman in the vignette.) The three vignettes provided narratives incorporating symptoms for a heart attack, diabetes, and depression. The term 'heart attack' was used in the interviews because it was thought to be better recognised than the medical term 'myocardial infarction'. All vignettes were reviewed by a nurse practitioner and deemed appropriate for use. For the purposes of this study, only information relevant to the heart attack vignette was used and a partial description is included.

Heart attack vignette: This vignette describes Audrey, a 72-year-old widow. Audrey lives in a small town and her closest relative is her daughter who lives approximately 50 miles away. Audrey is described as experiencing neck and jaw pain, feeling tired, and having waves of nausea. The vignette ends with Audrey knowing that she needs immediate help, but being unsure about what she should do because she does not want to bother her daughter and does not want to call emergency medical services.

The interviewer read vignettes to the participant with the option of having the vignette repeated. Once the participant felt confident about the vignette, the interviewer continued with a discussion aided by several follow-up questions including 'Are the symptoms serious?' 'What might be wrong with her?' 'Who, if anyone, should she talk to about her symptoms?' 'Should she see a doctor?' and 'If she shouldn't see a doctor, what should she do?' The purpose of the study was to identify rural women's voices about their awareness and decisions about treatment.

Data analysis

All interviews were audio taped and subsequently transcribed. Interviews were read and reread separately by the principal investigator and graduate students. Independently, and in subsequent team discussions, interviews were subjected to line-by-line coding procedures. Further enhancing the rigor of the analysis, the research team met to ensure that conclusions about the data were similar and discuss alternative explanations.

Although researchers had an *a priori* approach in exploring health decision-making, an inductive approach was used in discovering the following categories. Data were analyzed

using inductive content analysis, which is a method focused on making inferences from data to provide knowledge and insight. Content analysis is useful for examining meanings, themes, and patterns within a text[27,28]. The purpose of this method is to use concepts and categories to describe the phenomenon[28]. The process of inductive content analysis involves condensing raw data into categories or themes. Once all transcripts were coded, all data within a code were examined and classified into categories based on how they related to each other through similar events or incidents[28].

Ethics approval

The study was approved by the University of Minnesota Institutional Review Board (IRB Protocol Number 0406S60664), and informed consent was obtained from all participants.

Results

Descriptive analyses

Participants were 66–84 years of age, with a mean age of 76 years (Table 1). Fourteen women were currently married (42%), 14 were widowed (42%), 4 were divorced and currently single (13%), and 1 had always been single (3%). The sample was not racially or ethnically diverse; 100% of the participants identified themselves as White Non-Hispanic. Additional demographic information is included in Table 1.

Symptom identification: The vignette described a 72-year-old woman who experienced symptoms of dull pain in her neck and jaw, which progressively grew stronger and were accompanied by a wave of nausea. Many women had difficulty identifying the symptoms as relating to a heart attack. They were most often successful at identifying these symptoms if they had previous personal experience with heart attacks or if they attended community education classes. A little over half (52%) of the women correctly identified the symptoms of a heart attack. Of the participants who did correctly identify symptoms, four of them explicitly reported that they were able to identify symptoms based on personal experiences and three of them correctly identified the symptoms because they participated in community education. Individuals incorrectly identified symptoms of a heart attack by associating symptoms with sleep problems, stroke, arthritis, stiffness in the neck, influenza, nerve damage, osteoporosis, bone cancer, tooth infection, and a pulled muscle. The following quotes help illustrate how older rural women correctly and incorrectly identified heart attack symptoms.

> *Well, I think it could be her heart … you know, I had my heart attack and I did have some pain in my chin and I made (my husband) think that I was all right because, it was not a normal heart attack, I had felt fine up until then and it could have been heart burn even, it's hard to know.* [Informant 9]

> *Yes, it sounds like heart. Yes, I had a heart attack and triple bypass and I know those symptoms.* [Informant 14]

> *Yes, and I can tell you that women have different symptoms than men for heart attacks and that's what it is … Oh I knew right when you read it, and people don't know about that. I go to most of the women programs and I really enjoy them because this is the way you learn, and she, a lot of times, its women, women who have heart attacks, you never know.* [Informant 24]

> *Well, yes I think it's some kind of heart problem … well, just from reading and learning about it and they do some teaching in some classes sometimes.* [Informant 31]

> *I don't really know. She could have to find out from the doctor. It might be the way she was sleeping, and her neck cricked. You know, like sometimes when I am sleeping, and have my neck in the same position.* [Informant 2]

> *Well I don't know, I think she has a stiff neck, that happens a lot of the time if I do anything, well heck, I cannot even vacuum anymore without getting a stiff neck, it's for the birds, I am telling you, it is.* [Informant 7]

Table 1: Descriptive characteristics of study participants (*N*=33)

Characteristic	Percentage	Mean
Age		76.5
Self-rated health		6.5
Proximity to family		
Same household	42.4	–
<30 minutes	42.4	–
30–60 minutes	12.2	–
1–3 hours	0.0	–
3–5 hours	3.0	–
5–8 hours	0.0	–
>8 hours	0.0	–
Marital status		
Married	42.4	–
Widowed	51.6	–
Divorced	3.0	–
Separated	0.0	–
Always been single	3.0	–
Residence		
Small town	51.5	–
Open country	33.4	–
Farm	15.1	–

Although it is not surprising that personal experience affects knowledge of symptoms, the voices of these women demonstrate that community education makes a difference in women's awareness of the frequent gendered symptoms of a heart attack. Additionally, women who believed that these symptoms were not that serious and likely related to minor injuries possibly minimized the urgency with which they seek care.

Seeking help: Participants were asked if they thought the rural woman's symptoms were serious and required attention. Many of the participants stated that the woman in the scenario could wait and hope the symptoms passed, while others thought that the woman should call emergency medical services immediately. Delays in seeking help were most often related to misdiagnosis of the symptoms and thinking the symptoms were not serious enough to seek immediate help. When participants correctly diagnosed the symptoms, they believed the woman should seek help immediately. This finding is consistent with those of Dracup et al., who found that incorrect symptom identification led to a delay in treatment[27].

> *Yes, I guess … I don't know if the first time they happened if I would think they were (serious), but about the second time it would happen, yes, I think they would, should be something considered serious*. [Informant 1]

> *I suppose when she goes in for her physical she should mention it*. [Informant 7]

> *I think so, if it were her heart, it should be checked out. I am sure they would rather be safe than sorry in some of these situations*. [Informant 10]

She should just call 911 and have someone call her daughter later. [Informant 11]

Well not right now, I mean I'd give it a couple days and see how it goes; you don't want to rush right in for things without seeing how they progress. [Informant 17]

She should call 911 I would think, and you know sometimes people feel that they don't want to make a big fuss because they don't think it is anything serious but that is not a good way of thinking. [Informant 25]

Although symptom identification was a common theme influencing when women sought care, the majority of women in the study also articulated a reluctance or hesitation to seek care to avoid worrying or bothering others.

Accessing care: Participants discussed concerns in accessing care. Often the women identified a reluctance to seek assistance from a family member because they did not want to bother or inconvenience them. These findings illustrate that women frequently considered their families in their own health decision-making. In addition, women spoke of reluctance to call emergency medical services because of concerns that it would take too long to receive assistance and it would draw unwanted attention and invade their privacy.

You hate to bother your family, when you know how busy they are and you could always call the daughter and just tell her what is going on. [Informant 8]

She would not want to worry her (daughter) and in case it was nothing, she would not want to interrupt her work; it says she was pretty busy. [Informant 31]

Maybe if she had another friend or a neighbor, you know if you don't have a family member nearby, it could be hard sometimes, you know, and calling, and you just don't know, and you could maybe find somebody. [Informant 6]

Yes (it is serious), and I would call 911. And it would be nice if they could keep the sirens off, and it's nice at times like that because it, you hate everyone around you [saying] *'what's the matter,' and yet that is natural*. [Informant 4]

I guess a neighbor or a close friend would be the best, or maybe she has a relative nearby, I know it doesn't pay to call the ambulance, my husband did that, and it was no good. By the time the ambulance gets there, they could have been driven to town. [Informant 10]

Difficulty accessing emergency services has been identified, internationally, as a barrier for rural individuals[12-14]. These women give voice to that concern as well as to the difficulty in accessing other sources of help, such as family or friends who could help them access medical resources.

Taken together, the three themes reported here suggest a cascade of events relating to rural women's decisions about care in the face of a heart attack. Although not shocking in revelation, these themes identify two primary concerns. First, women who had personal or educational experiences with a heart attack or symptom identification indicated the need for immediate attention. Awareness precipitated conversation about from whom and how they would seek help, including emergency care and assistance from family or neighbors. Women who did not recognize symptoms were much more likely to take a 'wait and see' attitude – a postponement of help-seeking in the hope or belief that the symptoms were not serious.

Discussion

The main purpose of this article is to report on the exploration of older rural women's knowledge and decision-making relating to a heart attack. The study also sought to obtain information about how serious rural women thought the heart attack symptoms were and if the symptoms were severe enough to seek medical assistance. A little over half (52%) of rural women correctly identified the symptoms of a heart attack. This number is higher than some previous reports, which showed that on average only 40% of participants considered themselves to be very well informed

about heart disease[23]. The reason for the difference in this finding may be due to the small sample size of the present study or that some participants lived in a community noted as having a number of successful health education sessions. Women who had previous experience with heart attacks or who had taken local health education classes within their community most often made correct identifications. The women who correctly identified heart attack symptoms also felt that the symptoms were severe enough to seek medical services immediately. Those participants who did not identify the symptoms as heart attack symptoms felt that the woman in the vignette should rest and wait for the symptoms to pass but should mention them to the doctor on their next visit. This is consistent with the finding that incorrectly identifying symptoms may increase the time taken to seek evaluation and consultation as described in the patient/bystander recognition and action phase[27].

Symptom appraisal has been suggested to be one of the most significant factors in determining response to heart attack symptoms[26,27]. Dracup et al. reported that patients who believed their symptoms were cardiac in origin were more likely to seek medical attention quickly; results that are consistent with older rural women's conversations about symptoms and decisions[27]. Additionally, research in the area has shown that women delay medical assistance longer than men because of longer self-evaluation phases[27]. Schoenberg et al. reported that women's explanations for the delay of treatment fell into four categories: 'symptom uncertainty, problematic or inadequate patient–physician interaction, competing social demands; and structural barriers to formal medical care' (p. 274). These findings coupled with previous research raise significant concerns around women seeking medical assistance at the sign of heart attack symptoms. This may be especially true for rural women who have previously been shown to be less informed about heart disease[26,29].

Perceptions of health and well-being within rural populations have been explored previously in research and it has been suggested that rural and non-rural individuals have different perceptions of these concepts, which is linked to when they seek medical treatment. Researchers found rural dwellers in Montana reported themselves as healthy if they could work, even when they were in pain or suffering from chronic illness or life-threatening diseases[30]. Distance is another factor that contributes to the difficulty of rural individuals in seeking medical attention. According to Elliott-Schmidt and Strong, distance makes it challenging for rural individuals to seek specialist attention or maintain regular treatment because of the cost to travel to metropolitan areas, and the time taken to seek services in these areas limits the duration and follow-up of treatments[31]. This finding has been replicated in cardiovascular research in rural women. Madison reported that outpatient cardiac rehabilitation programs are designed for treatment of individuals with heart disease and these services are often not utilized by rural women[32]. Some of the reasons reported for the lack of participation include doubting the benefit, too time intensive, lack of transportation, and family responsibilities[31]. These points were also addressed by the participants in the present study who reported that calling an ambulance for services would take too long to be beneficial. The women in the present study also expressed concerns about involving their family when they experienced symptoms because they did not want to bother or inconvenience them. Therefore, a program specifically designed with rural women in mind may be more successful in engaging them in care.

Awareness of cardiovascular disease has been associated with preventative action and healthy behavior change, which includes an increase in physical activity, a decrease in intake of unhealthy food, and weight loss in women[25]. To this end, the National Heart, Lung, and Blood Institute (NHLBI) sought to develop a comprehensive health education action plan for patients, health professionals, and the public[7]. Some of the recommendations from this meeting included raising awareness and knowledge of prevention and control of women's cardiovascular risk factors, motivating healthy living and action steps for lowering women's cardiovascular risk, promoting heart health of knowledge and self-care, collaborating with physicians for better care and not delaying the seeking of medical attention. A few of the recommendations for physicians included raising the awareness of the importance of screening for heart disease in

all women during routine visits, and having health professionals be motivated to educate women on action steps for achieving a heart-healthy lifestyle[33]. However, it is unclear if this program has been initiated within rural communitites. Considering the additional challenges that rural populations are known to face in accessing care, this may not be an effective method of reaching these individuals.

Programs that have been utilized specifically with rural women suggest that there are certain factors required to work with these individuals. Krummel et al. found through focus groups that rural women preferred active learning intervention strategies including skill building and social support[34]. It is believed that these methods will increase women's self-efficacy and result in longer-lasting behavior changes. The authors suggested that the interventions should be inclusive of family members and emphasize lower-cost, heart-healthy alternatives for diet and lifestyle patterns. Women in the present study often reported concerns about bothering or inconveniencing their family members for assistance, and it is possible that this concern may lead to an increase in time before seeking treatment. However, if family members are included in interventions, rural women may be more likely to inform them of concerns before their symptoms become severe. Madison provided further suggestions effective for targeting rural populations[32]. Women participating in the intervention study reported that technology was a deterrent for them accessing information regarding cardiovascular disease because they either did not have access to high-speed internet or did not use the computer as a resource for health information. However, the women reported that print media was a reliable source of health related information. Many of the women accessed books, magazines, and newsletters frequently and this may be a more reliable way of providing them with useful information.

The findings of this study are limited by the small homogenous sample. However, this article highlights the many challenges that face the rural population in accessing medical treatment. The paper also highlight concerns focusing on women and cardiovascular disease and provides some insight into the difficulty that rural women have identifying the symptoms associated with heart attacks, especially atypical symptoms. As identified in previous literature, these factors often lead to delays in seeking treatment, which, in turn, leads to higher rates of death from heart attacks. Additionally, much of the empirical research has utilized questionnaires and surveys as methods of gaining information about this population[25,26]. Other than this research, the authors could not locate additional studies that utilized vignettes to gain information about rural women's experiences of heart attacks. Vignettes have been identified as a potential solution to the limitations of questionnaires when accessing attitudes, perceptions, beliefs, and norms[35]. According to Torres, a clear advantage of vignette methodology is its usefulness for allowing participants to distance themselves from the issue[36]. Although the authors acknowledge that these participants may have responded differently had they been asked directly about their own health decisions, vignettes allowed the participants to decide whether their responses will include their own experiences and perspectives or if their responses would be based solely on perspectives within the vignette characters. This is particularly important in a population that places high value on privacy as rural individuals do, especially older rural individuals. Within the present study, the majority of participants referenced their own personal experiences and decisions and the authors were able to gain valuable information about the role of family in personal decision-making regarding health care.

The information from this study presented implications for future research and for practical use in the medical field. Considering the limited knowledge some women have with regard to symptom identification and the impact of this lack of knowledge in relation to the delay of medical treatment, it is important for healthcare providers to acknowledge this and provide specific cardiovascular patient education when they are in contact with their patients. The use of vignettes in this study adds to the literature by giving voice to how rural women think about heart attacks and their reasons and concerns around seeking treatment. The study provides an important addition when considering the unique experiences

of rural women, and these findings should be useful when designing effective interventions to work with rural older population.

Conclusion

The authors not yet have a definitive picture outlining how rural residents identify, respond to, or maintain a heart-healthy lifestyle. The authors' review of recent studies illuminates that this is a widespread issue, with concerns across a number of countries worldwide. The fact that the number of deaths due to coronary heart disease has decreased in recent years is encouraging. However, the greater likelihood that rural residents, including older rural women, continue to be at a disadvantage is of concern. It appears that access to health care is one piece of this puzzle. Lifestyle factors, such as smoking, obesity, lack of physical activity, and alcohol consumption, are also important contributors to an increased likelihood of heart disease. The authors believe that conversations with older rural women about their knowledge of symptoms and decisions in the face of heart attack symptoms serve as an initial exploration of another piece of the overall picture of heart disease among this population. The interviews provide evidence that older rural women do not make singular personal decisions about their own health; they make these decisions in the context of concern for others such a family members. This 'ethic of care'[37] can have both positive and negative effects on seeking treatment in a timely manner and, if confirmed in additional research, should become an integral part of education for this population in the future.

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