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Strategies for recruiting adolescents in rural areas in firearm injury research

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Abstract

Background—Participant recruitment is a central aspect of human sciences research. Barriers to participant recruitment can be categorised into participant, recruiter and institutional factors. Firearm injury research poses unique barriers to recruitment. This is especially true for rural adolescents, who are at high risk for firearm-related injury and death, and whose voice is often absent in firearms research. In particular, recruitment strategies targeting adolescents should align with developmental changes occurring during this life stage. Identifying strategies to address recruitment barriers tailored to firearm-related research can help future researchers engage rural adolescents in injury prevention efforts.

Purpose—The purpose of the current methodology paper is to outline barriers and provide strategies for recruiting rural adolescents in firearms research informed by the Youth Experiences

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Ethics approval The study was reviewed and approved by the Washington State University Institutional Review Board and a tribal research permit was obtained for data collected on a Native American reservation. Parental consent and adolescent asset was obtained for adolescents between 13 and 17 years old. Adolescent consent was obtained for adolescents aged 18 years old. All methods were performed in accordance with the ethical standards as laid down in the Declaration of Helsinki and its later amendments or comparable ethical standards.

in Rural Washington: Research on Firearm Safety project, a mixed-methods, community-based participatory research study of 13–18 year-olds residing in rural Washington.

Strategies—Recruitment barriers and related strategies were organised by participant-related and recruiter-related/institutional-related factors. While carrying out the study, key considerations or strategies which addressed multiple participant and recruiter/institutional factors, emerged with potential to enhance firearm-related research with rural adolescents more broadly. Key considerations included logistics (ie, scheduling flexibility, adequate and aligned incentives), use of a community-based participatory research approach and accounting for developmental stage.

Conclusion—Reducing the burden of firearm injury and death for rural adolescents and developing effective interventions requires understanding and navigating recruitment barriers. Strategies used in the current project can guide future qualitative or mixed methods data collection informing firearm injury prevention.

INTRODUCTION

Recruitment is a central aspect of human sciences research and data collection and includes the process of identifying, consenting and enrolling individuals in research.[1] Much of the guidance related to recruitment focuses on sampling approaches (eg, random sampling) rather than the process of recruitment, despite it being a critical step in research methodology.[2] As a field, firearm injury prevention poses unique barriers to research. A historical lack of federal funding for firearm research means it has been one of the least studied causes of death.[3] In addition to delays in outcomes research, conceptual and empirical work on the process of conducting firearms research, including methodological advances, has lagged. This is important as firearms can be a sensitive and often contentious topic requiring thoughtful consideration to effectively reach the target audience. In particular, rural adolescents are at high risk for firearm-involved injury and death[4 5] but have historically been understudied.[6] Given the impact of firearms on adolescents in the USA, it is more important than ever to engage this population in research to better understand risk factors for injury and inform prevention and intervention efforts. The current methodological paper reviews barriers to recruitment, including those specific to rural adolescents and firearms research, and offers strategies used in the Youth Experiences in Rural Washington: Research on Firearm Safety project to address these barriers.

Recruitment barriers

Recruitment has been referred to as a relational process ‘contingent on the decisions of a number of actors, including the researcher, and on the dynamic relationships between these actors over time’.7 Barriers to recruitment have previously been categorised by these ‘actors’, or separated into participant-related (eg, personal interest in topic, mistrust), recruiter-related (eg, relationship with participant, credibility) and institutional-related (eg, facilities, personnel capacity) factors.8–13 Given the importance of the researcher and target audience, barriers to research recruitment are often multifaceted and focus on the intersection of characteristics such as the target sample demographics (eg, adolescents), study context (eg, rural, community-based) and sensitivity of topic (eg, firearms).

Engaging adolescents requires thoughtful consideration of developmental stage and associated impacts on recruitment and data collection—a topic generally missing in the recruitment literature.[14] Adolescence is a salient life stage marked by biological, emotional and cognitive changes including a desire for increased autonomy, decision-making and belonging.[15] This period of rapid growth means early adolescents (ie, 11–14 year-olds) often have differing decision-making, critical thinking and reasoning capacities than middle (ie, 15–17 year-olds) or late adolescents (ie, 18–20 year-olds). When these developmental factors are not considered in recruitment, assent/consent and data collection, they may pose barriers to participation in research.

In addition to developmental factors, adolescent participants are often harder to recruit due to the need to obtain both parental consent and adolescent assent.[16] Parents of rural adolescents may be mistrustful of outsiders who are perceived as disconnected from what are often tight-knit rural communities with shared values, especially around potentially sensitive topics, such as firearms.[14 17] Rural adolescents may be particularly hard to recruit due to fewer families within a given community.[7 10] Lower population density means there is less privacy, increasing concerns about confidentiality. Rural adolescents may know, or even be related to, peers in a focus group and feel less comfortable disclosing personal information.[18]

Available literature on recruitment for firearms research has focused on clinical, urban settings, leveraging systems of care (eg, large hospital system, Level 1 trauma centre).[9] With larger patient volume, research participants are potentially easier to access. However, such systems are less common in rural areas. Barriers in these settings include limited personnel capacity to recruit participants who enter the healthcare system at all hours of the day and difficulty tracking eligible participants as they received treatment and were discharged. Fewer firearm injury prevention research efforts have focused on community-based, rural settings despite the greater burden compared with urban areas.[6 19]

RESEARCH CONTEXT

The Youth Experiences in Rural Washington: Research on Firearm Safety project aimed to recruit rural adolescents to better understand the cultural context of firearms in rural settings and inform firearm injury prevention efforts. Using a mixed-methods design, data collection and planning took place from 2020 to 2022 and included administration of a survey followed by semi-structured focus groups or interviews. The sample included adolescents aged 13–18 years old residing in rural Washington state and enrolled in a county or reservation Extension 4-H youth development programme.

The project timeline included Year One as a planning year to prepare for recruitment and data collection in Year Two. The project used a community-based participatory research (CBPR) approach partnering with the Washington State University Extension system, a network of county-based and tribal-based offices, personnel and programmes reaching individuals and families within the community in which they live. Extension faculty and staff were engaged throughout the research process from planning and data collection through analysis and dissemination. In Year One, project staff and Extension partners

collaboratively 'laid the groundwork', as Negrin *et al* recommended, by determining inclusion criteria, obtaining Institutional Review Board and reservation research permit approval and developing a recruitment plan.[20] The recruitment plan outlined anticipated barriers and identified strategies for addressing them. Barriers and strategies were informed by previous literature and refined based on conversations with project staff, Extension partners, parents and adolescents. In Year Two, the team identified emerging barriers and in response, changed or added strategies in real time.

Patient and public involvement

In the Youth Experiences in Rural Washington: Research on Firearm Safety project, adolescent participants, their parents or guardians, and Extension personnel were involved in the refining the data collection protocols and recruitment materials.

RECRUITMENT BARRIERS AND STRATEGIES FOR FIREARMS RESEARCH WITH RURAL ADOLESCENTS

Table 1 describes barriers to participant recruitment and strategies to address them in the current project. Drawing on categories present in existing recruitment literature, barriers were organised by participant and recruiter/institutional factors.

Participant-related factors

Barriers related to participant characteristics included concerns of confidentiality, misalignment with developmental stage, mistrust of the research process and transportation. Some adolescents and/or their parents expressed a preference for engaging in an individual interview rather than a focus group. In response, we adjusted the format to offer in-person focus groups as well as virtual focus groups and individual interviews. Not only did this address confidentiality concerns but also better met the adolescents' preferred format for sharing. As mentioned previously, developmental stage was a factor not often addressed in the literature. We created developmentally appropriate recruitment materials (eg, advertisements) and consent forms and provided financial compensation in the form of a gift card. For example, in our social media advertisement, we included the incentive ("Do you want a $25 Amazon gift card?") and the desire to hear the voice of adolescents by saying "WE WANT TO HEAR FROM YOU! WSU Extension invites you to join us for a Zoom focus group discussion with other teens or individual interview to share your experiences and opinion on firearms in rural communities." We leveraged personal connections adolescents had with 4-H leaders as an additional motivator for participating in research and engaged adolescents in planning for data collection and recruitment. In rural areas and among historically minoritised individuals, historical mistrust and exploitation by researchers, academic institutions and even funders can serve as a barrier.[8 10 21 22] Our strategy employed a CBPR process to engage community members, adolescents and parents in developing data collection protocols, identifying specific language used and piloting measures and processes. Finally, transportation is a consistent barrier in rural communities which often lack public transportation.[10 21 22] Adolescents can have full calendars between school, extracurricular activities, work and home obligations, making scheduling data collection challenging, especially when long-travel times are required. In

addition to collecting data online via Zoom, we provided a $15 fuel gift card to compensate participants for travel time and held focus groups during downtime at existing events (eg, Shooting Sports tournament) to leverage adolescents already being in one location.

Recruiter-related/institutional-related factors

Recruiter-related and institutional-related barriers included institutional structure, personnel characteristics and access to or ability to reach the study population. Institutional factors such as systems, policies and structure can serve as barriers to recruitment depending on available personnel and formal or informal relationships with other partners, providers etc.[12] The CBPR approach engaged Extension and 4-H youth development programmes which have a statewide presence and close partnerships with community-based organisations in rural areas. To ensure personnel had sufficient time allotted, project staff, including community-based Extension personnel, had a portion of their salary and effort paid for with project funds. Personnel characteristics can serve as barriers, such as lack of understanding of project, credibility and difficult or non-welcoming personality.[12] Strategies used to address this barrier included engaging Extension and 4-H Youth Development personnel with expertise in youth development and approaches to effectively engage youth, local credibility and, at times, personal relationships, as well as personal engagement with firearms. This resulted in personnel being viewed as ‘insiders’ among adolescents, their parents and in rural communities. Finally, access is needed to ensure the ability to reach the intended population. Engaging Extension and 4-H Youth Development meant we had access to online enrollment data including contact information for adolescents and parents. Recruitment intentionally leveraged connections between 4-H personnel and families. Instead of sending a mass email from a campus-based researcher, adolescents and parents were contacted via email, phone, 4-H social media and word of mouth by 4-H personnel. The contact list was used to verify enrollment and for targeted outreach by geographic region, race and or gender. To increase recruitment, we advertised through state and county Extension and 4-H Youth Development social media accounts (ie, Facebook, Instagram).

Key considerations for firearms research

While carrying out the study, several strategies emerged addressing multiple participant and recruiter/institutional factors with potential to enhance firearms research with rural adolescents more broadly. These key considerations are grouped into logistics, use of a CBPR approach and accounting for developmental stage.

Logistics-focused strategies—Logistics-focused strategies included (a) allowing for flexibility to address emerging barriers, mainly in format and scheduling of data collection to best meet potential participants’ needs and preferences and (b) providing financial incentives for participation and to account for transportation costs in a way that aligned with sample preferences.

In response to community input, the research team allowed for greater flexibility in format and scheduling during Year Two while recruitment was underway. The project originally proposed in-person focus groups but to allow for greater participation, we also conducted virtual focus groups and individual interviews via Zoom. This accommodated flexible

scheduling and transportation while also matching the format to the participant's comfort level and/or personality. For example, within the consent process some parents suggested their adolescent would be more forthcoming with their experiences about firearms in an interview format. Allowing for flexibility in matching preferred format is important when discussing sensitive topics with participants who want to 'get a feel' for the researcher by being able to see visual cues and hear verbal communications, reinforcing a safe and non-judgmental environment.[23]

Financial incentives included a $25 gift card to Amazon, Wal-Mart or a preferred local retailer (eg, sporting goods store) selected by the Extension personnel. This amount was decided, in part, on state minimum wage and project staff discussions of appropriate compensation. It was determined this amount would not only financially cover the time spent in a focus group or interview but also would be appealing enough to incentivise participation. Participants attending an event in-person also received a $15 fuel gift card. Although not all participants were old enough to legally drive, they identified ways to spend the gift card, for example, on fuel for a boat or ATV. This dollar amount was decided based on the anticipated distance a participant would need to travel for in-person data collection and fuel cost. Appropriate compensation, although not specific to firearms research, is important to incentivising adolescents.

Use of a CPBR approach—A CPBR approach was used to engage local collaborators with access to the intended population, outside experts and consultants, and adolescents and their parents. This entailed developing relationships with partners, adolescents, parents and experts in the planning year, prior to recruitment and data collection, to assess acceptability and feasibility and conduct an iterative process of developing a recruitment and data collection plan.

The first year of the project was focused on identifying partners; developing a recruitment plan; reaching out to the intended sample to pilot wording, consent forms, survey questions and qualitative protocol; and tailoring the data collection process. This was an iterative process of feedback and revision in partnership with Extension personnel to increase acceptability and subsequent recruitment. In addition, we sought out key experts including a former 4-H Youth Development participant (now a young adult) who served as a consultant as well as a multi-disciplinary advisory board to provide guidance and feedback. The research team anticipated some adolescents or guardians would not consent to participate, and this did occur. However, the planning year served to increase acceptability, buy-in and engagement in the project.

Using the institutional structure of Extension's state-local partnership and personnel with expertise in youth development and firearms facilitated access to the intended population, mini-mised mistrust and increased credibility. The close connection between Extension and 4-H youth development personnel and community members was especially important as study planning occurred when state COVID-19 mandates were in place which required COVID-19 vaccination for 4-H youth development employees and volunteers—a requirement opposed by many community members.[24 25] Researchers without access to the institutional structure provided by a land-grant institution or Extension will need

additional time prior to the planning year to identify community partners and build trusted relationships. Following principles of community engagement, researchers must first clearly define the purpose of engagement and who the audience is and learn about the community and existing, related efforts prior to establishing relationships with local leaders.[26]

Finally, the use of a CPBR approach aligned with the literature on barriers to recruitment for historically marginalised individuals which deems CPBR 'critical to success of recruitment for minority groups'.[8 27 28] CPBR involved Extension and 4-H youth development personnel with long-term ties to the community and expertise in firearms who were effective at engaging adolescents and their families. One Extension personnel was an enrolled tribal member on the reservation where they facilitated an in-person focus group. Existing evidence presents mixed findings related to the importance of using culturally adapted materials and matching the facilitator race/ethnicity with participants', stating 'racial/ethnic matching of project staff and prospective participants may not be sufficient to ensure recruitment success; recruiter experience and community ties are also important attributes'.[8] Using 4-H enrollment demographic and contact data, we recruited with targeted emails and phone calls from an Extension office to adolescents who met inclusion criteria and who identified as non-White to increase recruitment through personal contact.

Accounting for developmental stage—Due to the limited prior research aligning recruitment strategies with developmental stage within the context of firearm injury prevention, we address relevant considerations and implications for recruiting adolescents in firearm research. Although recruitment strategies addressing developmental stage were predominantly within the participant-related domain, they were a consideration for all strategies, from tailoring research assent forms to specific age groups (ie, 11–14 year-olds, 15–17 year-olds and 18 year-olds), to branding the project with a distinct logo, and using adolescent's preferred firearm terminology. When conducting qualitative research with adolescents, it is important to have trained recruitment personnel who have experience engaging adolescents effectively to identify and navigate verbal and non-verbal expressions of discomfort. Adolescents are especially attuned to the social environment which requires proactive management of topics which may be potentially embarrassing, or flexibility in data collection format (ie, individual interview).[14] Developmentally affirming practices, or approaches that leverage an adolescent's developmental stage to contribute to research, were used including engaging adolescents in the research process (ie, CBPR), engaging a former 4-H Youth Development participant in an advisory role and tailoring recruitment approaches to match interest and opportunity to contribute. Such practices serve to garner interest and connection to the research while also providing an avenue for adolescents to share their voice and contribute, especially related to potentially controversial topics.

CONCLUSION

Research engaging adolescents is critical to understanding and reversing the sharp increase in firearm-related injury and death among this age group.[29] In particular, rural settings have received less attention and, as a result, there have been calls to better understand firearm-related behaviours among rural adolescents.[6] Community-based interventions play a vital role and should be tailored to the context in which adolescents live. To do so,

we need to hear their voices. Prior research on barriers to recruitment has identified the need for greater detail on recruitment processes and related strategies through 'clear and comprehensive reporting' in research.[12] Informed by research on barriers to recruitment, the current study outlined strategies for addressing barriers to recruiting rural adolescents in firearms research. In addition to general strategies, the approaches used in this project can guide future efforts in data collection on firearms with rural adolescent participants.

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WHAT IS ALREADY KNOWN ON THIS TOPIC

- General barriers to recruitment include participant, recruiter and institutional factors. Recruitment for firearms injury research has historically focused on urban settings with adult populations.
- Firearm injury is the leading cause of death for adolescents in the USA, and rural youth are at especially high risk. There is a lack of research on community-based firearm injury prevention efforts among adolescents in rural areas. Addressing this requires methodological considerations for recruitment of rural adolescents in firearm injury research.

WHAT THIS STUDY ADDS

- We summarise barriers to recruitment, outline strategies to enhance recruitment used in the Youth Experiences in Rural Washington: Research on Firearm Safety project and identify key considerations for recruiting rural adolescents for firearms research, including approaches to address developmental factors.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- The study presents clear implications for firearm injury prevention research focused on successfully recruiting rural adolescents in future studies by tailoring strategies to developmental stage and the sensitive nature of the topic.

Table 1

Barriers and strategies to recruitment with rural adolescents

Barrier	Description	Strategy
Participant-related factors		
Confidentiality concerns	The potential for personal information to be disclosed outside of the study due to lack of anonymity in rural communities.	• Afforded flexibility in format for adolescents with confidentiality concerns in a group setting to opt for an individual interview. • Provided standard confidentiality language in the parental informed consent process and developmentally tailored language in the adolescent consent/asset process resulting in separate early and late adolescent consent forms. • Verbalised the definition and importance of confidentiality at the beginning of qualitative data collection.
Developmental stage	The misalignment of recruitment approaches with developmental stage of intended population.	• Matched recruitment materials with developmental needs by advertising the project as an opportunity for adolescents to share their voice. • Developed project logo to consistently communicate purpose and facilitate interest/investment. • Engaged adolescents in planning to assess feasibility and acceptability of topic, protocol and consent.
Mistrust	Feelings of frustration and mistrust, and concerns of exploitation by universities, organisations and/or funders.	• Dedicated time in the first 12 months of the project for an iterative process of project staff, adolescent and parent input. • Selected sites with local trusted personnel to support recruitment and data collection. • Held discussions with adolescents and parents about the acceptability of the project overall to better understand sources of mistrust (eg, potential political influences). • Consulted with a former adolescent 4-H shooting sports participant to provide guidance on recruitment. • Used neutral, acceptable terminology (eg, firearm vs weapon; avoided pro/anti firearm dichotomy) focused on firearm safety. • Provided clear and consistent communication on the research purpose and related risks and benefits.
Transportation	The means, time and cost of getting from location to the data collection site.	• Provided a $15 gas gift card financial incentive for in-person data collection. • Provided food and refreshments before or after in-person data collection. • Scheduled data collection to coincide with existing local events (eg, Shooting Sports event). • Flexibility in format for individuals with transportation barriers.
Recruiter-related and institutional-related factors		
Institutional structure	Systems, policies and structures of an organisation, often related to personnel capacity and relationships with providers or partners.	• Engaged a land-grant institution with an existing physical and organisational infrastructure of campus-based and community-based offices and presence. • Partnered with a positive youth development programme which delivered a youth shooting sports programme and provided access to youth contact information. • Paid for partial salary of one campus-based and four community-based (ie, Extension) personnel who work for the research institution as well as one graduate student in a research assistant capacity to conduct project activities.

Barrier	Description	Strategy
Personnel characteristics	Lack of or weak credibility, familiarity and competencies of project personnel.	• Extension personnel held significant social capital, local credibility and trust by living and working within participating communities. • Extension personnel had personal and professional familiarity with firearms as firearm owners and involvement with youth shooting sports programme. • Campus-based and academic-based personnel were knowledgeable in engaging youth and parents/caregivers and used effective local strategies (eg, phone calls, texts). • Hired a former youth shooting sports participant (now young adult) as a consultant to provide feedback in planning and data collection. • Engaged the project advisory board comprised of firearm experts in planning.
Reaching the intended population	The ability to identify and reach intended population of rural adolescents.	• Collaborated with a state youth development organisation with personnel in each county and an enrollment system to draw from an existing group and access parent contact information. • Advertised on social media (Instagram and Facebook) to reach adolescents and parents and used a screener to ensure inclusion criteria were met.