

Strength in Numbers: The Promise of Community-Based Participatory Research in Rural Education

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Montana is a state that is ravaged by a suicide epidemic and mental health crisis, particularly among its youth. In an area in which harsh climates, geographic challenges, and distance to rural healthcare providers are significant barriers to mental healthcare accessibility, educators are faced with the acute social and emotional challenges of their students on a daily basis. This article documents the process and promise of utilizing novel and innovative community-based participatory research to support rural schools. By integrating a trauma-informed intervention in the school setting, while mobilizing local community resources, this interdisciplinary approach shows the ability to address the needs of adolescents while supporting rural educators.

Keywords: trauma, community-based participatory research, rural, adolescent, yoga

Teachers and school administrators often cite feelings of frustration and isolation resulting from high stress levels in the workplace. These stressors are often derived from an increased workload, reduced pay and autonomy, and external pressure from federal accountability measures (Von Der Embse et al., 2016). To put it simply, educators are being asked to do more and more with fewer resources, time, and support each year. In addition to teachers' own stressors, students are also exhibiting record levels of anxiety, depression, and behavioral issues as a result of increased academic stressors deriving from factors like standardized testing and shifts to remote learning due to the COVID-19 pandemic (Centers for Disease Control and Prevention, 2021; Chatterjee, 2021; Cook-Cottone, 2017; Guessom et al., 2020). As a former K-12 teacher and administrator, this author knows all too well the overwhelming expectations today's educators face; therefore, the purpose of this study is to test the feasibility and sustainability of integrating community agencies and external resources into the school system to support students' emotional well-being so that teachers have the mental space and time to focus on

teaching rather than crisis management (Noddings, 2005).

Study Context: Rural Montana

This study took place in a rural Montana community during the 2019–2020 academic year. The mental health crises for residents in the state of Montana are at epidemic levels. According to the Centers for Disease Control and Prevention (2020), the state has one of the highest suicide rates in the nation. Research indicates that from 2010–2014, 39.1% of Montana adolescents aged 12–17 sought treatment for a major depressive episode at some point during the study (Montana Department of Health and Human Services, 2015; Montana Department of Health and Human Services, 2016). Montana's suicide rate, which is nearly double that of the United States may be due to higher instances of mental illness throughout the state (Rosston, 2022). Further, the 2019 Youth Risk Behavior Survey for the county in which this study was conducted indicated that 20% of high schoolers made a concrete suicide plan, 16% attempted suicide, and 39% experienced severe depression symptoms (Montana Office of Public Instruction,

2019). Due to this mental health crisis, this community became the focus of this researcher's efforts to develop a multifaceted community-based approach to support the mental health of these adolescents.

Rural Mental Healthcare Challenges

Accessing quality mental health care can be challenging in rural America. Barriers include but are not limited to a lack of qualified providers, isolation due to geographic location, stigma associated with mental health, and severe weather conditions preventing travel to/from providers (Kaiser Family Foundation, 2016). Over 40% of Montana's population is considered rural or frontier (National Network of Libraries of Medicine, 2020). As a result, it is important to explore ways to provide opportunity and access for individuals in rural communities that will support their overall mental health and wellness. Through a school-based intervention of trauma-informed yoga (which was identified early on as a desired program by the high school involved in this study), this project was designed to help mitigate the impact of contributing factors by providing healthy coping strategies for adolescents in order to improve overall student wellness. However, this author had relocated to Montana herself in 2018 and therefore had no existing relationships with any necessary community partners for this work; therefore, the most appropriate approach to this community-identified issue was through community-based participatory research (CBPR).

Partnership Processes: Community-Based Participatory Research

Israel et al. (2003) define community-based participatory research as "focusing on social, structural, and physical environmental inequities through active involvement of community members, organizational representatives, and researchers in all aspects of the research process" (para. 1). For this project, the principal investigator (PI) focused on developing a partnership with a school system and local yoga studio within a rural Montana community; the purpose of building this partnership was to mitigate high school students' issues surrounding adverse childhood experiences or

other less severe challenges to their mental health and equilibrium.

In this framework, the community is the genesis of the study, whereby stakeholders create a shared purpose, question, and goals for the study, rather than being driven by an external researcher's agenda. This shared decision-making of the research processes and products are central to community-based participatory research (Faridi et al., 2007). By shifting the burden and responsibilities of the study from the researcher to the community, CBPR "recognizes the importance of involving members of a study population as active and equal participants, in all phases of the research project, if the research process is to be a means of facilitating change" (Holkup et al., 2004, para. 3). Change is achieved when stakeholders contribute "their expertise to enhance understanding of a given phenomenon and integrate the knowledge gained with action to benefit the community involved" (Holkup et al., 2004, para. 6).

Rurality is often situated in a deficit orientation in cited literature; it is therefore critical to acknowledge the expertise and local funds of knowledge within a community (and school district's) context whereby the researcher repositions rural community members, school faculty, and students as experts who identify community needs and solutions (Biddle & Azano, 2016; Tuck, 2009). By viewing rural communities and school systems from a strengths-based perspective, researchers unlock the expertise of local stakeholders, allowing for rigorous, interdisciplinary, collaborative research to occur, fueling place-based pedagogy (Cordova, 2017; Elfer, 2011; White, 2008).

Phase 1: Establishing Relationships

This collaboration began slowly; as mentioned earlier, the principal investigator relocated to this area of Montana in 2018, and the recent influx of people moving to Montana from other states, driving up real estate prices and changing the face of Montana as locals have known it, has led to a certain modicum of distrust of "outsiders" (Hegyi, 2019). Knowing this, the principal investigator instigated initial contact with the school district by reaching out to the high school co-principals and

requesting a meeting over lunch. Rather than launching into her research agenda, the researcher instead sought merely to get to know the principals as well as the local culture and community of the school and town. When opportunities presented themselves, she asserted her own interest in trauma-informed approaches in the education setting, having been a former teacher and school administrator herself.

While this initial meeting went well, there was a long lapse in time before contact was re-established with these administrators, as the beginning of the new academic year is always fraught with time-consuming challenges. The principal investigator “checked in” via email periodically over the following six months, and around the new year (2019), she received a phone call from one of the co-principals of the high school, who indicated that the school nurse was beginning an after-school yoga program and was interested in having a conversation about what contributions the principal investigator could make to the project. This led to a meeting with the school nurse, which resulted in the principal investigator sharing instrumentation and survey materials so the high school could measure outcomes of this after school program. The principal investigator also analyzed data from this pilot study and disseminated results back with the school district as part of her outreach, which further strengthened the fledgling relationship with the district. This ultimately led to district leadership support of the principal investigator’s National Institutes of Health (NIH) grant, which funded the study outlined in this manuscript (NIH award no. P20GM104417).

Phase 2: Gathering Community Input

To continue to grow trust within the relationship with the school district, the principal investigator felt it was important to also facilitate additional community relationships that support the school district. The principal investigator joined the local community wellness/resilience committee that focuses on suicide prevention and de-stigmatization of mental health care; this participation led to the PI receiving an invitation to join the school district’s suicide, intervention, and response to treatment committee. From these committees, a community

advisory board (CAB) was formed from various members of the school district (co-principals, district level administrator, physical education teacher, and school nurse) and community agencies (the county’s health department director and community health coordinator from the local hospital); community advisory boards are often lauded as a positive, formalized mechanism for ensuring equitable community representation in research studies (Newman et al., 2011). Missing components to this CAB include a parent and student representative as well as (at least) one of the involved yoga instructors; plans are in place to recruit these additional members for the CAB in moving forward with this project.

In September 2019, the principal investigator facilitated a focus group discussion of both male and female high school students at Park High School to gauge student interest in the project and determine best approaches to promote recruitment and retention in the project, particularly with male students. These focus groups were facilitated through the Principal Advisory lunchtime program with the high school principal and lead investigator. Based on responses to these focus groups, the collaborative decision was to hold the study during the school day during a regularly scheduled physical education class in the spring 2020 semester, rather than as a voluntary after school program. This was in response to student scheduling conflicts with athletics, extracurriculars, family and farm care, and other employment obligations. Following these focus groups, select members of the CAB gathered to discuss survey instrumentation, and school personnel indicated their desire to change instrumentation. As a result, their choices were honored and used in this study. Lastly, in the weeks before the study began, the principal investigator held informational lunch meetings with students enrolled in the identified physical education class to answer questions students had about the study.

Phase 3: Study Implementation

As the study began, the physical education teacher who allowed the research to take place in his class invited the PI to share about the project with the entire class and answer any questions the

students may have had about the process. While there were some initial groans and comments like “do we have to do the yoga?” the general consensus was positive; all but one student in the class agreed to participate (with parental consent, which was mostly obtained verbally as students did not return signed consent forms). Throughout the intervention, the PI used the framework of participant observation to engage with all participants and instructors, joining in the yoga practice each session. According to Hammer (2017), “participant observation can provide depth and context to observations and help minimize mistaken assumptions routinely made based on observations from a distance” (p. 441). While it is noted that participant observation is frequently used in cultural and anthropological research contexts (Fletcher, 2003), participant observation is gaining momentum as an accepted framework for community-based participatory research so that the research considers broader the sociocultural factors at play in community-identified issues (Horowitz, Robinson, & Seifer, 2009, as cited in Hammer et al., 2017).

Through this unique research design, a sense of community developed with all participants and the research team while further strengthening the relationships with the school and community. Members of the CAB as well as local university teacher education candidates and education graduate students involved in education initiatives were also invited to join in the sessions. By inviting community stakeholders and connecting the university with local school districts, additional connections were made, one of which has resulted in a potential job opportunity for one of the teaching candidates. The high school participants also seemed to enjoy having “visitors,” and anecdotally, the PI noted that participant engagement and focus was increased on days with additional people joining in the practice.

Unfortunately, the coronavirus pandemic truncated this study just before its conclusion. However, it presented a unique opportunity to strengthen these community and school partnerships. When schools in the state abruptly closed due to the virus, the school nurse (who became pivotal to the success of this study) provided tremendous assistance to the principal

investigator in trying to salvage any results from the study. After calls to students and parents, as well as a gift card incentive for survey completion, student post-surveys were collected remotely while students were quarantined at home. While the response rate was not 100%, 16 out of 19 participants completed the post surveys within a week of the study’s abrupt conclusion.

It is worth noting that collective trauma has a way of forging strong bonds between those who experience it (Saul, 2013). While the coronavirus crisis is still ongoing at the time of this manuscript’s creation, the sense of community and support between the PI and CAB has noticeably strengthened. Phone calls and emails communicating about preliminary study results inevitably evolved into conversations about the status of students from the study, then morphing into checking on each other’s families and loved ones. Stemming from a time of great difficulty for all involved, these community-based research relationships have blossomed into meaningful friendships and a deep feeling of trust, which will only further strengthen future collaborative projects in this community.

Outcomes of CBPR Process

Phase 1 Results: Relationships Solidified

As discussed previously, this project formed a strong community–school–university partnership. As with many CBPR studies, concerns about program sustainability are still present, especially with funding concerns. Prior to the coronavirus crisis, the physical education teacher involved in the study expressed a desire for his students to continue a once-weekly yoga practice in his class and asked the research team about this possibility. While funding did not provide additional monies for a yoga teacher beyond the study duration, the principal investigator was able to find a yoga teacher employed by the county’s health department. Under the purview of her job as a community health coordinator, that instructor volunteered to teach a yoga class once a week to the same physical education class, free of charge to the high school. Unfortunately, the mandatory school closures due to the virus made this an impossibility. At the time of this manuscript

preparation, the principal investigator was seeking ways to find remote yoga instruction available to students in the study to support them during their time in quarantine.

Phase 2 Results: Gathering Community Feedback

Because of the success of this partnership and program, the community and the school district are eager to continue this study; one administrator noted the following takeaways resulting from the study in an email communication, cited here with permission:

“We can get parent permissions and can conduct screening in the socioemotional domain.”

“We can participate in really, really cool research that can tell us meaningful things about what might improve mental health indicators for our kids.”

“The people working together on it (names redacted for confidentiality) are all really, really fine people who work together well and truly care about (name of town redacted for privacy)’s kids.”

“Yoga is cool and the trauma-informed version appears to be good for student well-being.”

“Students are likely to embrace being involved in future studies and feel they’re part of something important.”

“Other stakeholders among our staff, families and community like it.”

To further quantify the community engagement process through a validated measure, the Quantitative Community Engagement Measure (Goodman et al., 2017) was distributed to members of the community advisory board approximately six weeks after the study concluded, so as to allow for time to share preliminary data results from the study. This survey assessed quantitative measures of quality of the CBPR process (as defined by Goodman et al., 2017) and included 58 questions scored on a Likert scale from 1–5, with 1 being *never* and 5 being *always*. The survey assessed how well the researcher performed the following 11 community engagement principles:

- 1) Focus on local relevance and determinants of health;
- 2) Acknowledge the community;
- 3) Disseminate findings and knowledge gained to all partners;
- 4) Seek and use the input of community partners;
- 5) Involve a cyclical and iterative process in the pursuit of objectives;
- 6) Foster co-learning, capacity building, and co-benefit for all partners;
- 7) Build on strengths and resources within the community;
- 8) Facilitate collaborative, equitable partnerships;
- 9) Integrate and achieve a balance of all partners;
- 10) Involve all partners in the dissemination process; and
- 11) Plan for a long-term process and commitment.

The research team added an open-ended response item at the conclusion to address any areas of feedback that the other survey items did not address.

Results from this survey were compiled from six out of seven CAB members and were generally positive. Nearly every question had responses of either “always” or “most of the time” and “always” with the following exceptions:

- Focuses on cultural factors that influence health behaviors (rarely, $n = 1$; sometimes, $n=1$; most of the time, $n = 2$; always, $n = 2$)
- Gives credit to community members and others for work. (sometimes, $n = 1$; always, $n = 5$)
- Helps community members with problems of their own. (sometimes, $n = 2$; most of the time, $n = 2$; always, $n = 2$)
- Helps community members disseminate information using community publications. (sometimes, $n = 3$; most of the time, $n = 1$; always, $n = 2$)
- Asks community members for input. (sometimes, $n = 1$; always, $n = 5$)

- Changes plans as a result of community input. (sometimes, $n = 1$; most of the time, $n = 1$; always, $n = 3$)
- Asks community members for help with specific tasks. (sometimes, $n = 1$; most of the time, $n = 1$; always, $n = 4$)
- Informs the community of what happened when their ideas were tried. (sometimes, $n = 1$; most of the time, $n = 1$; always, $n = 4$)
- Helps community partners get what they need from academic partners. (sometimes, $n = 1$; most of the time, $n = 1$; always, $n = 4$)

These exceptions illuminated areas of needed improvement and refinement in the next iteration of the study and ongoing CBPR process. Kirkness and Barnhardt (2001) encourage researchers to consider the “four R’s” of respect, relevance, reciprocity, and responsibility when generating a community-based participatory research study. While the survey results indicate high relevance of the study’s importance to community-identified needs for mental health support for its adolescents and respect for community partners, improvement is indicated across the remaining two R’s. The research team has a grave responsibility to focus on the cultural factors that influence poor mental health. While the intervention was successful amongst its participants, the intervention could not address the systemic issues of poverty, health disparities related to low socioeconomic status, geographic isolation, and extensive substance abuse in this community. Further, it is of utmost importance to practice reciprocity in the CBPR process; more attention must be given by the researcher to ask what the school and community needs from the university—not the other way around—and request more involvement from CAB members and students with the next cycle of study design and implementation. The lack of student involvement in the CBPR process of this study is perhaps the most glaring oversight that must be corrected. Research indicates that adolescents, especially those that have been traumatized, lack a sense of agency and control over their lives (van der Kolk, 2014). By not involving participants beyond more than inviting their involvement in focus groups, the cycle of overlooking our already disenfranchised

youth continues. This omission will be top priority to rectify in the second iteration of this study.

Despite the shortcomings identified in the survey measure, the qualitative feedback provided by two respondents at the conclusion of the study were still positive: “At this time I have no feedback for improvement. The project was well run.” Another respondent noted:

Having worked alongside the team at [this university] for this study, I must say that the study was conducted in a first-class manner. The scientific process was strictly adhered to and the integrity of the project was at the highest level. I would gladly work with this team again in the future.

As mentioned earlier in this paper, additional stakeholders (that is, a student or multiple students) and community members need to be included in the CAB in the next iteration of this study to gather more feedback. While it is clear that there is room for improvement in actively involving community stakeholders in the process and implementation and in being responsive to cultural factors within the community, the research team feels that the overall CBPR process for a pilot study was an effective and successful one in its initial year.

Phase 3: Gathering Participant Feedback

In an informal survey of study participants, feedback was gathered to ascertain program strengths and challenges as well as gather qualitative feedback. Despite outwardly expressed disinterest in the yoga sessions during class, as identified by sighs, rolling eyes, and sometimes negative comments, anonymous and confidential feedback was overwhelmingly positive from students. Below a table provides random student responses from this survey.

As an aside, the author of this study found it interesting that the majority of the students preferred meditation over the physical practice, especially given that this intervention took place in a strength training class; this result indicates that students found that practice to be more beneficial and deserves to be given more attention and time in future iterations of this study.

Table 1
Sample Student Responses

Question	Sample Responses
How did the yoga classes make you feel emotionally and mentally (feelings, stress, anxiety, etc.)?	<ul style="list-style-type: none"> - "It made me feel good like even if I messed up it was okay and made me relax more." - "It was very good help me take a break during stressful school hours did calm me down." - "It was almost like having a morning cup of coffee but in the middle of the day and WAY healthier." - "They made me feel way more relaxed in school than I've been in the past."
How did the yoga classes make you feel physically (in your body)?	<ul style="list-style-type: none"> - "Definitely helped with flexibility, strength and recovery with injuries/muscle soreness" - "I made my muscles sore but it was nice using muscles that i (<i>sic</i>) would have not thought of using before." - "Relaxed and happy" - "Sore at first but after loose"
Do you think the yoga classes impacted your work at school? If so, how?	<ul style="list-style-type: none"> - "Allowed me to preform (<i>sic</i>) better on some test in the upcoming school day" - "I do believe that it helped me in school and not be so stressed out. It has made me pay more attention in classes." - "Yes. I was more focused." - "Yes because it makes me relaxed and focus better."
Do you think the yoga classes impacted your life outside of school? If so, how?	<ul style="list-style-type: none"> - "With sports and other physical activities I was able to preform (<i>sic</i>) better" - "I believe it has made me a happier person over all (<i>sic</i>)." - "It cleared some head space for sure." - "Yes it makes me feel good about myself."

Question	Sample Responses
What aspect(s) of the yoga classes did you enjoy the most — yoga poses or meditation at the end of the sessions (when you were lying down)?	Meditation: 71% Yoga Poses: 29%
Are there any tools or practices from this experience you feel that will be useful for your life moving forward?	<ul style="list-style-type: none"> - “Yeah, learning to breath (<i>sic</i>) and relax then try something new” - “allowed me to go into my mind in certian (<i>sic</i>) stressful negative situations” - “I believe that these practices will help me out in the marine keeping my breathing proper and keeping my body relaxed after stressful events.” - “Breathing, I tend to forget”
How could the classes have been better?	<ul style="list-style-type: none"> - “Better time management and more time to get comfortable with certain poses. Also, less disruptions from students.” - “Could’ve been longer” - “More challenging and more spaced out” - “More music”
Would you like to continue a yoga practice in your future?	<p>Yes: 35%;</p> <p>Maybe: 59%;</p> <p>No: 6%</p>
Please share anything else you'd like us to know about your experiences in this study.	<ul style="list-style-type: none"> - “I really enjoyed all [the] positivity in the class. Thanks to all the teachers and instructors.” - “I would like to find out more routines and practices also would like to know how or what to use on my back as mentioned in class would like more information.” - “Everyone should do yoga” - “had a good time although wish some of the other students would've taken advantage of the opportunity or let others enjoy instead of taking from the overall experience”

Some students noted that they did not like writing in their reflective journals at the conclusion of each session, and others shared that they did not feel any change or difference resulting from the practice, citing that they wanted more of a physical challenge. There were also a handful of students, varying in each class, who were disengaged intermittently and caused distractions and disruptions in the practices, which were frustrating to other participants (as noted in the above table). Two students indicated physical discomfort in the back and wrist during the intervention, and these students were referred to the physical education teacher; students were offered breaks, modified poses, or to abstain from the practice if they were too uncomfortable. However, other than these outlying comments, students appeared to have genuinely enjoyed and received benefits from this intervention. Mental health and other secondary outcomes were also tremendously positive and promising for potential school-based interventions, but these findings are not the focus of this manuscript.

Conclusions and Implications for Educational Research

Community-based participatory research is common in fields of public health, social sciences, and organizational sciences (Holkup et al., 2004), but rarely is CBPR instigated by educational researchers for implementation within the K-12 setting. More commonly, educational CBPR is conducted by those outside of the field of education, such as sociologists or psychologists studying an intervention in a school setting. As the author of this study is a former K-12 educator and administrator, she feels it is of utmost importance to engage all stakeholders and appropriate community agencies to create a multidisciplinary approach of mitigating adverse childhood experiences; this stance is also supported by best practices in the medical and psychological fields of childhood trauma (Burke-Harris, 2018; van der Kolk, 2014). This study sought to begin this type of multidisciplinary approach in a small rural town ravaged by a suicide epidemic and mental health crisis, especially amongst its most vulnerable demographic of adolescents.

Many barriers had to be overcome to bring this pilot study to fruition: initial relationships with a school district and newly relocated researcher had to be forged; trust and credibility had to be obtained through an iterative process of volunteerism, input-gathering, and providing feedback by the primary researcher; student and faculty buy-in had to be earned through focus groups and multiple planning meetings; and the flame of a virus billowed to a wildfire pandemic during the intervention, ultimately ending the study prematurely. However, through these obstacles and study limitations, true partnerships were formed between community health and wellness agencies, the school district, and the local university with whom the PI is employed. The fledgling successes of this study are indicative of the need and great potential for further CBPR-focused interventions in K-12 education—particularly those tied to mental well-being and holistic educational approaches. As the old African proverb asserts, “it takes a village to raise a child,” communities must rally around schools and children to bolster positive youth development with supportive networks of caring adults.

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