Rural and Remote Health rrh.org.au
James Cook University ISSN 1445-6354

REVIEW ARTICLE

Fostering community engagement, participation and empowerment for mental health of adults living in rural communities: a systematic review

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PUBLISHED

26 March 2023 Volume 23 Issue 1

HISTORY

RECEIVED: 25 January 2022

REVISED: 16 November 2022

ACCEPTED: 17 November 2022

CITATION

Russell K, Rosenbaum S, Varela S, Stanton R, Barnett F. Fostering community engagement, participation and empowerment for mental health of adults living in rural communities: a systematic review. Rural and Remote Health 2023; 23: 7438. https://doi.org/10.22605/RRH7438

ABSTRACT:

Introduction: Poor mental health is an under-recognised burden in rural locations. This is evident in suicide rates that are 40% higher in rural communities than in urban ones, despite a similar prevalence of mental disorders. The level of readiness and engagement of rural communities to adapt or even acknowledge poor mental health can impact effective interventions. For interventions to be culturally appropriate, community engagement should include individuals, their support networks and relevant stakeholders. Community participation guides people living in rural communities to be aware of and take responsibility for community mental health. Community engagement and participation foster empowerment. This review examines how community engagement, participation and empowerment were used in the development and implementation of interventions aimed at improving mental health of adults residing in rural communities.
Methods: Databases CINAHL, EmCare, Google Scholar, Medline, PsychInfo, PubMed and Scopus were systematically searched from database inception to July 2021. Eligible studies included adults living in a rural cohort where community engagement was used to develop and implement a mental health intervention.
Results: From 1841 records identified, six met the inclusion criteria. Methods were both qualitative and quantitative, including participatory-based research, exploratory descriptive research, community-built approach, community-based initiative and participatory appraisal. Studies were located in rural communities of the USA, UK and Guatemala. Sample size ranges was 6–449 participants. Participants were recruited using prior relationships, project steering committee, local research assistants and local health professionals. All six studies underwent various strategies of community engagement and participation. Only two articles progressed to community empowerment where locals influenced one another independently. The underlying purpose of each study was to improve community mental health. The duration of the interventions ranged from 5 months to 3 years. Studies on the early stages of community engagement discovered a need to address community mental health. Studies where interventions were implemented resulted in improved community mental health.
Conclusion: This systematic review found similarities in community engagement when developing and implementing interventions for community mental health. Community engagement should involve adults residing in rural communities when developing interventions – if possible, both with a diverse gender representation and a background in health. Community participation can include upskilling adults living in rural communities and providing appropriate training materials to do so. Community empowerment was achieved when the initial contact with rural communities was through local authorities and there was support from community management. Future use of the strategies of engagement, participation and empowerment could determine if they can be replicated across rural communities for mental health.

Keywords:

adult, community engagement, community readiness, mental health, rural population.

FULL ARTICLE:

Introduction

WHO defines mental health as 'a state of health in which every individual realises his or her potential, can cope with normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community'[1]. Several components contribute to mental health, including social, psychological and biological factors[1], all of which can be influenced by one's geographical living location. The heightened burden of poor mental health in rural locations is evident. Despite the prevalence of diagnoses for mental disorders being similar in urban and rural locations, suicide rates are 40% higher in rural communities[2].

The term 'community' is often inappropriately used throughout political processes[3]. The concept suggests engaging with the community to develop 'community based' programs, a 'quick fix' for many economic and social concerns[3]. There have been recognised benefits to genunine engagement of commuity members[3]. When mental health is the focus, community engagement allows people residing in rural communities to contribute to their community, positively impacting on mental health[1].

Community engagement is commitment from the community that includes the individuals, their support structures and social networks, organisations providing relevant services to individuals, and relevant community stakeholder relationships[4]. The resultant community development strengthens social networks and capital learning to an enhanced awareness of social concerns, and the community taking responsibility for interventions[4].This develops community empowerment where people residing in rural locations can independently and collectively influence one another[4] and contribute to their community. Along with contributing to their community, another determinant of mental health is the ability to work productively and fruitfully[1].

People living in rural locations often report a high subjective wellbeing (SWB) if their productivity is maintained – despite experiencing poor mental health, chronic conditions or persistent pain[5]. High SWB may be due to the rural ideal of stoicism: 'the endurance of pain or hardship, without the display of feelings and without complaint'[6]. However, stoicism may not be the only factor contributing to the stigma of mental health in rural communities. Other factors may be privacy, distance to the nearest healthcare service, or associating SWB with productivity alone, rather than with quality of life[5]. The rural view of SWB could be why people living in rural communities score higher in happiness surveys, despite having poorer mental health outcomes[7]. SWB may also impact upon a rural community's level of readiness to address the mental health of those residing in rural communities.

Communities vary in their level of engagement and readiness to adapt or even acknowledge social concerns[8]. This can significantly influence the success of interventions supported by a local community[8]. Models like the Community Readiness Model (CRM) are strategically designed to determine a community's current level of readiness to action social concerns[9]. When interventions like the CRM involve local community members, they are more likely to be culturally appropriate for communities[8]. This encourages community ownership and longevity of interventions[8], further fostering community engagement, participation and

empowerment.

To engage the community in some cases, culture and gender should be considered in frameworks. Despite many frameworks claiming to be community based, often cultural norms are not acknowledged. For example, gender-matching participants with researchers can be essential in some cultures due to differences in men and women's business[10]. Gender matching in research supports true community engagement, in participatory frameworks.

Previous studies[11-16] have considered participatory frameworks for mental health in rural communities. However, there have been no reviews to date that have focused on the process of community engagement for mental health in rural communities. Nor is there a recommended established framework of community engagement. This review aims to examine how community engagement, participation and empowerment were used in the development and implementation of interventions aimed at improving mental health of adults residing in rural communities.

Methods

A systematic search was conducted in July 2021 to identify research investigating the development and implementation of community engagement interventions aimed at improving the mental health of adults residing in rural communities. The systematic review was conducted in accordance with the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines[17] (Fig1).

An amalgamation of keyword search and MeSH terms, with Boolean structure, was utilised for the following databases: Medline, CINAHL, PsychInfo, EmCare, Scopus, PubMed and Google Scholar. Keyword search and MeSH terms were amended based on the database, with the following themes: 'community engaged', 'intervention', 'mental health' and 'rural'. For a full list of search terms, see Appendix I.

The aim of this review was based on the PICo (Population, Interest, Context) framework[18] (Table 1). The population was adults within a rural cohort. 'Rural' is defined as any location that is not urban, with urban recognised as a concentrated spatial distribution of people whose lives are not focused on agriculture activities[19].

Studies included the used of community engagement. Community engagement requires the involvement of individuals, their support structures and social networks, organisations providing relevant services to individuals and relevant community stakeholder relationships[4]. Community engagement was to be used in the development or implementation of the intervention. The context was mental health. Studies selected for inclusion were original, peer-reviewed studies published in English. Studies from database inception to the search date (28 July 2021) were included.

Studies focusing on children and adolescents were excluded. Identified studies focusing on comorbidities associated with mental health or a clinical diagnosis of mental illness based on *Diagnostic and Statistical Manual of Mental Disorders* (DSM)/International Classification of Diseases (ICD) conditions were also excluded, ensuring the present research was focused on community mental health, not personal illness. Studies were excluded if the community engagement did not occur in the development or implementation of an intervention.

The development of the search was undertaken by one author (KR) with the guidance of an independent research librarian. Duplicates were removed by first reviewer (KR). The PRISMA flow diagram was used to guide screening of the remaining articles by the first reviewer (KR) and second reviewer (SV). EndNote libraries were shared to achieve this. To maintain rigour, the six included full-text articles were evaluated for eligibility by a third reviewer (FB).

Critical appraisal of studies inluded in the present systematic review was undertaken using the McMaster Critical Review for Qualitative Studies[20]. To understand the development and implementation of community-engaged interventions to improve the mental health of adults in rural communities, a narrative synthesis was based on information provided in the studies. Data extracted from each study included the methodological quality of the study and study model, the community (location of community, population involved, phase and type of community-engagement methods), the action (purpose of the study, study/intervention duration, data collection methods, data obtained) and the intervention outcomes. The phases of community engagement included pre-development (the phase between origination and initiation of the intervention), developing the intervention and actioning the intervention.

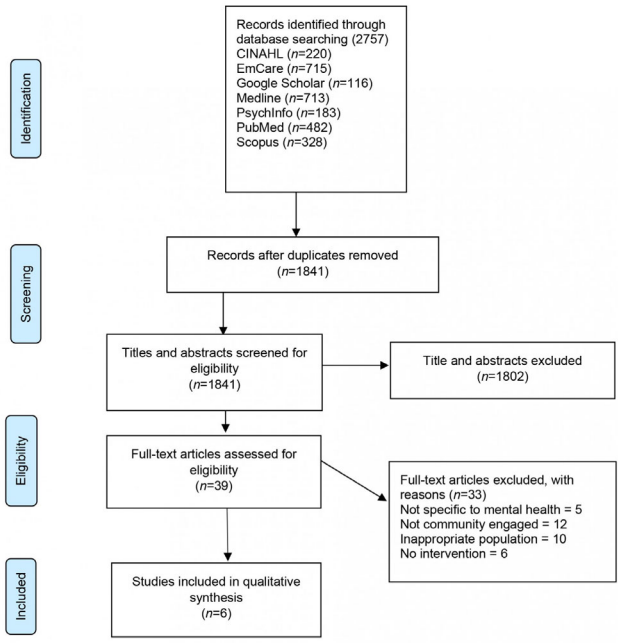

Figure 1: PRISMA flowchart of the literature search process.

Table 1: Population, Interest, Context framework for the study

P (Population)	Adult rural cohort (age >18 years) residing in rural setting
I (Interest)	Involvement of individuals, their support structures and social networks, organisations providing relevant services to individuals and relevant community stakeholder relationships in the development and implementation of an intervention
Co (Context)	Mental health

Results

A total of six studies met the inclusion criteria, guided by PRISMA format (Fig1). The data extracted is summarised in Table 2.

Table 2: Details of included studies[11-16]

Author, year [ref.]	Community	Actions	Outcomes
Barnard et al. (2000) [ref. 12]	Location: Tillery Community Centre, United States of America Population. Elders of community First program (*n*=6) Second program (*n*=12) Phase and type of community engagement: *Development*: Immersion weekend to build rapport with elders + obtain community input for program *Actions*: Education of elders for program maintenance	Purpose: Implement a community-built wellness program to enhance participants' lives through purposeful experience Study duration: Once yearly × 5 weeks for 2 years Data collection: Focus groups Data obtained: Health conditions, activities contributed to wellness, reflections on the meaning of wellness and satisfaction with activities	14/18 participants had chronic physical disease Varying categorising on activities contributing to wellness and meaning of wellness Increased knowledge on nutrition and exercise Increase satisfaction and maintenance of activities they undertook
Barry et al. (1999) [ref. 16]	Location: Small rural community in Northern Ireland (population <2000) Population: Project steering committee (*n*=NA) representatives from community: health and social care staff, farming organisations and voluntary sector People surveyed (*n*=242) 43% male, 52% aged under 40 years, 21% had attained a primary standard of education only, with 46% secondary level and 33% tertiary level. 10% previously had a high level of exposure to mental health problems Phase and type of community engagement: *Development*: initial consultation with local mental health senior management and steering committee *Actions*: local research assistant promoted the project. Researchers verbally delivered surveys to the population	Purpose: Community needs assessment to determine attitudes, beliefs and practices of rural people in relation to mental health issues (provide baseline data) Study duration: 3 years Data collection: Cross-sectional surveys and vignettes Data obtained: Level of awareness and knowledge of mental health conditions, services, barriers, stigma and personal views	High level of awareness of suicide rate. General practitioner was most common profession thought to treat depression. Social stigma most common barrier to seeking help Need for mental health programs, specifically for men and younger adults
Bryant et al. (2015) [ref. 14]	Location: Mississippi County, USA Population: Pastors, parishioners, African American men with history of stress/depressive symptoms (*n*=24) Phase and type of community engagement: *Development*: Employee of local health organisation, local outreach ministry director *Actions*: 6 focus groups with population Community advisory board ensured cultural appropriateness (a clergy, a primary care physician, a mental health counsellor, a registered nurse, and persons from the faith community interested in the health of their congregations)	Purpose: Develop a stress management intervention for the rural African American faith community Study duration: 6 months Data collection: Focus groups and verbal discussions Data obtained: Key components to be included in depression-focused intervention and community advisory board attitudes and understanding of health	Needs from focus groups: (1) tools for parishioners to manage stress, (2) educating faith community to recognise and seek help for depression, (3) confidentiality and privacy in seeking mental health services, (4) training of church lay leaders to be 'depression experts', (5) amend language due to stigma (eg stress instead of depression) Community advisory board increased education of mental health and experience in research
Chomat et al. (2019) [ref. 11]	Location: 5 rural communities in Guatemala (population 1000–16 000) Population: Women currently pregnant or <2 years postpartum (*n*=84) Circle leaders: former community health workers, comadronas (midwives) and former mayor (*n*=10) Phase and type of community engagement: *Pre-development*: Local health workers *Development*: Surveys and in-depth interviews with population *Actions*: Circle leaders facilitating program with pregnant women	Purpose: Assess acceptability, feasibility and impact of co-designed psychosocial intervention Study duration: 5 months Data collection: Surveys and in-depth interviews Data obtained: • maternal symptoms of depression and anxiety • maternal wellbeing • self-efficacy measurement • mother's engagement in early infant stimulation	Improved maternal wellbeing/self-care, no changes in total self-efficacy, symptoms of depression/anxiety or engagement in infant stimulation. More sessions participated = higher scores Circle leaders accepted by women and upskilling of circle leaders. Population had positive experience and requested it to be continued. Improved self-esteem/emotional health and wellbeing/social support and relationships The intervention was feasible, acceptable and possibly effective
Stacciarini et al. (2011) [ref. 13]	Location: Rural Latino community in Florida, USA Population: Community advisory board: church members, public school teacher, public health department staff (*n*=8) Phase and type of community engagement: *Development*: Site visits by Latino mental health researcher and community leaders *Actions*: Community advisory board bimonthly meetings with surveys and scribe notes	Purpose: Describe collaboration to develop a mental health promotion intervention Study duration: 2 years Data collection: Surveys and scribe notes Data obtained: • community understanding • community services needed • community advisory board members' interactions	Surveys: Specific goals regarding education, collaboration, culturally appropriate resources, grant writing and confidentiality Scribe notes re community advisory board interactions: caring, knowledge, interpersonal dynamic, future impact on the community Denied access to school
Thirlwall and Whitelaw (2019) [ref. 15]	Location: Dumfries and Galloway region, Scotland (population <2000) Population: 'Train the Trainer' (*n*=43); 33 women and 10 men Interviewees (*n*=443) LGBTQI+ support groups, men's sheds, walking groups, art groups as well as participation at local community events. Twice as many females as males, ~50% were >60 years, ~20% were under 25 years. Community focus group (*n*=NA) community members Phase and type of community engagement: Community level: *Development*: 'Train the Trainers' training *Action:* Interviews for focus groups at community engagement events and community support groups and community focus groups to validate data obtained Strategic level: *Pre-development*: Support from Director of Public Health *Development*: Workshop for key stakeholders (*n*=20) representatives from community planning, strategic, commissioning, social work, mental health services, human resources, public health *Action*: Mental health forum (*n*=12) representatives from mental health, social work, commissioning, LGBTQI+	Purpose: Obtain community views on mental health and factors impacting it, then amend mental health outcomes framework Study duration: 2 years (3 days 'Train the Trainer', 6 weeks interviewing population) Data collection: Focus groups Data obtained: • how community perceived mental health and wellbeing • how community copes with mental health • desires for community and personal mental health and wellbeing	Focus groups: social community factors important, stigma and discrimination, resilience, improved access to services, social connections Framework adapted to increase social support/networks, improve access to interventions to improve mental health, increased awareness of positive mentally behaviours, increased local participation in decision-making processes Community satisfaction with involvement and use of information Initiating of mental health festival, 'Health Promoting Health Service Framework', access to screening program (community engaged)

services and human resources services			

Location

All studies were conducted in rural communities. Three were conducted in the USA, two in the UK and one in Guatemala. Populations ranged from 1000 to 4000 community members.

Population

The sample size of participants had a range of 6–443 participants. Four studies included both men and women. One study included only men and one study included only women. Barnard et al[12] focused on the elders of the community[12]. Six elders participated in the first wellness program. One year later, 12 elders took part in the second wellness program. Barry et al[16] had a higher number of participants (242 people surveyed) and initially used a project steering committee (number involved unknown) including health and social care staff, farming organisations and the voluntary sector[16]. Ten percent of participants had previous high-level exposure to mental health problems. Thirlwall and Whitelaw had a larger number of participants: 43 involved in 'Train the Trainer' (33 women and 10 men), which engaged 443 interviewees[15]. This included twice as many females compared to males, 50% aged over 60 years and 20% under 25 years. A community focus group (number of participants unknown) was used to validate the data, through surveys in the structure of an interview.

Chomat et al also used local healthcare professionals to engage the sample population, which was 84 women pregnant at the time or less than 2 years postpartum and 16 circle leaders (nine former community health workers, six midwives and one former mayor)[11]. This was similar to the study of Bryant et al, where the local outreach minister identified 24 men to be involved[14]. The men included pastors, parishioners and African-American men with stress/depressive symptoms. In the study by Stacciarini et al, eight community advisory board members were the source of data[13]. The board included church members, public school teacher and public health department staff. Recruitment for community engagement varied throughout the studies according to community need determined from consultations. Community engagement methods utilised depended on each community to maximise sample size.

Phases and type of community engagement

Methods of community engagement varied throughout the intervention phases (pre-development, development and action) in each of the studies. Barnard et al used prior relationships between the community and university to facilitate an immersion weekend for occupational therapy students in the development stage[12]. This allowed the students to build rapport and obtain the elders' input for program development. When the program was in the action phase, the elders of the community were responsible for taking notes in each session to replicate the program independently.

In the development phase, Barry et al chose to liaise with the local mental health senior management[16]. Management assisted in developing a community-based initiative including voluntary and legislative sector organisations. When moving into the action phase, a local research assistant promoted the project, and the researchers verbally delivered the surveys to the community. Chomat et al used local health workers who requested the intervention after being involved in another project with the research team[11]. When developing the project, surveys and in-depth interviews were used with the population, along with circle leaders facilitating the program.

Bryant et al also used an employee of the local health organisation who had an interest in depression and linked the research team in with the director of an outreach ministry[14]. Both the health employee and ministry director assisted to develop the project and engaged a community advisory board. The board took part in six focus groups to ensure the project was culturally appropriate. Stacciarini et al also relied on community advisory boards for cultural guidance[13]. The research was originally developed by a Latino mental health researcher, who met with community leaders. This prompted bimonthly meetings between the board and research team. Surveys were used to determine community needs. Scribe notes were also used based on the stage of research.

Thirlwall and Whitelaw made initial contact with community leaders in the pre-development phase[15]. A 'Train the Trainer' technique was used to develop community engagement, and focus groups were held at community engagement events and community support groups (LGBTQI+ support groups, men's sheds, walking and art groups). Community focus groups were also used to validate the data collected. At a strategic level, researchers held workshops for key stakeholders. The workshops discussed outcomes from the focus groups and mapped out current projects. To action an intervention, a mental health forum identified key outcomes from the workshop. The community engagement methods varied for each study. However, the underlying general purpose remained consistent: that of improving community mental health.

Study duration, data collection and data obtained

Intervention durations ranged from 5 months to 3 years. Of the studies that implemented interventions, qualitative and quantitative outcome measures were used to evaluate the impact of the intervention on community mental health. To determine the results of the 5-month intervention, surveys and in-depth interviews were used[11]. The surveys included determinants of mental wellbeing (maternal symptoms of depression and anxiety, maternal wellbeing, self-efficacy and mothers' engagement in early infant stimulation). After the 5-week wellness program in the second year, Barnard et al chose to use focus groups with interview questions[12]. This clarified participants' health conditions and reflections (activities that contributed to wellness, the meaning of wellness and satisfaction of program activities). Thirlwall and Whitelaw used discussion focus groups to determine community perceptions of mental health, how the community copes with mental health, along with the desires for community and personal mental health and wellbeing[15]. Focus groups were also used for feedback on community satisfaction with the intervention.

Varied data collection methods was used for community engagement to develop interventions. Surveys and vignettes were implemented over 3 years for community needs assessment through determining community level of awareness and knowledge of mental health conditions, services, barriers, stigma and personal views[16]. Surveys were also used over 2 years to determine community understanding, community services needed and community advisory board members' interactions[12]. Bryant et

al used focus groups over a period of 6 months to find key components to include in the intervention[14]. Using surveys, focus groups and vignettes, studies were able to adapt the development and implementation of interventions to achieve results.

Intervention outcomes

Outcomes for each study are displayed in Table 1. Three studies in the development phases identified what is required to improve community mental health[13,14,16]. This included a need for a mental health program specifically for men and younger adults[13]; a gap in upskilling, education[12,13], confidentiality[12,13], culturally appropriate language[13] and resources[12]; and goals for collaboration and grant writing[12].

The three studies that implemented a community-engaged intervention reported positive outcomes to improve community mental health[11,12,15].

Discussion

To our knowledge this is the first review to examine how community engagement, participation and empowerment are used in the development and implementation of interventions aimed at improving mental health of adults residing in rural communities. In all studies, community engagement was facilitated to include the individual, their support structures, and social networks[4]. Community participation developed ownership by building social network for increased awareness and moving focus to the responsibility of citizens[4]. Two studies[13,15] demonstrated community empowerment where locals were able to influence each other independently[4] to improve the mental health of adults in rural communities.

Using community engagement to develop the intervention prolonged community engagement and resulted in larger sample sizes[11,15,16]. This allowed trust to be formed between locals and the research team, resulting in participants more freely sharing information[21]. Results show trust and community engagement can be achieved through fostering local organisations and community stakeholder relationships[16]. Characteristics of community members involved influenced the sample population. For example, when local health professionals assist in recruiting participants, purposive sampling is achieved[21].

Consistent with purposive sampling, the gender of community researchers influences sample characteristics[11,14]. For example, a greater number of female community champions led to a greater number of female study participants[14]. Aligning with cultural norms, some rural Indigenous communities have increased project ownership through yarning (informal discussions) to amplify their voices in research[22]. Informal meetings with Indigenous rural communities can be effective in establishing collaborations for research[23]. This ensures communication about research is relatable, for a positive influence on participation rates[23].

Where informal yarning was used for initial engagement in community[13,14], the community advisory boards also had a personal interest in the project. This was evident in their commitment to the project without financial gain, influencing community readiness to change[24]. These boards often take on the role of an advisor in community-engaged interventions[25]. They do this through being upskilled to develop research, collect data and facilitate collaborations between community members and researchers[25]. The upskilling of interested community members demonstrates community empowerment, where locals respond to mental health promotion effectively[13,15].

By employing local research assistants the studies showed support for community engagement[11,16] and minimised reliance on the research team[26]. In community participation, ownership of the project is developed, increasing local awareness and moving the focus to the responsibility of locals[4]. The local community taking on responsibility addresses possible inequalities between researchers and communities that may contribute to data collection being a false representation of community[26]. This empowers local organisations to influence one another[4] to also address community mental health.

Community empowerment aligns with the research team whose initial contact was not through local health workers; but authority figures in the community. Holt et al confirmed that organisation management support highly impacts community readiness[24]. If management can envision project achievements over a prolonged period of time (1–8 years), there is increased support[27]. The increased support minimises negative impacts from short-term decreased outcomes[27]. The studies[13,15] reiterated the need for management support to achieve community empowerment, project longevity and successful outcomes.

The elements of community engagement, participation and empowerment align with strategies demonstrated in the CRM to support project longevity and successful outcomes. The use of the CRM to address a social issue, in this case mental health, involves local community members from various sectors of the community[28]. Using the CRM prior to intervention delivery can determine the community's readiness to address a social issue, ensuring strategies are culturally appropriate to facilitate community ownership through community engagement, participation and empowerment.

Future research

As evident by the paucity of studies in this review, frameworks to guide research in addressing mental health in rural communities are limited. Prior to delivering interventions that address mental health concerns in rural communities, future research should consider employing an evidence-based framework to assess a community's readiness for change. A model such as the CRM, which considers community engagement, participation and empowerment, could be appropriate since it may ensure the right intervention is developed and delivered in the right way, by the right people, for the betterment of the community.

Future research in rural communities should also engage local personnel, including health professionals, gender matched to the target population to ensure cultural norms are recognised. More specifically, future research should describe in greater detail the protocols used for community engagement, intervention delivery and assessment to facilitate translation of interventions to other communities so direct comparisons of effectiveness across geographic boundaries can be conducted. Finally, the included studies that only focused on the development of the intervention should consider continuing community consultation to implement the developed intervention to examine its effectiveness.

Limitations

This review has a number of limitations. To capture as many potential studies as possible, the search strategy was deliberately broad. Despite this, only a small number of studies met the inclusion criteria. This likely reflects the paucity of research specifically examining how community engagement, participation and empowerment are used in the development and implementation of interventions aimed at improving mental health of adults residing in rural communities. Moreover, the included studies are only from three countries. This again reflects the limited research and makes the generalisability of the findings to other regions difficult. The review only included studies focused on adult populations and therefore translation of findings or recommendations to younger populations is not feasible. Only studies published in English were included in the present review and it is therefore possible that there are some relevant studies published in other languages.

Included studies are not without limitation. Data were collected using only surveys and focus groups. An absence of within-study reporting regarding thematic saturation and details of data collection makes study replication difficult and contributes to the heterogeneous nature of included studies. Community consultation and feedback on interventions are limited. Determining the success in developing and implementing interventions appears to be relative to each community and community members involved. This results in a lack of transferability across rural communities.

Conclusion

The studies included in this systematic review identified similarities in developing and implementing community-engaged interventions to address mental health of adults living in rural communities. Community engagement requires the early involvement of local community members. Community engagement should involve a local research assistant with a background in health or local health professional to engage the sample population. Community participation should upskill local health professionals as community researchers. Community empowerment requires support from community management and that the initial contact with community be through local authorities.

Overall research into community-engaged interventions to address the mental health of adults living in rural communities is emerging. Due to the varying culture of each rural community and stigma toward mental health, there are limited frameworks that have been adapted to address mental health. To achieve community engagement, participation and empowerment in rural communities, more research into implementing interventions guided by pre-existing models such as the CRM is needed. This could determine if these models are transferable across rural communities to address social concerns like mental health.

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APPENDIX I:

Appendix I: Database search terms

Medline

Date searched: 14.07.2021.

exp Community Participation/ or community engagement.mp. or exp Community-Based Participatory Research/ or community readiness model.mp. or community engagement intervention.mp.

AND

psychological distress.mp. or exp Stress, Psychological/ or exp Psychological Distress/ or exp Depression/ or psychological distress.mp. or exp Stress, Psychological/ or exp Psychological Distress/ or exp Depression/ or mental health.mp. or exp Mental Health/ or psychological wellbeing.mp.

AND

exp Rural Health/ or exp Rural Population/ or exp Agriculture/

Limits: all adult, English only

Date searched: 14.07.2021.

mental illness.mp.

AND

exp Rural Health/ or exp Rural Population/

AND

exp Community Participation/ or community engagement.mp. or exp Community-Based Participatory Research/ or community readiness model.mp. or community engagement intervention.mp. or community health services/ or exp community mental health services/ or exp community participation/

Limits = all adult, English only

Date searched: 14.07.2021.

(wellbeing or well-being).mp. or exp Personal Satisfaction/ or psychological distress.mp. or exp Stress, Psychological/ or exp Psychological Distress/ or exp Depression/ or exp Stress, Psychological/ or exp Mental Health/ or psychological well-being.mp. or psychological wellbeing.mp. or mental well-being.mp. or mental wellbeing.mp. or Community mental health.mp. or exp Community Mental Health Services/

AND

exp Community Participation/ or exp Community-Based Participatory Research/ or exp Community-Institutional Relations/ or community engagement.mp. or exp Community Health Services/ or community led.mp or community empowerment.mp. or exp Community Networks/ or community readiness model.mp. or Community-based intervention.mp.

AND

rural.mp. or exp Rural Health/ or exp Rural Population/ or exp Rural Health Services/ or exp Agriculture/ or farmer.mp. or exp Farmers/

Limits: all adult, English only

Date searched: 14.07.2021.

"co design".mp. or codesign.mp. or "co-design".mp.
AND
(wellbeing or well-being).mp. or exp Personal Satisfaction/ or psychological distress.mp. or exp Stress, Psychological/ or exp Psychological Distress/ or exp Depression/ or exp Stress, Psychological/ or exp Mental Health/ or psychological well-being.mp. or psychological wellbeing.mp. or mental well-being.mp. or mental wellbeing.mp. or Community mental health.mp. or exp Community Mental Health Services/
AND
rural.mp. or exp Rural Health/ or exp Rural Population/ or exp Rural Health Services/ or exp Agriculture/ or farmer.mp. or exp Farmers/

Limits: all adult, English only

CINALH

Date searched: 15.07.2021

"mental health" OR "mental illness" OR "psychological distress" OR "psychological wellbeing" OR "psychological well-being" OR "mental wellbeing" OR "mental well-being" OR depression OR "community mental health" OR wellbeing OR "well-being" OR “psychosocial”

AND

"community participation" OR "community based participatory research" OR "community led" OR "community readiness model" OR "community based intervention" OR (MH "Community Mental Health Services") OR (MM "Community-Institutional Relations")

AND
rural OR "rural health" OR "rural population" OR agriculture OR farmer OR (MM "Rural Population") OR (MM "Rural Areas") OR (MM "Rural Health")

Date searched: 15.07.2021

"mental health" OR "mental illness" OR "psychological distress" OR "psychological wellbeing" OR "psychological well-being" OR "mental wellbeing" OR "mental well-being" OR depression OR "community mental health" OR wellbeing OR "well-being" OR “psychosocial”

AND

"co-design" OR "codesign” OR "co design”

AND
rural OR "rural health" OR "rural population" OR agriculture OR farmer OR (MM "Rural Population") OR (MM

"Rural Areas") OR (MM "Rural Health")

Limits: English, adult only, peer reviewed

PsychInfo

Date searched: 14.07.2021

"mental health" OR "mental illness" OR "psychological distress" OR "psychological wellbeing" OR "psychological well-being" OR "mental wellbeing" OR "mental well-being" OR depression OR "community mental health" OR wellbeing OR "well-being"

AND

"community participation" OR "community based participatory research" OR "community led" OR "community readiness model" OR "community based intervention"

AND

rural OR "rural health" OR "rural population" OR agriculture OR farmer

Limits: Adult over 18, peer reviewed, English

Date searched: 14.07.2021

"mental health" OR "mental illness" OR "psychological distress" OR "psychological wellbeing" OR "psychological well-being" OR "mental wellbeing" OR "mental well-being" OR depression OR "community mental health" OR wellbeing OR "well-being"

AND

rural OR "rural health" OR "rural population" OR agriculture OR farmer

AND

CoDesign OR co-design OR "co design"

Limits: Adult over 18, peer reviewed, English

EmCare

Date searched: 14.07.2021

exp wellbeing/ or exp psychological well-being/ OR exp mental health/ or exp community mental health/ OR exp mental health/ OR well-being.mp. OR exp depression/ OR mental wellbeing.mp. OR mental well-being.mp. OR mental health.mp.

AND

exp community participation/ OR exp participatory research/ OR community based participatory research.mp. OR exp community/ or exp community participation/ or community engagement.mp. OR community led.mp. OR community based intervention.mp. OR community readiness model.mp. OR exp participatory action research/ or exp action research/

AND

rural.mp. or exp rural population/ or exp rural health/ or exp rural area/ or exp rural health care/ OR farmer*.mp. or exp agricultural worker/

Limits: adult (18-64 years), aged <65+, English

Date searched: 14.07.2021

exp wellbeing/ or exp psychological well-being/ OR exp mental health/ or exp community mental health/ OR exp mental health/ OR well-being.mp. OR exp depression/ OR mental wellbeing.mp. OR mental well-being.mp. OR mental health.mp.

AND

codesign.mp. or co-design.mp. or "co design".mp.

AND

rural.mp. or exp rural population/ or exp rural health/ or exp rural area/ or exp rural health care/ OR

AND

farmer*.mp. or exp agricultural worker/

Limits: adult (18-64 years), aged <65+, English

Scopus

Date searched: 15.07.2021

((TITLE-ABS-KEY ("mental health" OR "mental illness" OR "psychological distress" OR "psychological wellbeing" OR "psychological well-being" OR "mental wellbeing" OR "mental well-being" OR depression OR wellbeing OR "well-being")) OR (TITLE-ABS-KEY ("psychosocial"))) AND (TITLE-ABS-KEY (rural OR "rural health" OR "rural population" OR agriculture OR farmer OR "rural areas")) AND (TITLE-ABS-KEY ("community participation" OR "community based participatory research" OR "community led" OR "community readiness model" OR "community based intervention" OR "Community-Institutional Relations" OR "community intervention")) AND (LIMIT-TO (LANGUAGE , "English")) AND (EXCLUDE (EXACTKEYWORD , "Adolescent") OR EXCLUDE (EXACTKEYWORD , "Child"))

Date searched: 15.07.2021

((TITLE-ABS-KEY (codesign)) OR (TITLE-ABS-KEY (co-design)) OR (TITLE-ABS-KEY ("co design"))) AND (TITLE-ABS-KEY ("mental health" OR "mental illness" OR "psychological distress" OR "psychological wellbeing" OR "psychological well-being" OR "mental wellbeing" OR "mental well-being" OR depression OR wellbeing OR "well-being" OR psychosocial)) AND (TITLE-ABS-KEY (rural OR "rural health" OR "rural population" OR agriculture OR farmer OR "rural areas")) AND (LIMIT-TO (LANGUAGE , "English")) AND (EXCLUDE (EXACTKEYWORD , "Adolescent") OR EXCLUDE (EXACTKEYWORD , "Child"))

Google Scholar

Date searched: 22.07.2021

allintitle: rural community depression OR intervention OR based OR wellbeing "mental health" -adolescent -teen -child –youth

allintitle: rural community intervention OR CBPR OR based OR led OR engagement OR engaged "well-being" -adolescent -teen -child –youth

allintitle: rural community intervention OR CBPR OR based OR led OR engagement OR engaged "mental health" -adolescent -teen -child –youth

PubMed

Date searched: 15.07.2021

(("mental health" OR "mental illness" OR "psychological distress" OR "psychological wellbeing" OR "psychological well-being" OR "mental wellbeing" OR "mental well-being" OR depression OR wellbeing OR "well-being" OR psychosocial) AND (codesign OR "co-design" OR "co design") AND (rural OR "rural health" OR "rural population" OR agriculture OR farmer OR “rural areas”)

Filters: Journal Article, English, Adult: 19+ years