Identifying Community Physical Activity and Health Resources by Utilizing Members of a Physical Activity Network

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BMC Public Health  BMC Series

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DOI:
10.21203/rs.3.rs-15672/v1

SUBJECT AREAS
Health Policy

KEYWORDS
physical activity, capacity building, rural health, collaborative research
Abstract
Background: Back pain is one of the leading causes of health care expenditure in the US and is linked to an increased body mass index. Many evidence-based modalities for the prevention and treatment of back pain closely mirror recommendations for weight loss and include physical activity and health maintenance activities (PAHM). Collaboration was sought with the West Virginia Physical Activity Network (WVPAN) leadership to ascertain community assets, and perceptions of the use of PAHM in the treatment of back pain by WVPAN members.

Methods: Participants for the study were recruited from the West Virginia Physical Activity Network. This grassroots organization is filled with volunteers from various sectors who have either signed up via email or liked the WVPAN Facebook page. This network was purposely selected as the study population because of the statewide reach and their familiarity with resources in their local communities. A brief survey instrument was designed to gather their scaled perceptions about various treatment modalities related to back pain, and to gather their local knowledge related to specific providers in their communities. In addition, participants were given a free text box to list any local assets or resources for the nine treatments listed, and county of residence, and the nature of their connection to the physical activity network. Descriptive analyses were used to describe overall patterns of survey data. The qualitative data were compiled manually by the research team to show themes of specific treatments mentioned across different parts of the state.

Results: Participants overwhelmingly supported physical therapy, flexibility training, yoga, and core strengthening as treatments for back pain. The majority of respondents were “undecided” about other treatments such as cognitive behavioral therapies and acupuncture.

Conclusions: The implementation of PAHM interventions in communities could help treat patients with back pain, and may reduce reliance on the pharmacological treatment for back pain. The current study’s data support the feasibility of such approaches in many West Virginia counties. Also, local resources, needs, and context can be gleaned from community leader surveys utilizing previously developed infrastructure for PAHM promotion. Key Words: physical activity, capacity building, rural health, collaborative research
Background

Back pain is one of the leading causes of health care expenditure in the US and is linked to an increased body mass index (BMI).\textsuperscript{1} The prevalence of obesity is increasing in the nation (Centers for Disease Control [CDC], 2018).\textsuperscript{2} Many evidence-based modalities for the treatment of back pain closely mirror recommendations for weight loss.\textsuperscript{3} These recommendations include physical activity and health maintenance activities (PAHM). In addition to helping people be more active, health maintenance activities are linked to preservation of health. Paradoxically, the implementation of PAHM interventions has been problematic nationwide in spite of the strong evidence in favor of such interventions.\textsuperscript{4, 5, 6} Barriers to implementation noted by these researchers include location, lack of time, lack of motivation, inconvenience, and lack of support. Systematic studies regarding the viability and implementation of such interventions in high risk communities are warranted.

There is a growing body of evidence that community based efforts are effective in promoting physical activity.\textsuperscript{7, 8, 9} Programs that include personal contact and are tailored to the specific characteristics of the community have proven to be most effective.\textsuperscript{10} These interventions take on additional importance in rural environments where social and cultural factors may affect sustainability. Fortunately, many individuals and groups are passionate about improving physical activity and healthy lifestyles in their local communities. In West Virginia, one such organization is the West Virginia Physical Activity Network (WVPAN). The WVPAN aims to increase physical activity by assisting communities to create a culture of a physical activity.\textsuperscript{11} Members of the network serve as “community leaders” to promote and assist in local efforts to improve health through physical activity. The interventions within WVPAN consist of many options including walking groups and biking clubs along with competitive running (e.g., trail races, community 5k).

For the current project, collaboration was sought with WVPAN leadership (SZ) to ascertain the assets, needs, and context of the use of PAHM in the treatment of back pain by WVPAN members as community leaders. This is the first step in planned implementation of evidence-based interventions to promote physical activity as recommended by Rabin and colleagues.\textsuperscript{12} This pilot study is meant to
inform trial interventions at primary care facilities in several counties where viable and available PAHM resources were identified through an additional partnership, with the Practice Based Research Network (PBRN). Thus, the primary purpose of the study was descriptive in nature, specifically to inform future intervention work in communities.

Methods

Sampling and Recruitment

Participants for the study were recruited from the West Virginia Physical Activity Network (WVPAN). This grassroots organization is filled with volunteers from various sectors (e.g., education, business, healthcare, and fitness) who have either signed up via email or liked the WVPAN Facebook page. Members of the organization come from all areas of the state, and there is a mix of both professionals and community lay leaders. Communications that go out to the WVPAN are managed by the Center for ActiveWV within the College of Physical Activity and Sport Sciences at West Virginia University. The network was purposely selected as the study population because of the statewide reach and their familiarity with resources in their local communities.

Survey Instrument

The brief survey instrument was designed to gather their scaled perceptions about various treatment modalities related to back pain, and to gather their local knowledge related to specific providers in their communities. For the scaled items, the members were asked to indicate their agreement or disagreement using a five-point Likert type scale with nine PAHM treatments for back pain. The scale varied from “Strongly Disagree” (1) to “Strongly Agree” (5). These modalities included physical therapy, chiropractic care, aerobic exercise, flexibility training, massage, acupuncture, yoga/pilates/tai-chi, medication use (i.e., NSAIDs), and cognitive behavioral therapies. A free text box was included after the scaled items asking participants to list any local assets or resources for the nine treatments listed. County of residence and the nature of their connection to the physical activity network (e.g., healthcare provider, fitness provider, government organization, educator, etc.) were also collected.

Procedures
After Institutional Review Board approval, an online survey was emailed to 1,248 members of the WVPAN using the online survey system, REDCap. REDCap is a secure web-based application utilized by West Virginia University. A week later, a reminder email was sent to members who had not responded to the survey. Additionally, a live link to the questionnaire was also posted on the WVPAN member Facebook page. Participants indicated their consent to participant by checking a box that would then open the survey. All returned questionnaires were received anonymously through the REDCap application.

Statistical Analyses
Since the primary purpose of the study was exploratory, descriptive analyses were used to describe overall patterns of results for the scaled data. These quantitative analyses were conducted within the REDCap program. For the open text responses, the most common responses were compiled manually by the research team to show themes of specific treatments mentioned across different parts of the state.

Results
After two email reminders, 145 responses to the email survey were received covering 41 of the 55 (73%) counties in WV, resulting in an 11.6% response rate. The most responses were from two of the higher populated areas of West Virginia, Kanawha (16%) and Monongalia counties (17%). Five respondents who completed a survey did not indicate their county of residence. The number of responses by county are illustrated in Figure 1.

*Fig. 1. Survey responses by county*

Approximately 75% of respondents were associated with the WVPAN in a formal role through their work as an educator, government employee, fitness instructor, or healthcare provider. The greatest number of respondents indicated their affiliation with the WVPAN was as an educator (43%). Seven respondents did not indicate their affiliation. The details of the member’s connection to the WVPAN are presented in Table 1.

Table 1.

Table 2
Members of the WVPAN overwhelmingly agreed that physical therapy is important for back pain with 93% indicating they agreed or strongly agreed with this statement. Other physical activities such as flexibility training and core strengthening were also highly supported at 95%. The majority of respondents were “undecided” about other treatments such as cognitive behavioral therapies and acupuncture. Details of survey responses are represented in Table 2.

Fig. 2. Write in resources for back pain treatment by county

The WVPAN members were asked to identify local resources or assets for PAHM treatments for back pain that they felt might be of interest to patients or health care providers. Free-text answers included dance, swimming, stress reduction, and general wellness. The volume of write-in resources by county are represented in Figure 2.

The most referenced resource was yoga, which was well represented across the state in 15 counties. Counties where yoga was referenced as a resource for treating low back pain are indicated in Figure 3.

Fig. 3. Yoga resources from write in comments from WVPAN members

Discussion
West Virginia leads the nation in rates of adult with obesity as well as obesity-related chronic diseases such as diabetes and hypertension. Another, non-silent complication of obesity is back pain, which has a social and economic significance in its own right. The implementation of PAHM interventions in communities could help treat patients with back pain, and may reduce reliance on the pharmacological treatment for back pain. The current study’s data support the feasibility of such approaches in many West Virginia counties.

Within the Consolidated Framework for Implementation Research Constructs, the nature and quality of formal and informal networks, basic assumptions, attitudes, and shared perception of importance amongst stakeholders, as well as available resources must be assessed and accounted for. In addition, “overcoming indifference or resistance” amongst “champions,” or community leaders, is a key component of an implementation intervention. In this study, we sought to assess community
needs, assets, and context for the utilization of PAHM for treatment of back pain.

Previous work by our group has demonstrated an openness amongst patients with back pain in a subspecialist clinical setting to discuss PAHM and other weight loss strategies as a way to aid in the treatment of back pain, but that implementation of PAHM is challenging without specific regional knowledge of local PAHM resources. This survey of WVPAN community leaders gives an overview of possible PAHM resources throughout the state while also assessing attitudes towards PAHM for the treatment in back pain amongst this group of stakeholders. Importantly, PAHM resources appear to be available throughout the state, although possibly not in every county. The survey also assesses the potential buy-in of future implementation interventions by community leaders, whom seem to strongly support PAHM methods as a treatment for back pain. In particular, physical therapy, yoga and flexibility training, and aerobic exercise were felt to be of benefit. These modalities may be areas of particular interest for further study.

Limitations of this study include bias as a result of its survey methodology, as well as response rate. Because community leaders with an established interest in PAHM were surveyed, it is not known if buy-in would be similar amongst others in a rural West Virginia community. Survey respondents with strong feelings regarding PAHM may have been more likely to follow through with the survey, which may have biased results towards more favorable perception of PAHM. This bias is likely magnified by the low response rate of 11.6%, which nevertheless may be somewhat mitigated by the sample size. However, in future work in these communities, this bias towards the implementation of PAHM may benefit researchers and clinicians as participant buy-in could already by established, allowing a vehicle for intervention.

Conclusion
Local resources, needs, and context can be gleaned from community leader surveys utilizing previously developed infrastructure for PAHM promotion. This data will be further utilized for the construction of clinical trials regarding utilization of PAHM in rural West Virginia community settings.

Abbreviations
BMI- body mass index
PAHM - physical activity and health maintenance activities

WVPAN - West Virginia Physical Activity Network

Declarations

Ethics approval and consent to participate: This study was approved by the West Virginia IRB protocol # 1711849628

Consent for publication: Not Applicable

Availability of data and materials: All data generated or analyzed during this study are included in this published article

Competing interests: The authors declare that they have no competing interests

Funding: Research reported in this publication was supported by the National Institute of General Medical Sciences of the National Institutes of Health under Award Number 5U54GM104942-03. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Support was provided for the survey collection and analysis through providing and maintenance of the REDCap application. ¹³

Authors' contributions: All authors, CS, TH, SZ, and PD read and approved the final manuscript and contributed equally to the data collection and analysis.

Maps created with the permission of mapchart.net.

Acknowledgements: The authors would like to thank Kelsey Kinnamon and Angela Hutchinson for their assistance with sampling and data collection through the WV Physical Activity Network.

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Tables

| Affiliation                     | Percent of respondents |
|--------------------------------|------------------------|
| Educator                       | 43%                    |
| Fitness enthusiast              | 24%                    |
| Belongs to a government agency  | 17%                    |
| Healthcare provider            | 7%                     |
| Own a health related business  | 5%                     |
| Fitness instructor             | 4%                     |

N=138
Table 2. Responses to survey questions about PAHM and back pain *

| Survey question                                                                 | Agree/strongly agree | Undecided | Disagree/strongly disagree |
|--------------------------------------------------------------------------------|----------------------|-----------|---------------------------|
| Flexibility training is important in the treatment of back pain (N=141)        | 96%                  | 3%        |                           |
| Aerobic exercise and core strengthening are important in the treatment of back pain (N=145) | 95%                  | 3%        |                           |
| Physical therapy is important for the treatment of back pain (N=145)           | 93%                  | 5%        |                           |
| Massage is important in the treatment of back pain (N=145)                     | 81%                  | 15%       |                           |
| Yoga/Pilates/Tai Chi are important in the treatment of back pain (N=145)       | 71%                  | 26%       |                           |
| Chiropractic care/ spinal manipulation is important in the treatment of back pain (N=144) | 66%                  | 26%       |                           |
| NSAIDS are important in the treatment of back pain (N=141)                    | 52%                  | 37%       |                           |
| Cognitive/Behavioral therapies are important in the treatment of back pain (N=142) | 46%                  | 48%       |                           |
| Acupuncture is important in the treatment of back pain (N=145)                 | 38%                  | 54%       |                           |

*rounded to whole number

Figures
Figure 1

Responses by county 6 and over responses 3-5 responses 1-2 responses No response

Survey responses by county
Figure 2

11+ responses 5-10 responses 1-4 responses No write in resources Write in resources for back pain treatment by county
Figure 3
Yoga resources from WVPAN members
Yoga resources from write in comments from WVPAN members