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Community Health Assessment During the COVID-19 Pandemic For the Frazier Mountain Communities Of the Tejon Pass

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Abstract

Community health begins with understanding the concerns of a community. The COVID-19 Pandemic has left no community untouched and rural communities have been no exception. Rural communities face many challenges unique to their locations including but not limited to access to employment, health care, education, and communication–technology.

The purpose of this study was to begin to understand the concerns of a rural community during the Covid-19 Pandemic and to identify associations that could help direct resources to serve the community.

Key findings included concerns regarding crime, employment, mental health, COVID-19, and drug abuse. Further analysis of the data showed statistically significant sub-population positive associations ($P < .05$) between volunteering and financial status, location of residence, education, having health insurance, and concerns regarding COVID-19. Concerns regarding COVID-19 were positively and negatively associated with various reported health and social concerns.

This study began the process of community development for these rural communities. The information obtained helped to create a collaborative group of stakeholders, direct resources to address the concerns of the community, and identified associations to help direct outreach to support ongoing programs.

Future research into the community's concerns and how they change overtime, in relation to the COVID-19 Pandemic, will help direct resources and prepare for future outbreaks. Also, future research in these communities' concerns would help to understand if programs instituted had the intended outcomes.

Keywords: Rural, community development, pandemic, Covid-19, health needs assessment

Évaluation de la santé communautaire pendant la pandémie de COVID-19 pour les communautés de Frazier Mountain du col de Tejon

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Resumé

La santé communautaire commence par la compréhension des préoccupations d'une communauté. La pandémie de COVID-19 n'a épargné aucune communauté et les communautés rurales n'ont pas fait exception. Les collectivités rurales font face à de nombreux défis propres à leur emplacement, y compris mais sans s'y limiter, l'accès à l'emploi, aux soins de santé, à l'éducation et aux technologies de communication.

Le but de cette étude était de commencer à comprendre les préoccupations d'une communauté rurale pendant la pandémie de Covid-19 et d'identifier les associations qui pourraient aider à diriger les ressources pour servir la communauté.

Les principales conclusions comprenaient des préoccupations concernant la criminalité, l'emploi, la santé mentale, la COVID-19 et la toxicomanie. Une analyse plus approfondie des données a montré des associations positives de sous-population statistiquement significatives ($P < 0,05$) entre le bénévolat et la situation financière, le lieu de résidence, l'éducation, le fait d'avoir une assurance maladie et les préoccupations concernant la COVID-19. Les préoccupations concernant la COVID-19 étaient positivement et négativement associées à diverses préoccupations sanitaires et sociales signalées.

Cette étude a amorcé le processus de développement communautaire de ces collectivités rurales. Les informations obtenues ont aidé à créer un groupe collaboratif d'intervenants, des ressources directes pour répondre aux préoccupations de la communauté et des associations identifiées pour aider à diriger la sensibilisation pour soutenir les programmes en cours.

Les recherches futures sur les préoccupations de la communauté et leur évolution au fil du temps, en relation avec la pandémie de COVID-19, aideront à orienter les ressources et à se préparer aux futures épidémies. De plus, des recherches futures sur les préoccupations de ces communautés aideraient à comprendre si les programmes institués avaient les résultats escomptés.

Mots-clés : rural, développement communautaire, pandémie, Covid-19, évaluation des besoins de santé

1.0 Introduction

Community development begins with understanding the community's needs as defined by the community. History is fraught with those from outside the community instituting changes that have no lasting effect at best, and at worst have had deleterious outcomes (Addiss & Amon, 2019, Allen-Scott et al., 2014).

Difficulties in rural areas include, but are not limited to, the lack of or limited services including (a) communication—cell phone, broadband—(b) health care, (c) education, (d) employment, (e) food, and (f) transportation (National Conference of State Legislatures, 2020)

As noted by Cavaye (2021) regarding community development in the rural setting, "the outcomes are not only jobs, income and infrastructure but also strong functioning communities, better able to manage change" (p. 110).

Community resilience or the sustained ability of a community to withstand and recover from adversity as described by Chandra et al. (2011) notes one of the key 'levers' of a resilient community is the engagement at the community level.

The importance of a community's ability to address change has become even more evident during the COVID-19 pandemic and by climate change induced increase in weather-related disasters—storms, droughts, floods, fires, and extreme temperatures—that are occurring worldwide (World Meteorological Association, 2021).

Social capital described by Murray (2000) entails resources stored in personal relationships. It is through these personal relationships that real, sustainable community development begins. He argues that at times administrators are focused on product and not process. He further argues that by having this focus—product vs process—we miss opportunities for addressing problems that can only be addressed by people working together on the basis of relationships developed through "trust, respect and reciprocity" (Murray, 2000, p. 108).

This paper describes a rural community, identifies their concerns during the COVID-19 pandemic, and helps to form and give direction to a collaborative of community stakeholders. Arguably one of the most important functions of this paper is to help in the process of developing relationships within the community. These relationships will be the social capital that will form the strong functioning resilient community that will survive the current pandemic, future disasters and the day to day challenges all communities face.

1.1 Background Description

The Frazier Mountain Communities of the Tejon Pass is a region in Southern California that includes (a) Gorman, (b) Lebec, (c) Frazier Park, (d) Lake of the Woods, (e) Pinon Pines, (f) Pine Mountain Club, (g) Cuddy Valley, and (h) Lockwood Valley. There are three different counties included in this area—Los Angeles, Kern, and Ventura. They are all within or near the Tejon Pass, which links Southern California to the San Joaquin Valley ("Mountain Communities of the Tejon Pass," 2021). Approximately 7,043 people live in these mountain communities (United States Census Bureau, n.d. - a–d). Census data is not available for the smaller communities of Pinon Pines, Cuddy Valley, Lockwood Valley, or Gorman.

The area is unique for the following reasons:

- It lies between two large metropolitan areas, Bakersfield (pop. 403,455) and Santa Clarita (pop. 228,673). (United States Census Bureau, n.d.-e, f). Travel time to one of these metropolitan areas is between 1–1.5 hours, where more services can be found including shopping, tertiary health care services, higher education, and employment opportunities.
- These communities reside at elevations ranging from approximately 3,500 ft to over 6,000 feet (United States Geological Survey, 2019). Isolation can be further compounded by closures of the main interstate (I-5) and linkage roads, from snow, fires, and accidents. There is one health center on the mountain with varying services depending on the skill set of the provider.

2.0 Scholarly Context

This paper's scholarly context reiterates the importance of community development and how it can be an instrument in creating social capital to effect change within a community (Murray, 2000). The process of (a) creating and distributing the health assessment, (b) collecting and analyzing the data, (c) sharing the data with the community, (d) prioritization of concerns, and (e) development and institution of programs were all done at the community level, working with the community and creating the social capital. The process also demonstrated real life application of evidence-based decision making as described by Brownson et al. (2013) including, (a) making decisions based on the best available scientific evidence, (b) using data and information systems systematically, (c) applying program planning frameworks, (d) engaging the community in decision making, (e) conducting sound evaluations, and (f) disseminating what was learned. This paper lays the framework for future investigations, in this community, and provides an example that can be replicated and compared to other rural communities. The information obtained is consistent with the growing body of literature regarding COVID-19 pandemic's impact on chronic diseases directly and indirectly (Hacker et al., 2021).

3.0 Methodology

This was a cross-sectional study involving the Mountain Communities of the Tejon Pass in Southern California. The assessment was adapted from an online template from the National Association of County and City Health Officials (National Association of County and City Health Officials, 2007). The assessment was made available to respondents in both Spanish and English.

The community health needs assessment was reviewed and modified by various stakeholders to reflect the uniqueness of the community—distance from metropolitan areas—and the current COVID-19 pandemic. The various stakeholders were also instrumental in distributing the health needs assessment via direct email, web-based access (Epi Info 7 ™ CDC), local internet (Facebook ™), and various professional offices including several health clinics—behavioral, medical, and dental—and a local water company. Examples of distribution of the assessment include the local health clinic making them available in the waiting room, local internet company emailing their customers, and local businesses making them available at their business' locations.

The community health needs assessment was reviewed with the administration/institutional review board (at the local health clinic) and approval

was obtained to proceed with the assessment. Participants were educated regarding the community health needs assessment, advised that no personal identifiable data would be collected, and a verbal agreement was obtained before proceeding to answer the questionnaire.

This community health needs assessment was distributed and collected from July 2020 through December 2020. The distribution area included the following communities: Gorman, Lebec, Frazier Park, Pinon Pines, Cuddy Valley, and Pine Mountain Club. The health assessment questionnaire, data entry and statistical analysis were performed with Epi Info 7 ™ from the Center of Disease and Control, Atlanta, Georgia. Associations were calculated and reported using two-tailed fisher exact *P* values. Odds ratios were calculated and reported with maximum likelihood estimates. Associations were investigated to see if there were identifiable characteristics to volunteerism and to see how COVID-19 concerns were related—or not related—to other social and health concerns.

3.1 Limitations

It was acknowledged that the responses would be influenced by the pandemic, but it was felt, not knowing if or when the pandemic would end, that it was important to begin the process of community development in earnest.

There was an over-representation of one of the communities, Pine Mountain Club, and no representation from the community Lockwood Valley. This would limit individual community evaluations. No data from Lockwood Valley was obtained and future efforts to obtain information from this community will need to focus on other sources of data acquisition. This area is more remote, less populated, and extends over a vast area of approximately 610 square miles (Wenner, 2019). There is no official census data available regarding the communities of Gorman, Cuddy Valley, Pinon Pines, or Lockwood Valley. A follow up assessment should strive to increase participation to strengthen the validity of the findings.

Numerous sources were used to obtain data but it was not a true ‘random sampling’ This could affect the answers provided, as those that answer questionnaires regarding health may be predisposed to certain responses.

4.0 Results and Discussion

The number of responses ranged from 293 for the question regarding age to 432 responses for the question of what makes a healthy community. Almost 65% of the respondents were female with the overall average age being 59 years old (SD = 14.5). Respondents who identified as Caucasian were 82% and approximately 63% of the surveyed population lived at an elevation greater than 5,000 feet. Household income was less than $50,000 for 43% of the households. Pine Mountain Club was the most represented community accounting for over 46% of the respondents. Approximately 67% were married or had a partner and 50% of those surveyed volunteered at least 1 hour per month. College education or higher accounted for 59% of those surveyed, and 67% had health care insurance (see Table 1). Almost 80% of the population traveled off the mountain at least once each week and 34% traveled off the mountain two or more times per week.

Table 1: *Frazier Mountain Communities Demographics*

Variable	**Value**	**n**	**Percent (%)**
Community			
(n= 390)	Pine Mountain Club	180	46
	Frazier Park	92	24
	Lebec	29	7
	Pinon Pines Estates	26	7
	Lake of the Woods	19	5
	Cuddy Valley	19	5
	Other	19	5
	Gorman	6	1
Mean Age (years)	59 (SD = 14.6)	293	NA
Gender	Female	253	65
(n = 390)	Male	128	33
	Other	9	2
Ethnicity	Caucasian	302	82
(n= 369)	Hispanic–Latino	30	8
	Other	23	6
	Asian–Pacific Islander	8	2
	Native American	4	1
	African American–Black	2	1
Marital status	Married–Partner	247	67
(n= 369)	Not Married–Single	122	33
Income ($)	Over 50,000	203	57
(n= 354)	30,000–50,000	63	18
	20, 000–29,999	46	13
	< 20,000	42	12

Table 1 continued

Education (n = 370)	College degree or higher	218	59
		121	33
	High School Diploma–GED	3	1
	Less than high school	28	7
	Other		
Payment of health care services (n= 394)	Insurance	263	67
	Medicaid	97	24
	Cash	19	5
	Veteran	15	4
Travel off mountain per week (avg.)	1.6 (SD = 1.6)	379	NA
Volunteer time per month (hours) (n= 379)	None	189	50
	1–5	114	30
	6–10	26	7
	> 10	50	13

When assessing community health and their own personal health, participants were up to three times more likely to report their health better than their community's health (see Table 2).

Table 2. *Reported Personal and Community Health*

Reported Health	**Very Healthy (n/%)**	**Healthy (n/%)**	**Somewhat Healthy (n/%)**	**Unhealthy (n/%)**	**Very Unhealthy (n/%)**	**Total (n/%)**
Personal Health	59/16	155/41	141/37	17/4	8/2	380/100
Community Health	18/5	81/21	237/63	39/10	2/1	377/100

The respondents were asked to pick the three most important factors or problems in three different categories (see Table 3). The most important factors to a healthy

community included low crime, good jobs, and a clean environment. The most important health problems were mental health, COVID-19 and access to health care. The most important social problems were drug abuse, alcohol abuse, and unemployment.

These findings are consistent with known community health and social concerns in rural communities (Coughlin et al., 2019). The important aspects of these findings are not just the identified health care concerns—mental health, COVID-19, access to health, obesity, etcetera—but the impact of the identified social problems: employment, education, environment, and drug abuse. These identified concerns introduce a population health interpretation and are significant determinants of life expectancy and health. By addressing the social problems—employment, education, environment, and drug abuse—the community will be helping to alleviate or solve the health concerns (Hartley, 2004).

Table 3. *Community Identified Concerns*

What makes a Healthy Community	**(n)**	**(%)**	**Health Problems**	**(n)**	**(%)**	**Social Problems**	**(n)**	**(%)**
Low crime–safe neighborhoods	233	18	Mental Health	195	16	Drug abuse	239	21
Jobs & healthy economy	184	14	COVID-19	156	13	Alcohol abuse	217	19
Clean environment	132	10	Access to health care	150	12	Lack of employment	164	15
Healthy lifestyles	130	10	Obesity	125	10	Poor eating habits	134	12
Good schools	116	9	Aging issues	117	10	Lack of exercise	116	11
Strong family life	111	9	CAD - CVA	83	7	Tobacco use	60	5
Religious–spiritual values	77	6	Domestic abuse	59	5	Racism	52	5
Affordable housing	75	6	Diabetes	50	4	Dropping out	45	4
Parks & Recreation	52	4	Hypertension	45	4	Unvaccinated	38	3

Table 3 continued

Low level child abuse	42	3	Child abuse–neglect	42	3			
Low adult morbidity–mortality	41	3	Dental issues	41	3			
Excellent race relations	41	3	Other–drug & alcohol	36/28	3			
Cultural events	36	3						
< 3 % categories (n= 2)	26	2	< 3 % categories (n=10)	107	10	< 3% categories (n= 4)	50	5
Total/%	1296	100		1206	100		1115	100

Note: CAD (Coronary Artery Disease) – CAV (Cerebral Vascular Accident)

Associations were reviewed from the collected data (see Table 4). Selected associations that were statistically significant were presented ($p < .05$, CI confidence interval not crossing one). These associations could help identify people that are more likely to volunteer; level of education and income, status of health insurance, and being from a specific community. Respondents that had a college education or higher were more likely to report being 'very healthy'.

Concerns regarding COVID-19 were positively associated with reported volunteerism. COVID-19 concerns were less likely in those from the community of Pine Mountain Club. Concerns regarding COVID-19 were positively and negatively associated with various reported health and social concerns. Positive associations included: aging issues, cultural events, and race concerns. This implies that those that were concerned about COVID-19 were also concerned about aging issues (health problems in the community), cultural events (what makes a healthy community), and race concerns (race relations in what makes a healthy community and racism in social problems in the community). Negative associations included concerns about (a) hypertension, (b) mental health, (c) obesity, (d) strong family life, and (e) child neglect. This implies that those that responded to having concerns regarding COVID-19 were less likely to have concerns regarding hypertension, mental health, obesity, child neglect (as a community health problems), and strong family life (as a community concern).

Table 4. *Selected Associations (*P < *.05)*

Association	**Odds Ratio**	**95% Confidence Interval**	***P***
College education to volunteering at least one time per month	3.10	1.959–4.954	<.001
Having health insurance to volunteering at least one time per month	1.96	1.225–3.163	.003
Income > $50,000 to volunteering at least one time per month	2.73	1.303–5.880	.006
Covid concern to volunteering at least one time per month	1.61	1.037–2.498	.03
Residence in Pinon Pines to volunteering at least one time per month	2.72	1.050–7.890	.04
College education to self-assessed ‘very healthy’	1.92	1.001–3.849	.039
College education to having health insurance	2.30	1.446–3.681	<.001
Residence in Pine Mountain Club to having health insurance	2.16	1.352–3.493	<.001
Covid concern to race relations as a healthy community indicator	2.57	1.273–5.299	.006
Covid concern to cultural events as a healthy community indicator	2.51	1.191–5.432	.011
Covid concern to strong family life as a healthy community indicator	.52	.311–.856	.008
Covid concern to aging issues as a health problem	1.64	1.034–2.589	.032
Covid concern to child abuse–neglect as a health problem	.25	.083–.613	<.001
Covid concern to mental health concern as a health problem	.48	.312–.736	<.001
Covid concern to hypertension concern as a health problem	.44	.187-.937	.023

Table 4 continued

Covid concern to obesity concern as a health problem	.57	.351–.914	.015
Covid concern to racism concern as a social problem	2.55	1.358–4.847	.002
Covid concern to Pine Mountain Club residence	.450	.289–.696	<.001

5.0 Discussion

With the communities combined population equal to 7,043, (United States Census Bureau 2021 a-d) there were 432 returned questionnaires which is approximately 6% of the population surveyed. A sample size of 365 would produce a 95% confidence interval (Australian Bureau of Statistics, n.d.). The questions age (n = 293) and income (n = 354) were the only questions not reaching the n = 365 for 95% confidence interval. Obtaining the 95% confidence interval helps to validate these findings. The questions about age and income are often considered taboo and had the lowest response rate on the survey. Rewording or reformatting these questions in the future might help increase responsiveness (CanView Team, 2017).

The information obtained from this survey begins to provide a picture of the community and its current health concerns. It is remarkable that during the COVID-19 pandemic that 50% of the population surveyed continued to provide volunteer services.

Some of the questions—regarding race and child abuse–neglect—were redundant as these questions were asked in both the community, health, and social problems question portion of the health assessment survey. The responses were similar, in the frequency of the concerns, which helps to validate the responses (see Table 2). Further validation can be seen in the number one and two concerns regarding social problems—drug and alcohol abuse. The number one health concern was mental health. These are known comorbidities and their presence in our survey helps to validate the answers and will help to focus care (Regier et al., 1990).

The characteristics associated with increased volunteerism will help to identify those in the community who may be more willing to volunteer to support various social and health initiatives.

Covid-19 associations—positive and negative—were concerning and may partially be explained by what we now know, that many chronic conditions have not been addressed during the COVID-19 pandemic (Hacker et al., 2021)**.** For example, the finding that those that were concerned about COVID-19 had an inverse (negative) association with mental health—even though this was the number one health concern in this assessment—may be related to these health concerns not being addressed secondary to the pandemic focus on COVID-19, lack of understanding or seeing the connection between the effects of the pandemic and mental health (Panchal et al., 2021).

The finding that college education was associated with the self-assessment of ‘very healthy’ is consistent with known data that support the association of higher education to better health. (Raghupathi & Raghupathi, 2020). There are many

confounding variables that can affect one's health or perception of health, for example socioeconomic status, genetic predispositions, past medical history, and social behaviors—drug, alcohol, and tobacco use. Nevertheless, the finding of this association lends credence to the current study and reiterates the importance of education in general.

The results of this study were shared with the various stakeholders in the community including a local resource center that also performed a needs assessment (n = 202), with a different focus but with similar findings regarding health care. Their demographics included female 63.5%, Caucasian 75%, and high school graduate 31% these were similar to our study (female 65 %, Caucasian 82 %, and high school graduate 33 %). The number one concern in their study was health care followed by employment and housing concerns. The top concerns regarding health care included, in descending order of importance, preventive care, emergency access, and payment assistance (L.Call, Executive Director, Mountain Communities Family Resource Center, personal communication November 13, 2021). This again helps to validate our findings.

Since the end of this study and its presentation to the community, a collaborative has been re-formed. The Mountain Communities Collaborative was initially formed in 1999 by a local resource center. It began with governmental funding and community partnerships headed by the local school district. At the end of a grant and the beginning of COVID shortly after, the collaborative took a hiatus. It reformed in the spring of 2021. The collaborative includes stakeholders (up to 80 participants) from the community—educational, religious, business, and health care providers. There is local, state, and national political representation. The collaborative has proceeded to institute various interventions including (a) nutrition and preventive health workshops, (b) community exercise programs, (c) developing referral networks including behavioral health, and (d) various family community events.

Many events that were initially conceived as one-time programs were successful enough to seek funding to make them an annual occurrence. For example, through an annual grant from Kern Family Health Care, a local managed care insurance plan, a nutrition workshop was provided and paired with a fresh fruit and vegetable distribution. The Mountain Communities Family Resource Center spearheaded the event and wrote the grant, but collaborative partners stepped in to provide nutrition education. Through a small food pantry grant, from the local bank, they were able to purchase fresh produce which the local organic market provided at cost along with some donations. Funding has already been sought to continue this nutrition workshop and produce distribution, along with other workshops, as annual fall events. This is but one example how the collaborative has funded programs by piecing together grants—local, state, and national—and establishing relationships from various entities ranging from the local school district to a local managed care insurance plan to institute programs that serve the community's identified concerns. (L.Call, Executive Director, Mountain Communities Family Resource Center, personal communication March 29, 2022)

6.0 Conclusion

This paper presented a community assessment for a unique rural population in Southern California in the United States during the COVID-19 Pandemic. The importance of community development was reviewed, community concerns were identified, information was shared with the community, a collaborative was formed

with local stakeholders, and programs were instituted to begin to address the concerns of the community.

The most frequent reported community concerns included mental health, COVID-19, employment, drug–alcohol abuse, and crime. There were significant inverse associations between concerns regarding COVID-19 and concerns regarding chronic conditions—obesity, hypertension, and mental health. Even though correlation does not imply causation, it does raise the concern that these chronic conditions may not be receiving the attention they need. Positive associations between volunteerism and education, financial status, and place of residence, will help to identify those that can further help in community initiatives.

Resources to help support the community initiatives include ongoing support from local businesses, community members, and health care providers. Also, utilizing the resources of the varied collaborative members and identifying and applying for applicable grants will be instrumental in continued support. A good review article, regarding how to finance community development initiatives, can be found from the Federal Reserve Bank of St. Louis (Federal Reserve Bank of St. Louis, 2021).

A follow up study, community assessment, would help track community concerns and how well the community initiatives are addressing these community identified concerns.

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