

Disaster Resilience in Rural Appalachia

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Abstract

Rural Appalachia includes a wide range of land and people and has a rich history and culture, but the mountainous terrain and economic hardship create challenges for people living in the area to access healthcare, higher education, and other financial and practical resources, resulting in health disparities. Additionally, frequent flooding and ice storms occur and disproportionately impact residents because their location and lack of resources hinder outside help in times of need. The literature reveals many community strengths, primarily their value of kinship, which has the power to impact their disaster resilience through communication, education, and decision-making. This pilot research project aims to begin exploration of the themes related to the role of relationships in creating social support systems that support coping with disasters. Investigators conducted a focus group with a sample of rural elderly individuals. They provided meaningful insight and confirmed many of the findings in the literature that reliability of family and other community members for communication and resources was essential to responding to disasters. An unexpected finding was the discussion of reverse caregiver roles and the increased burden on the elderly population. The project highlights the need for more research on this topic to better understand these themes to inform public health officials and improve disaster resilience in the area.

Introduction and Review of Literature

Rural Appalachia is identified not only by the location and beauty of the land, but also by the rich and unique history of the people who reside there. These characteristics have historically drawn individuals to the area, but the majority of the land has been passed down through generations, which has created strong cultural and community ties. The “land is not just a commodity” to the residents; it is a place full of history, values, resources, traditions, and security that has been essential in the formation of their identity¹. In spite of this, though, there are many known health and economic disparities related to the changing industry and geographical location.

As the economy strayed from coalmining, the number of jobs was reduced, which caused a loss of a major source of income for the region. Over time, the shortage of employment has led areas like Clay County, Kentucky to have a 9.9% unemployment rate² and 34.5% of the population living below the poverty level³. This creates difficulty with accessing health care, with 20% of Kentucky residents uninsured in 2010⁴.

This area is known for mountainous geography which produces a desirable “element of isolation” that is a unique “facet of the Appalachian culture”⁵. However, the distance and difficult terrain make it harder to access healthcare and resources, especially in times of disaster. This area is prone to ice storms and flooding, and between 1990 and 2009, in Kentucky there were twenty-seven Presidential Disaster Declarations issues⁶. Residents are often left with damaged homes, closed roads, power outages, and no way to access help or properly evacuate. The frequency of

disasters is compounded with economic and geographical factors that greatly affect the lives of residents.

Despite these disparities, generations continue to stay in the area and are “deeply rooted to family, mountains, and people”⁵. Their culture highly values kinship, which yields a sense of cohesion and connectedness in the community. Familial and other social relationships are integral in communication and decision-making⁷. These strong relationships help construct a society based on mutual respect, support, and trust. Members of the community are able to rely on each other, especially in times of need. This carries a unique power and source of social capital⁸. Kinship creates a component of social networking that facilitates support systems that are essential to their culture. This is especially apparent in the growing elderly population, as they are the most invested and devoted members of the community. They are referred to as the “treasurehouse of wisdom” because of their knowledge from lived experiences and long standing ties to the community⁹. Their value of kinship is fundamental to their way of life and could be used to help them cope with disasters, since communication is a key aspect of both relationships and disaster resilience.

Communities can better prepare for and respond to emergencies if they have sources of reliable communication¹⁰. It is a key component to informed decision making during disasters. There is a trend towards reliance on technology and the media for receiving health information and education¹¹. Many areas of rural Appalachia do not have reliable access to technology, cell phone service, and power. This produces an apparent deficient in their communication abilities, which could negatively

impact their disaster resilience. This topic needs to be further explored to see how residents have adapted to this and communicate effectively in times of need. This exploration will help inform outside resources to the current status of what needs still exist in the community related to communication during disasters.

The literature and additional experiences in the community led to the formation of the research question. The investigators wanted to explore the lived experiences of elderly individuals on the topics of coping with disaster, communication during disaster, and their social support systems. This led to the overarching question: Is kinship a resource for disaster resilience among elderly residents in rural Appalachia? This question was the guide for the methods of gathering and analyzing the data in this project.

Methods

Formation of the Research Question

My faculty advisor and myself, acting as the principal investigators in this study, were able to participate in a variety of experiences in rural Appalachia to inform the development of the research question. The University of Tennessee's *Appalachia Community Health and Disaster Readiness Interprofessional Collaborative Education Project* (UT Appalachia Project) funded by the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Grant No. UD7HP26205, provided opportunities for me to engage in the community prior to formulating my research question. Through these interactions with members of the community, we were able to see the reality of the issues facing rural residents and identify kinship and disaster resilience as relevant topics for investigation.

The first opportunity for interacting with the members of the community was an education session on winter preparedness. This provided insight into the difficulties they face in the winter, but also revealed the coping methods that have developed over time. Members of the community expressed dealing with disasters through sharing information, resources, and other methods that have been passed down through the generations. This experience highlighted the need for increased education and support from outside resources for disaster resilience the community, making it a relevant topic of research. Members of the class were grateful for the new and applicable information presented, and the investigators also gained a better understanding of the way their society functions and works together during disasters.

Another interaction the investigator had with the community was through post-flood home assessments. The damage to the homes was examined and interviews were conducted to further understand the implications and effects of the flood on their lives. It was obvious that the effects of natural disasters like floods can have extensive damage to their homes and health, especially when not resolved in a timely manner. Residents still had mold and collapsed floors in their homes a year after the flood occurred. The damage was far-reaching and affected their health in many ways, which brought the investigators attention to the need for additional research on this topic towards improvement of disaster response from the community and outside resources.

This community involvement was essential for the investigators to help inform the selection of a relevant topic for investigation in research. The whole

experience was part of the learning process and helped guide the question. These conversations not only proved further that there is a definite need for improvement in disaster resilience in the community, but also showed that there are strengths of relationship and communication that have formed unique methods of coping with disaster that have been passed down through generations. These experiences combined with what had been previously discovered in the literature about the power of kinship, helped draw the connections that formed the research question based on the exploration of the experiences of residents in coping with disaster, communicating during disaster, and social support systems. These cultural characteristics need to be further explored to fully understand their implications and ability to improve disaster resilience in rural Appalachia.

Design

After selection of the question and development of the review of literature, the research process started. The chosen method of data collection was a qualitative focus group study of the lived experiences of elderly rural residents coping with disasters. Qualitative design was more appropriate for the project as it is able to capture a more human and relational understanding of the question. The ideas of kinship and communication could not be effectively portrayed by numbers and charts but will be more comprehensively understood through conversation and explanation. According to Millward (2012), the goal of a focus group is to “capture content in the form of understandings, perspectives, stories, discourse, and experiences ‘not otherwise meaningfully expressed by numbers’”. This is an appropriate method for discussion of the topics of kinship and disaster resilience.

Investigators chose focus group instead of interviewing because a group provided a broader scope of information, which is appropriate for this pilot study. It was valuable to be able to hear multiple perspectives at the same time, to provide a more diverse understanding, and showed how residents agreed and disagreed on certain subjects. The only disadvantage of a focus group as opposed to an interview was that the information was less detailed since people are less inclined to share personal information in a group setting. Regardless, a focus group was to be the most advantageous method of beginning to explore these topics and questions.

Instruments

A topic guide was developed to help guide focus group discussion. The main ideas were first explained by saying that the interest was gaining a preliminary understanding of how they cope with disasters and how their relationships affect how they respond to disasters. The discussion was regulated by the following leading and probing questions:

- What is the history of disasters in the area? What natural disasters have affected you and the people around you? How long have you lived in the area? Do you have any family who lives in the area?
- How did you cope with the disaster?
- How did you communicate during the disaster? When this happened, whom did you call first? Who did you call for help?
- If you had to evacuate, where did you go during a disaster? Who helped you evacuate?

- Does anyone call you if a storm is coming? Does anyone help you prepare for future disasters?

Specific question about family were not asked in the topic guide due to the sensitivity of the subject. Asking personal questions in a group setting could potentially make participants uncomfortable, so they were not directly addressed. It was anticipated, however, that the natural flow of conversation would lead to discussion about relationships, particularly familial, because of the cultural significance. This method allowed participants to choose what information they wanted to share instead of directly being asked about a potentially touchy subject. Two recorders were used to allow transcription and accuracy of analysis of the data. Field notes were also taken after the group to document other important observations that were not picked up by the recorders. This helped with organization and a more comprehensive understanding of the data for analysis and making connections.

Population and Sample

The focus group participants were selected from a purposeful sample of older rural residents of the area. Focus group samples “should be chosen to reflect those segments of the population who will provide the most meaningful information in relation to the project objectives”¹². This population was chosen because they have more experiences and knowledge to draw from. The majority of the participants have lived in the area their whole life, which provides a longitudinal perspective and they have broader networks and connections to the area to inform the discussion. The focus group took place at a local non-profit senior citizens

center. This setting provided the individuals a comfortable setting to open up about their experiences, since they spend a lot of time there and know the other members of the group.

There are some criteria that fit individuals for exclusion from the study. If a person was just visiting the area or if their health status did not permit them to engage and participate in activities for about an hour, then they were excluded from the study, because they would not be able to effectively participate and contribute to the group discussion.

Limitations

The project was limited by the population of the participants. This was a pilot study of a single nonrandomized group of elderly individuals from one senior citizens center. This limited the diversity of the information, because they all share similar experiences living in the same community at the same time. Another possible disadvantage, due to the many years of experience and memories to draw upon for information, was recall bias. "A potential for recall bias exists whenever historical self-report information is elicited from respondents"¹³. They may have discussed events that occurred early in their life, which lead to confused memories and incorrect details. Despite these potential limitations, recruitment from the senior population in that setting was a practical way to gain a preliminary understanding into kinship factors. There is always a need for additional research, opinions, and discussions to expand upon the data collected to provide more comprehensive information. This group was able to provide meaningful insight and

was the best choice for this particular pilot study, because the purpose of the study was to gain preliminary findings to guide further research on this topic.

Focus Group

After gaining IRB approval, a trip was made to the senior center to meet with the director of the center. We went on a tour of the center and set up a day and time for the focus group that was most convenient for them. The principal investigators were also able to meet with some of the potential participants to tell them about the project and start the recruitment process. This meeting was beneficial in establishing some rapport and helping the investigator know what to expect the day of the actual focus group.

Before the focus group began, all individuals present at the center were asked if they would be willing to participate. It was made clear that individuals knew their participation was completely voluntary and all volunteers signed an informed consent document saying they did not have to answer questions they were not comfortable asking and could leave the group at any time. There was a much larger group of participants than expected, but it was culturally appropriate to allow everyone to participate. This allowed for a variety of discussion and the group ran smoothly. Participants were thanked and the investigators were invited back to visit.

Transcription and Analysis

The interviews were transcribed professionally. Due to the large number of participants, it was difficult for the transcriber to understand sections of the focus group. There were instances where individuals were talking at the same time or

there was too much background noise to understand what was being said. Field notes were used to help fill in the gaps of information not picked up by the recorders.

NVIVO 10 software was used to help code and analyze the information. Free coding helped establish common ideas. These topics were then put into categories so they could be understood with relation to each other. The codes were examined for patterns, links, consensus of the group, and outliers to help organize the themes relating to kinship and disaster resilience.

Results

The focus group conversation provided valuable insight into the reality of the effects of disaster in this rural Appalachian community. The participants explained the roles of community and family in disaster communication, preparedness, and reliability. They also explained some kinship dynamics that were unexpected to the investigators that should be explored in further research.

The emerging theme was establishing a more accurate understanding of the effects of disaster on the lives of the community members. The group depicted real worries of the danger from the severity of the winter months. One participant stated, "We get ice, it's a real hazard. It's dangerous." They are aware of the reality of the weather and its potential damaging effects. Ice and snow create hazards in many parts of the country, but their situation is more concerning because of the amount of time they can go without outside help. One participant said, referring to ice on the roads, "if you get where the sun doesn't hit, it stays for a long time, days," and

another person explained, “It took a long time for them to finally get to that cause they had to do the main roads, parkway, and stuff first but now they’ve gotten really good about that. I feel sorry for the people though that are on roads that are off the secondary roads cause nobody gets to them.” These are important considerations for responders to realize that some residents are stuck in their houses for days due to the hazardous conditions. This increases the danger that they face and puts them in a vulnerable state. Their location makes it more difficult for them to receive help, which is something that needs to be addressed for the future. Aside from the roads being too icy to drive on, one member of the group stated that from ice storms, “we’ve been out 4 or 5 days without electric.” This is something that rarely occurs in an urban area, but they described it as a common occurrence. Not having electricity can be dangerous because residents lose their heat source, and their food can spoil. If they were not prepared for this type of disaster, they could be stuck in their house for a week without heat or food in the middle of the winter—the effects of which could be devastating. The reality facing residents is valuable to understanding the importance of the subject and the need for more research in light of how they respond and the roles of kinship in surviving these hardships.

Another subject that was important for understanding the context of the community they live in is the help and support they already have access to. This was essential for the investigators to be aware of the current state of living and their comfort level with using resources inside and outside of the community. Residents described the main lines of communication about disasters to be TV, radio, scanner, and the weather channel, if they were working. One participant also stated, “we can

call 911 if we need anything” and “we have a helicopter service here.” This showed their confidence in these services and their trust in outside help and responders to come to their aid if needed. One resident explained that in “the last three years it’s gotten better,” which was encouraging for the investigators to see that there have been positive changes in the community with regards to disaster response, which will improve quality of health and life. Their current status still indicates a need for improved response and continued understanding of how they can better cope with disasters. The community has created resources for itself and for helping those around them. The participants described a community store that sells “mittens and hats and scarves and things like that for a reasonable amount.” This is for community members who need additional support providing for their families. This shows how they work together to help each other and create a sense of community cohesion and supports the hypothesis of kinship being an important factor in disaster resilience.

The participants described themselves as “survivors” because they have acquired the skills and knowledge to adapt and cope with the severe effects of disaster over time. They explained, “everybody knows what to do,” and they just “let everybody take care of themselves” in times of need. Over the years, they have learned how and when to prepare for and respond to bad weather and potential disasters. One group member explained the process by saying that when her daughter called to help she told her, “We got a grill that we cook on outside. We’ve got plenty of firewood. We’ve you know as backup if your lights go out. We’ve got, I got thing of water in the freezer that I could thaw if we really needed water. And she

doesn't understand that you know that people are pretty self-sufficient." The community members are confident in their ability to survive and adapt with the severe weather and decreased access to resources, because they have been dealing with it for years. It is their norm. They know better than anyone how and when to start "buying extra" and "store it up" because they have experienced it many times. This seemingly vulnerable elderly population does not view themselves that way. They know that they are capable of handling the hardships of rural life in the severe winter months. One of the ladies even said when they are cooped up they "always find something to do" like "knit, crochet, quilt" to "keep you busy all winter." This way of life is all they have known, and their confidence in their ability to be self-sufficient is key to how they cope and adapt to these harsher situations.

The residents of rural Appalachia are self-sufficient, but a large part of their resilience in times of need is their ability to work together as a community. No matter how much they individually prepare, disaster response is more effective with everyone working together. One participant described a situation where a lady "had a little heater that run on gas and all the ladies that lived in the apartment went to her apartment." She welcomed them in, knowing she had a heat source they needed, despite the inconvenience it probably caused her. They have a mutual understanding that they will help each other. Members of the group described "that's jus the way people are in this part of the country." They are all looking out for each other and know they can count on each other if needed. This shows how much they rely on their community value of kinship and the important resource it is in disaster resilience. Despite their self-sufficiency, when there is need they can "go to

their parent's house when they had heat gone" or "go to the neighbors and get water." There is a sense of mutual understanding that they all support each other, which is extremely valuable, especially in times of need.

There was also much discussion on the role of communication and relationships, as it related to disaster resilience. The residents described that although sometimes "cell phones are useless around here," this does not keep them from reaching out to each other. Participants were in agreement that it is important to stay in touch with family members in spite of that barrier. One participant explained, "I've got brothers and sisters that check on me all the time." Many others echoed similar remarks, confirming that they have true confidence they will maintain contact with family members, especially in times of need. Consistent, reliable communication is a key element in strong interpersonal relationships. Even when the phone lines are out, one participant said, "I have to walk to my daughter's house." They do not let the lack of technological resources keep them from staying in touch and making sure their family members are all right. One participant assured the investigators that, "most people take care of their own children." The cultural emphasis on family values, which was found in the literature, was evident and supported in the description of their communication methods during disasters.

The importance of relationships is not just found in families, but is a common understanding for the community as a whole. One participant stated that if someone were in need of food or clothes, they would, "make sure they get it" because "there's no cause for anybody to go hungry." There is a strong emphasis on taking care of and watching out for your family primarily, but they all agree that they would come

to the aid of any community member in need. This supports the findings in the literature that there are strong community kinship bonds that are central to their wellbeing. They kept mentioning how they were “trying to help” everyone that they could. The elderly generation seems to be a source of support and resource for the younger generation and they are always working to help them, especially in times of need. This shows that relationships are an important aspect of their community social structure.

In this same way, the conversation kept relaying the concept of the reliability of their relationships. They can all count on each other, especially in times of need. One participant stated, “if somebody needs us, we’re there for em,” and “if somebody gets hurt or somebody gets sick, you can call on anybody really.” Most communities, especially in urban areas, do not have this sense of connectedness and reliability. They explained there is a sense of mutual understanding because “we know everybody around us” and “we’ve raised our families here.” There is such a strong sense of community cohesion that they all feel like family look out for each other. Participants described their community as “close and tight” because “everybody’s in the same boat so everybody understands.” This supports the unique cultural aspect of their value of kinship found in the literature. Their strong interpersonal relationships and unique experiences have created these bonds of reciprocity and loyalty. Their relationships are long lasting and deep rooted which has formed trust, and they all know that they will be there for each other no matter what. This reveals the importance of being able to rely on each other in times of need to effectively cope with disasters.

The older generation has developed characteristics and habits based on their upbringing. They learned at an early age from their parents and through personal experiences how to effectively deal with disasters the way that they do. They were raised to know how to deal with the hardships of their location and economic situation, and one participant even laughed and said “oh honey, I learned that when I was 12 years old.” They understood from an early age that they had to work hard and be self-sufficient to adapt and survive in these harder circumstances. This prepared them for their future, and they still continue to use that knowledge. They learned from their parents that “if you work in the summer, you put away from the winter” and many other important lessons. That information that was passed down through generations is invaluable and a core characteristic of their identity. It explains why they are generally so self-sufficient and able to cope with and adapt to their environment. Their inter-generational relationships are a key aspect of their culture and are essential to their survival through the methods of preparation and reliability they shared earlier in the discussion.

On the other hand, the investigators were surprised to hear, that participants believe the younger generation is not as prepared for dealing with the rural Appalachian way of life. The investigators assumed that the older generation would be more vulnerable due to age-associated risks. We believed that the younger generation would be supporting them now, but this was not always the case. For some, the opposite is true. The group described the reverse caregiver roles that are currently in place in the community. Many participants stated that the younger generation, “don’t know how to plan ahead” because “they have somebody to take

care of ‘em so they don’t care.” They explained that, “they’ll just end up going to granny’s house you know and eating at granny’s house and stretching the food.” Participants’ perception of the younger generation was that they have grown up relying on their parents and grandparents. They have not learned the same way the older generation did, and now the older generation is realizing the younger generation “can’t manage” and “aren’t with it on that aspect,” with regards to planning ahead and preparedness, which are essential to coping with rural Appalachian life. Participants worried that the younger generations are not equipped for survival in this lifestyle. This increases the burden on the older generation, as they are not only taking care of themselves but also their children and grandchildren. This was an interesting new idea that the investigators think needs further research, as it is a complex familial dynamic that is completely different from the previous generation.

The reverse caregiver role has created a new sense of worry for the older generation, as they realize that they will not be able to support the younger generation forever. They feel that many of their children and grandchildren are not prepared to live and adapt with the circumstances without them. They worry because “they don’t know how to get by.” The values of preparation, reliability, and self-sufficiency that the older generation learned from their parents have not been passed down to the younger generation. For the older generations, this has always been the way of life. They have to effectively cope with disasters despite the lack of resources and funds in the rural area. Many participants expressed concern that they “worry about the kids” and “wonder what they’re going to do” since the

younger generation has not developed those characteristics. This reverse caregiver role is a unique and new aspect of their culture that needs to be further explored. For the younger generation, there could be devastating consequences for them if they are not able to learn to cope with the realities of their circumstances. One participant stated, “there’s too much out there for them if they’ll just all they got to do is take of it.” In other words, they have given them so much and they have so many opportunities, but they are afraid that they will not take advantage of what they could have. The older generation wants the best for their children and grandchildren and they see their potential, but they know that it is up to them to take hold of it.

Discussion and Conclusion

This study was a pilot project to begin exploring the themes of kinship and its relationship to disaster resilience in the rural Appalachian community. The goal was to examine these connections that lead the investigators to relevant questions and discoveries for guiding further research. The data collected supported the hypothesis that since relationships are integral in many aspects of their culture, they would also be a key component in how they cope with disasters. Participants described their dependence on the community as a resource and cohesion in working together for survival in hard times. This is important for public health and outside responders to understand these cultural characteristics to guide how they communicate with and support these residents. They need to consider their strengths and deficits to fully understand the changes that need to be made to improve disaster resilience.

There were some unexpected results that need to be further researched to understand their implications for the future health of community members. The reverse caregiver role is increasing the elderly's perception of their burden both physically and emotionally. The older generation believes the younger generation is not prepared to deal with the complex current hardships they are facing, which could have negative impacts on the overall health of the rural Appalachian communities in the future. More research needs to be done to provide a more comprehensive understanding of these roles so public health officials, health care providers, and disaster response can understand what education needs to be done and what changes need to be made to relieve the burden on the elderly and prepare the younger generation for the future.

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