

Abstract

Durango, CO currently does not have a resource for community members who experience secondary trauma effects stemming from a technical or natural disaster. According to Yun, Lurie, and Hyde (2010) most major disasters have been followed by increases in the prevalence of mental illness, domestic violence, and substance abuse. After the Gold King Mine Spill on August 5, 2015, a Listening and Empowerment Project (LEP) group was formed to bring attention to monumental health issues and social impacts related to the health of our environment and education on how the environment interplays with our health and well-being. A series of events were held in the community where participants could answer questions in an open-ended format. The main purpose has been to provide public forums to hear stories and experiences from our region. A research project was carried out at Rotary Park in Durango, CO with questions related to: What are the social, economic, political, and emotional effects of an environmental disaster, and how can the community serve in the change process of creating a resilient community? At the event the LEP posted the questions on foam core and provided sticky notes in the park for participants. An informed consent sheet was provided, and a survey with demographic information. The study used convenience sampling, not representative of the entire population. There were 27 participants, majority from Durango, CO. Eleven participants were white; eight participants were Native American, with a few others. Participants ranged from 12 to 75 years or older. There were significant results for advocacy for the river, discussion of prevention/ solutions, education, ecological value, and an emotional response. Results also indicate a difference in responses between the needs of Native Americans and whites, hypothesizing historical trauma with an implication for future research regarding the river's needs, but also the needs of Native Americans.

Introduction

On August 5, 2015 the Gold King mine spill occurred in the Animas Rive (Johnson, 2016). The spill was triggered by a release of mine wastewater, which dumped around three million gallons of waste into the river. According to Clausen (2016) when a technological disaster occurs, communities often become divisive; sociologists call this the "corrosive community" tendency, where corrosive communities are characterized by anger, uncertainty, loss of institutional trust, collective stress, self-isolation and litigation. The health of the Animas River is important to our own psychological and physical health needs. Psychological stress has become an important consideration in managing environmental health risks. According to Couch and Coles (2015), there is evidence that psychological stress has adverse impacts on health and it may interact with environmental hazards to increase health risk; stress can also vary considerably by race/ethnicity and income. Through the LEP there have been more reports from the Navajo Nation and minority groups to report disadvantages and stress related to the Animas River spill. According to Couch & Coles (2015) technical disasters differ from natural disasters (e.g. wild fire) in that they may not be recognized as critical issues by community residents; therefore more likely to become part of the context of community living. "The key message emerging is that contact with nature improves psychological health by reducing pre-existing stress levels, enhancing mood, offering both a restorative environment and a protective effect from future stresses" (Gallis, 2013, p.4). While disasters can have a profound psychological effect on the populations affected, Weissbecker (2009) states the right to mental health has not received adequate attention from national and international institutions and organizations. Research used by the Prince William Sound Regional Citizens' Advisory Committee (2011) states that people who are able to talk about their problems in a trusting situation have fewer physical and emotional symptoms.

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Methods and Materials

Listening and Empowerment Event held at Rotary Park, April 10th, 2016 open to the public. Questions posted on foam core with sticky notes for participants to answer questions, informed consent sheet, and demographic survey. The seven questions are as follows with post-hoc themes, and codes: 1)How have you been affected by the spill? Theme/codes: Emotional, Increased Awareness/Education, Recreation, No Affect, Subsistence/water use. 2) What does the river mean to you? Theme/codes: Personal Value, Community Value, Recreational Value, Ecological Value, Economic Value. 3) What information or resources do you need about the spill or to recover from the spill? Theme/codes: Discuss prevention/ solution, Long term affects general, Long term affects sediment, Water quality data, Policy info, Healing, Nothing. 4) What does the river need? Theme/codes: Public awareness/ concern, Restoration, Advocates, Expertise. 5. What issues should the group focus on? Theme/codes: Prevention, Remediation, Community Alliance Building, Research, Education. 6) What are some solution to protect your personal human future? Remediation/Research, Social Change/Activism, Education. 7)What are some solutions to protect the river's future? Theme/codes: Policy, Community Building/Activism, Remediation/Research. Chi square analysis' compared all questions and demographics.

Results

- When comparing "ethnicity/ race" between "what does the river need", $p = 0.01295$, meaning there was a significant difference showing that Native American or American Indian, White, and Black or African American agreed that the river needs **advocates** in comparison to public awareness/ concern and restoration.
- Age vs. what does the river need: The top value was **ecological value** with $p = 0.04$.
- Age vs. what does the river mean to you, $p = 0.04$. **Ecological value** was the most important.
- What information or resources do you need vs. what issues should the group focus on, $p = 0.03256$. Those who choose they needed to **discuss prevention and solutions**, also said the group should focus on **education**.
- What information or resources do you need vs. household income, $p = 0.01295$. Most individuals said they wanted to **discuss prevention and solutions**.
- How have you been affected by the spill vs. household income, $p = 0.01295$. The greatest affect was **EMOTIONAL** compared to increased awareness/education, subsistence/water use, recreation, & not affect.
- How long a person has been living in their city vs. what does the river mean to you, $p = 0.01295$. 10-19 year chose personal value and ecological value as equal, the overall response across ages was that the river held **ecological value**.



Table 1. Chi Square $p < 0.05$

	What_Does_The_River_Mean_To_You									
	Community Value		Ecological Value		Personal Value		Recreational Value		TOTAL	
	Obs	Exp	Obs	Exp	Obs	Exp	Obs	Exp	Obs	Exp
17-Dec	0	0.1	0	0.6	0	0.3	1	0	0	1
18-24	0	0.3	2	1.7	1	0.9	0	0.1	3	3
25-24	0	0.2	1	1.1	1	0.6	0	0.1	2	2
35-44	1	0.3	0	1.7	2	0.9	0	0.1	3	3
45-54	0	0.4	3	2.3	1	1.1	0	0.2	4	4
55-64	0	0.4	3	2.3	1	1.1	0	0.2	4	4
65-74	1	0.2	1	1.1	0	0.6	0	0.1	2	2
>75	0	0.2	2	1.1	0	0.6	0	0.1	2	2
TOTAL	2	2	12	12	6	6	1	1	21	21

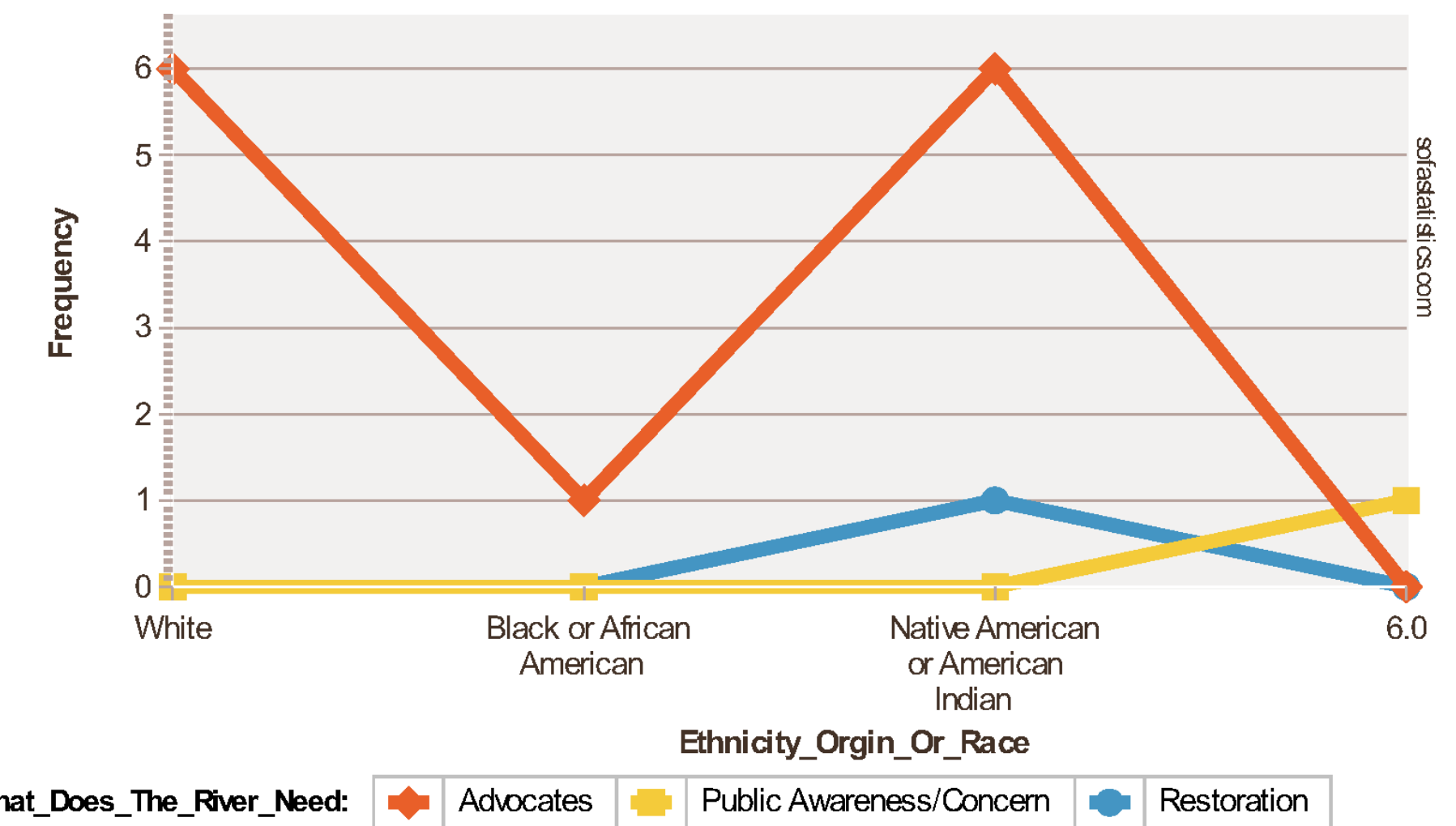


Chart 1. Chi Square $p < 0.05$.

Discussion

Participants expressed the need for advocacy, an emotional response and the need for a discussion around prevention/ solutions with an emphasis on education, which aligns with the previous research that technical and natural disasters create emotional distress. While both whites and native Americas said the river needs advocates, the responses were quite different when asked, what information or resources do you need to recover from the spill? The following responses are from a Native American or American Indian perspective: "The indigenous perspectives, not just the scientific EPA OK info.", "-People, -\$-, -Awareness, - Support, - Native American Opinion.", "Impartial independent information, a.k.a. the truth.", "Honor and Truth.", "A fancy scientist to tell me about it.", "Independent environmental impact study." These are all of the responses from a white perspective when asked the same question, most people who were white chose not to even answer this question: "Spread the word that the river is okay again & don't let the spill hurt our economy.", "I need to know that people's lives are the priority and not the profit of corporations.", "Toxins before and after the spill." The white perspective seemed okay with the scientific data given, while the Native American perspective was not okay with this at all. This raises the question of historical trauma, and a lack of trust in white authority figures. The study has limitations due to sample size, and convenience sampling. Further research is needed for the river and Native American viewpoints.

Conclusions

While the community advocates for the river to prevent future spills, find solutions and education on the ecological value, the most interesting aspect found was the historical trauma still prevalent today for Native Americans, and differences in the care for "white science". The LEP found a need for indigenous perspectives to be heard. PWSRCAC (2011) states that people who are able to talk about their problems in a trusting situation have fewer physical and emotional symptoms. Given the high rates of mental illness on Native American lands an environmental disaster could negatively impact them more based solely on historical trauma. According to the Centers for Disease Control (2007) suicide rates among Native Americans for adolescents and young adults ages 15 to 34 is 1.5 times higher than the national average. Specifically, there is no proven empirically based treatment modality to utilize when addressing the distinctive mental health needs of Native American clients. Given the severe mental health problems that plague many of the Native American people, determining effective psychological treatments is vital" (Gone & Alcántara, 2007). This can be accomplished through future empirical research. Similar future studies to the LEP would be useful for programming and planning the counties health needs.

References

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