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Original Research

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A Review of Mixed Methods Community-Based Participatory Research Applications in Mental Health

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Abstract

The aim of the paper was to methodologically review the intersection of mixed methods research (MMR) and community-based participatory research (CBPR) in the field of mental health research. We classify this intersecting approach as MMCBPR. The methodological review of empirical literature was conducted between October 2017 and March 2020 of full-text articles in Scopus, Pubmed, ProQuest Central, Web of Science, and EBSCOhost search engine databases in the English language. Twenty-nine studies meeting the inclusion criteria were included in the final analysis. We found some evidence of MMCBPR but it was limited by factors such as a lack of explicit rationales for the use of MMR and CBPR, limited evidence of long-term commitment to a community, and an ad hoc approach to the application of MMR and CBPR. These findings informed the development of practical recommendations for psychologists, mental health professionals, and researchers in the application of MMCBPR. In particular, our MMCBPR recommendations aim to advance the social justice agenda in counseling psychology, increase the rigor of MMCBPR approaches in mental health studies, and inform how advanced mixed methods applications can be used to address the complexities associated with mental health and well-being.

Keywords: *mixed methods research; community-based participatory research; mental health; social justice; psychology; counseling*

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Introduction

Estimates of mental health and substance use indicators demonstrate that the rates of people living with these disorders are increasing. For example, in the United States in 2017, an estimated 46.6 million adults aged 18 or older had "any mental illness" and 11.2 million had a "serious mental illness," both of which were a higher percentage of adults than most of the previous decades (SAMHSA, 2018). The same study found that approximately 19.7 million people in the United States aged 12 or older had a substance use disorder (SAMHSA, 2018). Additionally, adolescent and adult suicide rates have been on the rise in nearly all states, with 25 states seeing rate increases of more than 30 percent (National Center for Health Statistics, 2018). These trends are also reflected in worldwide estimates where the mental illness burden has increased by 37.6% from 1990 to 2010, and mental illness and substance use disorders were the leading cause of years lived with a disability (Whiteford et al., 2013).

Mental illness and substance use disorders are pervasive across age, race, ethnicity, gender, and geography; however, research has shown that a number of risk factors are associated with these mental health concerns. Some of these include but are not limited to healthcare access, food security, housing stability, environmental health, and crime rates (Jones et al., 2017; Lake & Turner, 2017; Silva et al., 2016), as well as documented racial and ethnic disparities (American Psychiatric Association, 2017). With so many potential risk factors and rising prevalence of mental illness and substance use disorders, communities and health systems are increasingly overwhelmed (Whiteford et al., 2013). Furthermore, many in the mental health field are experiencing disillusionment with traditional approaches of research that do not sufficiently solve real-world problems nor harness the expertise of the individuals directly impacted (Hanson et al., 2005; Minkler & Wallerstein, 2008). Thus, psychologists and other mental health practitioners have called for more robust methodologies, including methodological pluralism, that holistically address these complex issues (Fine, 2007; Gelso, 1979; Hanson et al., 2005; Haverkamp et al., 2005; Mertens et al., 2016; Palinkas et al., 2011). Moreover, as the psychology field pushes to actualize social justice principles to address disparities associated with mental and emotional well-being (Scheel et al., 2018), there is a need to examine the methodologies of studies that have aimed to incorporate a social justice.

Mixed Methods and Community-Based Participatory Research

Mixed methods research (MMR) has become an established methodological approach that integrates quantitative and qualitative methods throughout all phases of a study. It has been called the third wave of research with the first wave being quantitative and the second wave qualitative (Christ, 2013). Scholars have written about how the approach is particularly suited to studying complex phenomena within communities because it capitalizes on the benefits of quantitative and qualitative methods for a more comprehensive examination (Badiee et al., 2012; Creswell et al., 2011; Mertens et al., 2016; Teddlie & Tashakkori, 2009). As scholars work to further develop the methodology, advanced applications that combine MMR with other research approaches, such as experimental designs and program evaluation, are being used and studied (Creswell, 2015; Creswell & Plano Clark, 2018; Plano Clark & Ivankova, 2016). One such advanced application is the intersection of MMR and community-based participatory research (CBPR), which has been referred to as MMCBPR (DeJonckheere et al., 2018).

CBPR is an approach to research that aims to maximize the expertise of all stakeholders throughout every phase of research (Minkler & Wallerstein, 2008). Proponents of CBPR argue that the approach is more culturally relevant to focal populations than traditional positivistic research approaches and, therefore, can be more rigorous (Balasz & Morello-Frosch, 2013; Vaughn et al., 2017). CBPR has specifically been commended as a viable approach to improve complex mental health concerns (Anderson-Lewis et al. 2012) and in substance abuse prevention and intervention (Allen et al., 2013; Jumper-Reeves et al., 2014). Moreover, CBPR is an approach that connects with the core values of counseling psychology and the attributes desired in

students and practicing psychologists. This includes attending to self-actualization, not only of client but of communities, attending to the call of social justice, and a strength-based approach (Minkler & Wallerstein, 2008; Scheel et al., 2018). Because CBPR is an orientation to research, it is paired with other methodologies and research designs to promote community-driven research questions and solutions.

As the use of MMR and CBPR increases in the health and social-behavioral sciences (Israel et al., 2013; Minkler & Wallerstein, 2008), so does their pairing as both a methodology and a practice for equitably engaging communities in research and problem-solving. In particular, the combination of CBPR and MMR is advocated for when working with vulnerable populations (Johnson & Shipp, 2009; Lucero, Wallerstein et al., 2018; Windsor, 2013). In a methodological review of 129 MMCBPR studies, DeJonckheere et al. (2018) found a rise in the use of MMCBPR in the past decade, with most of the studies investigating issues affecting marginalized and vulnerable populations. The authors concluded that further study of MMR and CBPR as an intersecting approach within specific fields is needed in order to fully understand the use and utility of MMCBPR as a methodological practice. As cited in their article, one of the top fields for the application of MMCBPR was "behavioral health," which included mental health and substance use (15% of the articles).

The increased prevalence of mental health issues worldwide and the growing need for research that has both scholarly and practical applications warranted thorough evaluation of MMCBPR in mental health. In conducting this methodological review, we examined how MMR and CBPR intersect in existing empirical studies of mental health in order to inform future research methodology. The purpose of the review was to:

1. Describe the current use of MMCBPR in the field of mental health;
2. Critique the observed application of MMCBPR in mental health;
3. Offer recommendations for effective application of MMCBPR.

Methods

Study Selection Criteria and Search Strategy

Our methodological review included peer-reviewed empirical studies in the English language offered as full-text articles in the search engine databases (Scopus, Pubmed, ProQuest Central, Web of Science, and EBSCOhost). Our searches took place between October 2017 and March 2020. We defined each journal article as its own "study," such that evidence published in related articles was not included unless it also fit the selection criteria. We applied the following search criteria ("community based participatory research") AND ("mixed-method*" OR "mixed method*") AND ("qualitative") AND ("quantitative") AND (("mental health") OR ("behavioral health") OR ("substance abuse") OR ("substance use") OR ("psychological symptomatology ") OR ("psychological distress") in the academic databases. Our search criteria included the MMCBPR fields used by DeJonckheere et al. (2018) in their methodological review and added fields related to mental health to expand their criteria and capture articles beyond their findings. We excluded reviews, conference proceedings, gray literature, theses, book chapters, protocols or study design proposals. We only included studies that explicitly used the term CBPR, excluding other similar approaches such as action research, participatory action research, and citizen science because of the primary use of CBPR in health-related fields. For the mixed methods criteria, articles needed to include both qualitative and quantitative data collection and analysis in the same article. Due to the nature of the study design, an IRB review was not required.

Data Extraction and Synthesis

For the review, we adopted the procedures used by DeJonckheere et al. (2018) and adapted an extraction table and a codebook with operational definitions for both MMR and CBPR and the intersection of the two approaches (Table 1).

Table 1: *Definitions Table*

Category	Description
Empirical Study	Is the article an empirical study (including experiments, interventions, assessments, and evaluations)?
Mental Health	Does the study content focus on issues related to mental health, such as symptomatology, trauma (e.g. child neglect/abuse), substance use, stress, resilience, etc.?
Topic	What is the overall content area for the study?
Focal Population	Are youth and/or adults the primary target population being studied?
Study Participants	What is the specific population being studied (e.g. immigrants, elderly, domestic violence survivors, Latinos, etc.)?
Geography	In what geographic setting does the study take place? (e.g. urban, rural, suburban)
Location	Enter country/location within United States.
Study Purpose	What are the methodological aims or goals of the study?
MMR Approach	Does the study include both quantitative and qualitative data collection?
MMR Design	What type of MMR design was used in the study (concurrent; explanatory sequential; exploratory sequential; multistrand/multiphase; intramethod)?
MMR Rationale	What is the stated purpose for incorporating both quantitative and qualitative data?
Quantitative Methods	What quantitative methods were used?
Qualitative Methods	What qualitative methods were used?
MMR Language	Was MMR language explicitly used to describe the study or provide a rationale?
MMR Reference	Did the authors include explicit references to MMR methodological citations?
MMR Integration at Methods Level	What approach(es) were used to integrate the methods used (connecting, building, merging, embedding)?
MMR Integration at Interpretation Level	What approach(es) were used to integrate the interpretation and reporting of quantitative and qualitative data (narrative; data transformation; joint display)?

Category	Description
CBPR Approach	Does the study use the term Community-Based Participatory Research?
CBPR Rationale	What is the rationale for using a CBPR approach?
CBPR 9 Principles	Which CBPR principles were represented in the article?
CBPR Partners	What types of community partners were included in the study?
Intersecting Evidence	"Intentionally embedding, or joining of two or more research designs, methodological approaches, and/or theoretical frameworks within a study's mixed methods research design" (Plano Clark & Ivankova, 2016, p. 137) • Did the article indicate evidence of intersecting MMR and CBPR? • How did the authors describe the intersecting of MMR and CBPR?
Phase of MMR in CBPR Cycle	What CBPR phase is described in the paper? May or may not be explicitly stated.
Benefits of Intersecting MMR & CBPR	Does this paper discuss the benefits of MMCBPR intersectionality? If so, what was stated?
Challenges with MMCBPR	What are the stated challenges of employing MMR and CBPR?

For MMR, we included studies that described both qualitative and quantitative approaches in the same empirical article, even if they did not call their approach "mixed methods." Specifically, a study was labeled as MMR if it described both qualitative and quantitative data collection, analysis, and results. MMR study designs were defined based on Creswell & Plano Clark's (2018) definitions (exploratory sequential, explanatory sequential, convergent and multistage). A fifth approach, intramethod designs (Johnson & Turner, 2003), was included based on prevalence in MMCBPR studies (DeJonckheere et al., 2018). Integration, a core component of mixed methods designs that refers to the intentional mixing of qualitative and quantitative approaches, includes integration through methods (connecting, building, merging, and embedding) and reporting (weaving, data transformation, and joint displays; Fetters et al., 2013).

Finally, we used the nine CBPR principles offered by Israel and colleagues (2013) to operationalize when reviewing each article—(1) recognizes community as a unit of identity; (2) builds on strengths and resources within the community; (3) facilitates a collaborative, equitable partnership in all phases of research, involving an empowering and power-sharing process that attends to social inequalities; (4) fosters co-learning and capacity building among all partners; (5) integrates and achieves a balance between knowledge generation and intervention for the mutual benefit of all partners; (6) focuses on the local relevance of public health problems and on ecological perspectives that attend to the multiple determinants of health; (7) Involves systems development using a cyclical and iterative process; (8) disseminates results to all partners and involves them in the wider dissemination of results; and (9) involves a long-term process and commitment to sustainability.

The initial search resulted in 964 articles. We reviewed and removed articles meeting the exclusion criteria: conference proceedings (n = 70), systemic reviews or study protocols, (n = 293), non-English (n = 2), and duplicates (n = 78). We then examined the remaining articles (n = 521) using the data extraction table and codebook criteria. Initially, the first 40 articles were analyzed collectively by all team members. Following an independent review of an article, the team discussed the rating (accepted, rejected, or needs further

discussion) of each article. This was an iterative process. For example, the first three articles were reviewed by the team and examined for rater reliability as well as consistency of the codebook criteria. We then reviewed the next three articles collectively to further verify rater reliability and codebook consistency. For articles needing further discussion, all team members jointly discussed and reviewed each article to arrive at a consensus on status based on the codebook criteria. We then divided the remaining articles between the research team members for independent review. The process continued iteratively for the remaining articles with biweekly to monthly team meetings to discuss the articles that were independently reviewed. After the review process, 29 articles met the full criteria.

Results

Study Sample Characteristics

The 29 articles' years of publication ranged from 2008 to 2020 (Table 2). Our study topics included youth psychotropic medications, bipolar disorder, substance abuse, bullying, exercise, mental health stigma, stress, trauma, obesity, parenting, Latina mental health, transgender, cultural adaptation of mental health interventions, and care coordination effectiveness. The study focal populations were adults 48% (n = 14), youth 24% (n = 7), and both adults and youth 28% (n = 8). The geographical distribution was 69% (n = 20) in the United States and the other 31% (n = 9) in Canada, New Zealand, Zambia, and South Africa. The majority of the studies took place in urban settings 76% (n = 22). Participants included racial/ethnic minority groups 35% (n = 8); individuals experiencing mental illness 20% (n = 8); healthcare service providers 20% (n = 7); caregivers 10% (n = 5); school personnel 10% (n = 4), and individuals experiencing homelessness, parolees, and community members 10% (n = 3). Some studies included more than one type of participants; therefore, the total percentages may be greater than 100. For example, Ford-Paz and colleagues (2019) conducted a study of a school-based intervention with program youth, program counselors, school staff, and parents as participants.

Table 2: *Study Characteristics*

Study	Topic	Target Population	Geography/Location	Study Participants	Study Purpose
Barnett et al., 2018	Psychotropic medications for youth in child welfare	Youth	Rural/USA	Child welfare staff, mental health professionals	To establish a local stakeholder advisory team that will assist in the development of a psychotropic field guide for children in welfare and run a pilot test.
Bell et al., 2014	Bullying	Youth	Lumbee Tribe/ Rural/North Carolina, USA	American Indian youth	To examine the perceptions and demographic, health, and psychosocial correlates of bullying among Lumbee Indian youth in North Carolina
Berkel et al., 2013	Adolescent substance use & sexual risk behavior	Adults	Rural/Georgia, USA	African American primary caregivers of 11-year-old children	To examine the implementation and fidelity of racial socialization activity within the Strong African American Families program
Blitz et al., 2016	Trauma and toxic stress (TTS)	Youth & adults	Urban/ Northeastern, USA	Teachers, classroom aides	To investigate 1) perceptions of students' behaviors, 2) understanding of TTS and race, and 3) self-reported stress levels and teaching efficacy
Campbell et al., 2015	Substance abuse	Adults	Urban/Northern Plains & Pacific Northwest, USA	American Indian/Alaskan Native (AI/AN) adults	To assess the acceptability of a web-based version of the community reinforcement approach developed for substance abuse treatment seekers at two outpatient programs
Carvajal et al., 2013	Study 1: Border community and immigration stress & barriers to health care Study 2: Border community farmworker health (stress)	Adults	USA border region/Arizona, USA	Study 1: Latinos (general population); Study 2: Rural farmworkers	Study 1: To pilot a stress survey of mental health indicators, physical health indicators, and immigration-enforcement related mistreatment Study 2: To examine stress in order to promote farmworker health in an agricultural community

Study	Topic	Target Population	Geography/Location	Study Participants	Study Purpose
Conway et al., 2017	Care coordination & wellness	Adults	Rural frontier community/Ely, Minnesota, USA	Community Care Team organizations, adult patients who participated in care coordination	To describe the development of a rural, grassroots-driven care coordination (medical home) project
Crooks et al., 2018	Cultural adaptation of a mental health curriculum	Adults	Canada	First Nations and Metis Nations	The purpose of this study was to undertake a feasibility study of the Mental Health First Aid First Nations course to assess the acceptability of the intervention and cultural adaptation, and preliminary participant outcomes.
Dickerson et al., 2014	Substance abuse treatment	Adults	Urban/Los Angeles, California, USA	AI/AN adults	To refine and test the drum-assisted therapy intervention to facilitate the necessary refinements to the DARTNA treatment manual (e.g., intervention)
Ferguson, 2012	Mental health treatment and employment services for homeless youth	Youth	Urban/Los Angeles, California, USA	Homeless youth	To demonstrate the utility of combining social enterprise interventions with mental health care of homeless youth
Ford et al., 2019	School-based intervention serving primarily ethnic minority girls	Youth	Urban/USA	Program counselors, program participants, school staff, and parents	To conduct a participatory, formative evaluation of a community-developed intervention with a large sample of ethnic minority girls across multiple schools. A secondary goal was to use findings to inform continued program improvement and prepare for a rigorous outcomes evaluation
Goodyear-Smith et al., 2016	Mental health	Youth	Rural/New Zealand	Enrolled and non-school enrolled youth with a focus on the Maori	To pilot the YouthCHAT program, assess its utility and acceptability for enrolled/non-school enrolled youth and health clinic staff, and build a framework for subsequent roll-out.

Study	Topic	Target Population	Geography/Location	Study Participants	Study Purpose
Hanssmann et al., 2008	Multicultural & transgender competence	Adults	Urban/Seattle, Washington, USA	Healthcare providers	To determine whether competency trainings were effective in increasing the clinical and cultural competence of health care providers in delivering care to transgender clients or patients
Hoffmann et al., 2015	Exercise for people with severe & persistent mental illness (SPMI)	Adults	Urban/Pittsburgh, Pennsylvania, USA	Adults with SPMI & history of violence or substance abuse	To tailor an exercise program for people with SPMI
Jee et al., 2015	Mindfulness based stress reduction program for traumatized youth in foster care	Youth	Urban/New York, USA	Youth, ages 14–21	1) To measure baseline stress among a group of youth in foster; 2) to design and implement a pilot program to target stress reduction by adapting an evidence-based group therapy technique; 3) to measure impact on stress using psychological and physiological techniques
Livingston et al., 2014	Mental health & police interactions	Adults	Urban/Vancouver, Canada	Adults with mental illness who have had police contact	To examine the perceptions and experiences of people with mental illness in relation to their interactions with police
Marlow et al., 2015	Formerly incarcerated adults (self-esteem, self-efficacy, social support, coping, 12-step participation)	Adults	Urban/Alameda County, California, USA	Male parolees	To assess the feasibility and impact of a peer mentoring intervention for recently released men
Michalak et al., 2015	Stigma related to bipolar disorder	Adults	Urban/Canada	Adults experiencing bipolar disorder, health care providers	To identify self-management strategies for bipolar disorder for maintaining balance in mood and stopping progression into hypomania.

Study	Topic	Target Population	Geography/Location	Study Participants	Study Purpose
Michalak et al., 2019	Bipolar Disorder Management	Adults	Urban/Canada	Adults experiencing bipolar disorder	To advance understanding of knowledge translation strategies in bipolar disorder
Murray et al., 2013	Trauma Focused-Cognitive Behavioral Therapy (TF-CBT) adaptation and process explanation	Youth	Urban and low-income/Lusaka, Zambia	Children and adolescents who experienced trauma	1) To select an evidence-based trauma treatment for children and adolescents, and 2) to describe the adaptation of TF-CBT
Pakhale et al., 2018	Tobacco and Substance use	Youth & adults	Urban, Canada	Individuals 16+ using drugs and tobacco	To assess the feasibility of implementing a community-based participatory tobacco dependence strategy in Ottawa's inner city
Russell et al., 2019	Illicit drug use in youth	Youth & adult	Rural/Canada	Youth and key informants	To pilot test both prevention interventions and assess barriers to and facilitators of intervention implementation
Sampson et al., 2013	Stress & asthma	Youth & adults	Low income neighborhoods/ Detroit & Dearborn, Michigan, USA	Caregivers of children with asthma	To communicate how low-income caregivers conceptualize stress
Shannon et al., 2016	Mental health service referral process for refugees	Youth & adults	Urban/Minnesota, USA	Mental health providers	To examine providers' perspectives on key characteristics of successful and unsuccessful referral processes for refugees in need of mental health services
Staudt et al., 2015	Latino health disparities in "colonia"	Youth & adults	Colonia/El Paso, Texas, USA	Households in Colonia	To examines the incidence of cancer, respiratory health, and mental illness among Hispanics living in Westway colonia (adjacent to a steel recycling plant)

Study	Topic	Target Population	Geography/Location	Study Participants	Study Purpose
Suchman et al., 2020	Parenting	Adults	Urban/South Africa	High risk mothers and treatment providers	To examine the feasibility and acceptability of adapting an evidence-based parenting intervention called Mothering from the Inside Out
Vaughn et al., 2013	Obesity & bullying	Youth & adults	Urban/Cincinnati, Ohio, USA	K–8 students, parents, college students, school staff, and administrators	To allow stakeholders, including students, to generate and prioritize specific strategies to address obesity and bullying
Vaughn et al., 2016	Obesity, stress, coping	Adults	Urban & rural/ Hamilton County, Ohio, USA	Latino immigrant community members and Latino-serving providers	To (1) generate strategies to address obesity, stress and coping, and healthcare navigation that are contextually appropriate and applicable; (2) identify the most salient strategies within the areas of obesity, stress and coping, and healthcare navigation; and (3) use the results to develop specific interventions to improve Latino health in the local region
Woods-Jaeger et al., 2018	Toxic stress	Youth & adults	Urban/USA	Parents and their children, teachers, and therapists	To implement two interventions in a community-based, early education setting that promote positive, nurturing parent-child and teacher-child relationships

MMR Characteristics

MMR designs should be driven by the intent of the study and include a rationale for the selected design based on how the quantitative and qualitative methods are integrated (Fetters et al., 2013). As listed in Table 1, several MMR designs have been established (Creswell & Plano Clark, 2018). An explicit MMR rationale was stated in 35% (n = 10) of the articles and MMR methodological references were cited in 28% (n = 8) (see Table 3). In our review, 31% (n = 9) of the studies used a convergent design, where data collection and analysis for both methods were conducted at approximately the same time and then merged during analysis for comparison. Another 31% (n = 9) of the studies used explanatory sequential designs in which the qualitative approach follows the quantitative approach in order to explain the quantitative results. In an exploratory sequential design (14%, n = 4), the qualitative approach precedes the quantitative approach. In 6 of the 29 articles (21%), an intramethod design was used which involves the use of both quantitative and qualitative methods using the same dataset or data collection technique. Finally, one study used a multiphase design that incorporated more than two phases of quantitative and qualitative data collection.

Self-report questionnaires such as surveys and pre/post assessments were predominantly featured among the studies, with 90% (n = 26) of the studies using these data collection methods. Of these, 21% (n = 6) included open-ended questions. Seven percent (n = 2) of the studies incorporated administrative data related to the program participants. The qualitative data collection methods represented in the studies were more varied. Fourteen studies (48%) used interviews and 28% (n = 8) used focus groups. A variety of other qualitative data collection methods were utilized, (31%, n = 9), such as video analysis, module feedback, patient document review, observations, narratives, process notes, meeting notes, observations, and written notes. Concept mapping, which has been defined as an intramethod data collection method, was represented in two studies (7%).

A core feature of mixed methods research is integration: the intentional mixing or combining of the quantitative and qualitative data sets (Fetters et al., 2013). In the implementation of a mixed methods design, researchers choose among three main procedures based on the intent of integration in the study: (1) connecting, or using one data set to explain the findings in the other data set; (2) building, or using one data set to build or develop the data collection strategy for the next data collection phase; (3) merging, or comparing the results of the quantitative phase with the results of the qualitative phase; and (4) embedding, or mixing qualitative and quantitative data sets at multiple points in the research design using any combination of connecting, building, and merging. Of the reviewed studies, 66% (n = 19) evidenced connecting as their integration strategy during implementation. For example, Hanssmann et al. (2008) used connecting to integrate pre- and post-questionnaires data with follow-up interviews in an effort to evaluate training and develop competency recommendations for healthcare providers working with transgender and gender-nonconforming clients. Eight of the training participants were interviewed to gain a deeper understanding of what was learned from the questionnaire results. From the qualitative data, the researchers were able to identify knowledge retained by the participants and potential gaps in the training delivered. Following connecting, merging was used in 45% of studies (n = 13), while building and embedding were used the least, 10% (n = 3) and <1% (n = 2), respectively. Around 31% (n = 9) of the studies evidenced more than one integration method.

When reporting their findings and discussion, authors used at least one of three primary integration strategies: narrative (describing the findings of both data sets together), data transformation (turning qualitative data into quantitative data for quantitative analysis, or vice versa), or joint displays (visual matrices or figures that show quantitative and qualitative results together). The vast majority of studies (86%, n = 25) used narrative strategies to describe their mixed methods results, similar to what would be done when reporting the results of individual quantitative or qualitative studies. This large percentage was followed by joint displays (10%, n = 3) and data transformation (<1%, n = 2). Two studies (<1%) used more than one integration interpretation approach.

Table 3: *MMR Features of Included Studies*

Study	MMR Design	MMR Methods & Sample Size	MMR Rationale	MMR Language	MMR References	Integration Methods	Integration Interpretation
Barnett et al., 2018	Convergent	Survey (n = 10) Interviews (n = 9)	No	No	No	Connecting Merging	Narrative
Bell et al., 2014	Exploratory sequential	Survey (n = 80) BMI measurement (n = 80) Interviews (n = 16) Focus groups (n = 31)	Tailor the intervention and survey for the target audience	No	No	Merging	Narrative
Berkel et al., 2013	Convergent	Fidelity measure/video analysis (n = 20 groups) Questionnaires (n = 332)	No	No	No	Connecting Merging	Narrative
Blitz et al., 2016	Convergent	Questionnaires (n = 42) Interviews (n = 29)	No	No	No	Connecting	Narrative
Campbell et al., 2015	Explanatory sequential	Baseline substance use (n = 40) Module feedback survey (n = 40) Follow-up assessment with closed/open-ended questions (n = 26) Interviews (n = 26)	No	Yes	No	Connecting Merging	Narrative
Carvajal et al., 2013	Intramethod	Study 1: Survey with closed/open-ended questions (n = 147) Study 2: Survey with closed/open-ended questions (n = 299)	No	Yes	No	Connecting	Narrative

Study	MMR Design	MMR Methods & Sample Size	MMR Rationale	MMR Language	MMR References	Integration Methods	Integration Interpretation
Conway et al., 2017	Multiphase	Social network survey (Time 1 n = 11; Time 2 n = 21; Time 3 n = 19) Patient administrative data (n = 143) Organizational administrative data (n = 47) Patient questionnaires (Time 1 n = 19; Time 2 n = 27)	No	Yes	No	Merging	Narrative
Crooks et al., 2018	Convergent	Participant survey (n = 91) Participant interview (n = 89) Facilitator survey (n = 12) Facilitator interview (n = 9) Observations (n = 10)	Specifically, we undertook a mixed methods evaluation to look at impacts on acceptability of the course, satisfaction with the cultural adaptation, and individual-level impacts on knowledge, awareness, stigma, self-efficacy and skills.	Yes	Yes	Connecting Merging	Joint Display
Dickerson et al., 2014	Explanatory sequential	Questionnaires (n = 10) Focus groups (n = 15)	No	No	No	Embedding	Narrative
Ferguson, 2012	Explanatory sequential	Questionnaires (n = 28) Focus group (n = 3 groups)	No	Yes	No	Connecting	Narrative

Study	MMR Design	MMR Methods & Sample Size	MMR Rationale	MMR Language	MMR References	Integration Methods	Integration Interpretation
Ford-Paz et al., 2019	Explanatory Sequential	Pre/Post Counselor Focus Groups (n = 17, 18) Pre/Post teacher student evaluation (n = 660, 661) Counselor Surveys (n = 18) End-of-year survey (n = 585) Standardized measures Administrative data	Applied, mixed methods research lends itself well to community collaboration and enhances the credibility and relevance of study outcomes by seeking comprehensive answers to research questions and integrating multi-informant quantitative and qualitative data to reach justifiable conclusions.	Yes	Yes	Connecting Merging	Narrative
Goodyear-Smith et al., 2016	Convergent	YouthCHAT Domains (n = 30) Questionnaires (n = 30) Surveys (n = 30) Focus group (n = 5) Interviews (n = 2)	No	No	No	Merging	Narrative
Hanssmann et al., 2008	Explanatory sequential	Questionnaires (n = 55) Interviews (n = 9)	No	Yes	No	Connecting	Narrative
Hoffmann et al., 2015	Exploratory sequential	Survey (n = 16) Focus group (n = 14) Open-ended questionnaire (n = 16) Document review	No	No	No	Building	Narrative Joint display

Study	MMR Design	MMR Methods & Sample Size	MMR Rationale	MMR Language	MMR References	Integration Methods	Integration Interpretation
Jee et al., 2015	Explanatory sequential	Pre/Post youth measures (n = 42) Focus groups (n = 22)	In an effort to augment our quantitative data analysis we also collected qualitative data.	No	No	Connecting	Narrative
Livingston et al., 2014	Intramethod	Survey with closed/open-ended questions (n = 60)	No	Yes	No	Connecting	Narrative
Marlow et al., 2015	Explanatory sequential	Questionnaires (n = 20) Interviews (n = 13)	No	Yes	No	Connecting Merging	Narrative
Michalak et al., 2015	Explanatory sequential	Questionnaires (n = 164) Interviews (n = 33)	Findings from the quantitative analysis were used to develop the qualitative interviews Quantitative findings used for purposeful sampling of participants in follow-up interviews	Yes	Yes	Connecting	Narrative Joint display
Michalak et al., 2019	Explanatory sequential	Questionnaires (n = 94) Interviews (n = 43)	No	Yes	Yes	Connecting	Narrative
Murray et al., 2013	Exploratory sequential	Questionnaires (n = 21) Interviews (n = 66) Written notes	Develop a cultural adaptation of the intervention	No	No	Building	Narrative
Pakhale et al., 2018	Convergent	Questionnaires with open ended questions (n = 80)	No	Yes	No	Merging	Narrative
Russell et al., 2019	Convergent	Questionnaires (n = 100) Focus groups/Interviews (n = 137)	No	Yes	Yes	Connecting	Narrative

Study	MMR Design	MMR Methods & Sample Size	MMR Rationale	MMR Language	MMR References	Integration Methods	Integration Interpretation
Sampson et al., 2013	Convergent	Survey (n = 40) Interviews (n = 40)	No	No	No	Connecting	Narrative
Shannon et al., 2016	Intramethod	Survey (n = 64) Narratives (n = 64)	Obtain rich description and factors related to successful referrals	Yes	Yes	Connecting Merging	Narrative
Staudt et al., 2015	Intramethod	Survey with closed/open-ended questions (n = 104 households; 400 individuals)	No	Yes	Yes	Connecting Merging	Narrative
Suchman et al., 2020	Exploratory sequential	Questionnaires (n = 25) Process notes Meeting notes	No	Yes	No	Building	Narrative
Vaughn et al., 2013	Intramethod	Concept mapping (n = 270)	Understand the issue at multiple levels	Yes	No	Connecting	Data transformation
Vaughn et al., 2016	Intramethod	Concept mapping (n = 240)	Obtain community involvement and diverse perspectives	Yes	No	Connecting	Data transformation
Woods-Jaeger et al., 2018	Convergent	Youth questionnaires (n = 86) Parent questionnaires (n = 8) Interviews (n = 26) Observations (n = 2) Clinical notes	Using multiple methods allows for a more comprehensive understanding of feasibility in the target population and also makes it possible to identify modifications and refinements.	Yes	Yes	Merging Embedding (qual priority)	Connecting

CBPR Characteristics

The articles included in this review were analyzed for the key features of CBPR represented in mental health studies. Although the studies explicitly referenced the use of a CBPR approach, details about implementation of the approach were often lacking. The results presented here are based on what we were able to discern from the available article descriptions, which may or may not fully depict the use of CBPR in those studies. Table 4 displays each of the articles alongside evidence of the key features that were described.

Of the 29 articles, 18 (62%) provided an explicit rationale for their use of CBPR in the study. The most frequently stated rationale for using CBPR was related to tailoring a program or intervention for the focal population so that it was more relevant and culturally appropriate. Ten out of the 18 studies provided a rationale. For example, Hoffman et al. (2015) stated their rationale was to "increase our ability to tailor the intervention to the needs of the community and ensure the community's needs are addressed" (p. 214). Other studies (21%, n = 6) described using a CBPR approach to address community concerns and incorporate community perspectives on the study issue and findings. Additional rationales, which were each represented by two studies, included using research to promote community action, enhancing research quality, and establishing positive community-academic relationships.

Typically, CBPR approaches include academic researchers partnering with a variety of community members, including laypeople as well as professional stakeholders. In the current review of MMCBPR studies for mental health, we found that most of the studies (59%, n = 17) partnered directly with community members, such as community residents, tribal members, and members of the focal population. For instance, Bell et al. (2014) partnered with Lumbee Tribe of North Carolina in a study of bullying among American Indians. The next most reported type of partners was staff of community-based organizations, including treatment providers (n = 13; 45%). Lastly, four (14%) studies partnered with "other" types of stakeholders, which included school personnel, a community advisory board, and faith-based leaders. Nine of the 20 studies (31%) included more than one type of CBPR partner and only one (3%) did not clearly identify who was involved in the CBPR partnership.

Each article was analyzed for evidence of the nine CBPR principles based on the partnership descriptions provided in the article. Evidence of at least one principle was found in every article and all nine principles were represented in two articles (see Bell et al., 2014 and Conway et al., 2017), while three articles indicated alignment with only one principle. The most common principle for which there was evidence was Collaborative Partnership Across all Phases of Research (n = 26; 90%). This was followed by Co-Learning and Capacity Building (69%, n = 20), Strengths-based Orientation Towards Community (65%, n = 19), and Phenomenon Under Investigation is Relevant to Community (59%, n = 17) The least indicated principles were: Community Members Define Community (n = 9), Research Process is Cyclical and Iterative (n=10), and Long-term Commitment (n = 10).

This review focused on the intersection of MMR and CBPR within mental health studies to inform psychological research. Therefore, we examined where the CBPR partnership used MMR in the research cycle. Most studies employed MMR approaches during the Designing and Conducting Research phase of CBPR (90%, n = 26). Half of the studies in this phase (52%, n = 15) employed MMR for the purpose of intervention development. For example, Marlow and colleagues (2015) described MMR within their CBPR partnership to pilot and evaluate a peer mentoring program for male parolees. Other studies used MMR in the Designing and Conducting Research phase for the purpose of data collection (21%, n = 6), intervention implementation (17%, n = 5), and instrument development (14%, n = 4). Five of the 29 studies employed MMR for two purposes in the same study (e.g., intervention development and intervention implementation). Of the remaining three studies that used MMR outside of the Designing and Conducting Research phase, two used an MMR approach to Identify Priority Issues and the other for Assessing Community Strengths and Dynamics.

Table 4: *CBPR Features of Included Studies*

Study	CBPR Rationale	CBPR Partners	CBPR Principles	Phase of MMR in CBPR Cycle
Barnett et al., 2018	To develop a field guide that is "relevant, useful, feasible, and acceptable to all stakeholders"	Former foster youth, foster parents, birth parents, clinical staff, administrators, academic researchers	Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community Dissemination	Designing & conducting research—Intervention development
Bell et al., 2014	N/A	Tribe members	Community defined Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community Cyclical process Dissemination Long-Term commitment	Identifying priority issues
Berkel et al., 2013	Program adaptation to make the intervention more relevant to the target population	Community members	Strengths based Collaborative partnership Co-Learning/capacity building Long-Term commitment	Designing & conducting research—Intervention development
Blitz et al., 2016	1) Address complex school/community concern; 2) provide important insights into school innovations	School principal, teachers, and other personnel	Collaborative partnership Relevant to community	Designing & conducting research—data collection (general), intervention development

Campbell et al., 2015	1) Ongoing community-academic relationships that promote bi-directional communication, engagement, and trust among stakeholders; 2) increased efficiency and quality of research efforts	Treatment program staff	Collaborative partnership Long-Term commitment	Designing & conducting research—Intervention development
Carvajal et al., 2013	N/A	Community members	Community defined Strengths based Collaborative partnership Relevant to community	Designing & conducting research—Data collection (general)
Conway et al., 2017	N/A	Community members, primary care physician, clinic administrator, project directors, care coordinators, organization administrators, and staff	Community defined Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community Cyclical process Dissemination Long-Term commitment	Designing & conducting research—Intervention implementation
Crooks et al., 2018	"We approached this work from a perspectivism lens by enlisting stakeholders as co-producers of knowledge, and explicitly addressing culture and contexts"	First Nations and Metis Nations peoples, academic researchers	Strengths based Collaborative Partnership Co-Learning/capacity building Relevant to community Dissemination	Design & conducting – intervention development and intervention

Dickerson et al., 2014	1) Increase the validity of the research; 2) establish community trust; 3) develop a culturally appropriate intervention	Community advisory board	Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community	Designing & conducting research—Intervention development
Ferguson, 2012	N/A	Community-based homeless youth agency	Collaborative partnership	Designing & conducting research—Intervention development
Ford-Paz et al., 2019	To develop a program that was relevant, culturally appropriate-effective to community	Community members, program leadership, academic researchers	Community defined Strengths based Collaborative partnership Co-Learning/capacity building Action Oriented Relevant to community Cyclical process Dissemination	Designing & conducting research—Intervention development
Goodyear-Smith et al., 2016	To engage stakeholders in "real life" translation of the program	Health clinic staff	Collaborative partnership Co-Learning/capacity building Action oriented Cyclical process Dissemination	Designing & conducting research—Instrument development
Hanssmann et al., 2008	N/A	Non-profit clinic staff	Community defined Collaborative partnership Co-Learning/capacity building Action oriented Dissemination	Designing & conducting research—Intervention implementation

Hoffmann et al., 2015	To address community needs through a tailored intervention	Community members, community-based organization staff and interns	Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community Cyclical process Dissemination	Designing & conducting research—Intervention development
Jee et al., 2015	To have "youth-directed" feedback to tailor training curriculum.	Youth	Collaborative partnership Co-Learning/capacity building Action oriented	Designing & conducting—Intervention development and randomized controlled trial
Livingston et al., 2014	N/A	Community members	Strengths based Collaborative partnership Co-Learning/capacity building Relevant to community	Designing & conducting research—Data collection
Marlow et al., 2015	To include the target population in the development of services	Community-based organization staff	Community defined Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community Long-Term commitment	Designing & conducting research—Intervention development
Michalak et al., 2015	1) Ensure the research process reflects community member perspectives; 2) generate knowledge that contributes to social change	Community members	Collaborative partnership	Designing & conducting research—Intervention implementation

Michalak et al., 2019	N/A	Community advisory group, individuals with bipolar disorder	Strengths-based Collaborative partnership Action oriented Relevant to community Cyclical process Dissemination Long-Term commitment	Designing & conducting research—Intervention development
Murray et al., 2013	To get community members perspectives on study results and identify recommendations	Community members, provider agencies, community-based organizations	Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community Cyclical process Dissemination	Designing & conducting research—Instrument development
Pakhale et al., 2018	N/A	Community peer researchers	Collaborative partnership Co-Learning/capacity building Action oriented Dissemination Long-Term commitment	Designing & conducting research—intervention
Russell et al., 2019	To gain "ongoing feedback" through the research process from community members	Community members	Strengths based Collaborative partnership	Identifying priority issues & research questions
Sampson et al., 2013	N/A	Community-based organizations	Collaborative partnership Co-Learning/capacity building Long-Term commitment	Designing & conducting research—Instrument development

Shannon et al., 2016	N/A	Cultural leaders, physicians, health department staff, health plan representatives, social workers, refugee resettlement staff	Strengths based	Assessing community strengths & dynamics
Staudt et al., 2015	1) Make use of community expertise; 2) share findings for dissemination and action	Community-based organization, faith-based leaders	Community defined Strengths based Collaborative partnership Relevant to community Dissemination	Designing & conducting research—Data collection (general)
Suchman et al., 2020	Adapt the intervention to the local context and focal population	Psychosocial treatment providers	Community defined Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community Cyclical process Long-Term commitment	Designing and conducting research—instrument development
Vaughn et al., 2013	Adapt the intervention to local context and focal population	N/A	Strengths based Action oriented Relevant to community	Designing & conducting research—Data collection (general), intervention development
Vaughn et al., 2016	N/A	Community members	Strengths based Collaborative partnership Co-Learning/capacity building Action oriented Relevant to community	Designing & conducting research—Data collection (general), intervention development

Wood-Jaeger et al., 2018	Adapt the intervention to the local context and focal population	Parents, educators, social services providers, healthcare service providers	Cyclical process Strengths based Collaborative partnership Action oriented Relevant to community Cyclical process Long-Term commitment	Designing and conducting research—instrument development

Discussion

MMCBPR is a comprehensive research approach that is strengths-based and aims to empower marginalized, vulnerable communities by developing more relevant and sustainable solutions. By mixing quantitative and qualitative methods within the CBPR framework, practitioners and researchers in psychology and related mental health disciplines have the opportunity to maximize their ability to build more equitable communities with potential long-lasting impact. This review demonstrates how an MMCBPR approach has been used within studies related to mental health and identifies areas for improvement in future research and reporting.

The use of MMCBPR in mental health studies indicates some evidence of intersecting the two approaches. However, the deliberate use of MMR and CBPR concepts and literature could be improved. This is evidenced by the limited number of articles that provided an explicit rationale for CBPR and especially MMR. The articles that provided CBPR rationales appear to have done so in order to incorporate community experiences and expertise to create treatment and intervention programs that are more relevant to the focal population. This is not surprising given the push in recent years to address and improve client engagement (Fuertes & Nut Williams, 2017; Holdsworth et al., 2014). Additionally, studies have shown that client engagement in treatments that honor their autonomy, lived experience, and meet expectations for what they need , improve client satisfaction and outcomes (Dearing et al., 2005; Scheel, 2011).

Although the mental health studies in this review used CBPR and showed evidence of partnerships that integrate more community engagement than historically represented in the field, they appear to lack long-term commitment, which would allow for more rigorous study of treatments and intervention programs. This limited use of CBPR, and thus limited use of MMR within a single phase of research, further suggests an overall ad hoc intersection of MMR and CBPR to date. While this is understandable given that these types of hybrid research approaches are still budding within the field of research (DeJonckheere et al., 2018), if the field of psychology and other mental health professionals are going to advance rigorous mixed methods research approaches to comprehensively address social injustices that impact mental well-being, careful attention to strengthening the intersection of MMR and CBPR is necessary. For example, MMCBPR could contribute to more effective interventions if it were more frequently used to identify community strengths, needs, and priorities prior to intervention development.

Limitations

Through this review we aim to advance the use of MMCBPR in mental health studies by applying a critical lens to existing empirical articles. Our approach has several limitations. First, the typical academic journal format and length allowed for a manuscript may influence what content is included in a publication and therefore limit our understanding and evaluation of each study. Although MMR and CBPR can often be described to the extent in which other methodologies and research designs are presented in typical journal articles, the descriptions of MMR and CBPR components and processes could take up an entire article of their own.

Second, we operationalized each article as its own study and excluded related articles that extended into multiple publications (e.g., one study manuscript published quantitative results and a follow-up manuscript focused on the qualitative results). In these cases, study authors may consider each method and findings to be part of one larger study, but if both were not represented in a single article, MMR integration could not be reviewed.

Third, we limited this review to the CBPR approach because of its prominence in the mental health literature and recommendations to explore MMCBPR in different fields; however, there are other action and

participatory research approaches that can be intersected with MMR (e.g., Ivankova, 2014; Ivankova & Wingo, 2018) and should be examined in future reviews to fully understand the field.

Improving the Intersection of MMR and CBPR in Mental Health Studies

Despite the limitations within this review and the use of MMCBPR to date, the increasing use and relevance of MMR and CBPR and the potential power of intersecting the two approaches in psychological research warrants practical guidance for using the innovative yet complex methodological approach. The recommendations below aim to use the findings from this review to (1) advance the agenda of social justice and critical inquiry within the mental health field and (2) increase intentionality around the combination of MMR and CBPR approaches in mental health studies. The following sections describe a set of MMCBPR practices derived from one or more of the seven phases of CBPR described by Israel and colleagues (2013), indicated in brackets.

Gather a diverse team to build equity in the MMR design [Forming a CBPR partnership].
A central feature of any MMCBPR project should be commitment to and focus on relationships between community and academic partners. A key principle of CBPR is equitable research partnerships across all phases (Israel et al., 2013). CBPR partnerships require equitable community –academic research partnerships to help all stakeholders benefit from knowledge gained about a given topic. To incorporate MMR in this initial phase of CBPR, academic partners should consider what type of methodological expertise is needed to conduct an MMR study. Researchers should also consider what kind of training and dialogues are needed for both community members and academic partners to actualize the benefits of MMR as a means to improve individual and community well-being.

Incorporate MMR into the assessment of community strengths and resources to develop research questions that are meaningful to community partners [Assessing community strengths and dynamics; identifying priority issues].
This phase of MMCBPR can serve as a first iteration of a long-term research partnership and a potential multiphase MMR design focused on mental wellness. The assessment should center on identifying concerns and unmet needs that are relevant to the focal population. These should then inform research questions that, when answered, can generate solutions for the identified issues. Incorporating questions that can be answered through mixed methods provides the opportunity to understand a problem across a broader sample of the population (quantitative) and through rich descriptions of the local context to better inform viable solutions (qualitative). MMR best practices also necessitate a question that focuses on how the data collection methods will be integrated (Creswell & Plano Clark, 2018; Plano Clark & Ivankova, 2011) to inform the mental health issue being studied. All CBPR team members should review possible quantitative and qualitative methods to select those that will best answer the research questions and be acceptable for the focal population.

Develop an MMCBPR rationale for answering the identified research questions. [Designing and conducting research].
An MMCBPR rationale serves as a roadmap to the process of co-creating knowledge that benefits communities. It also provides a clear understanding of how MMR and CBPR intersect in a study in order to strengthen the empirical evidence produced within mental health. Inclusion of an MMCBPR rationale in written proposals and research manuscripts can help readers and reviewers assess the value added by the selected approach, which is necessary for expanding MMCBPR within mental health studies. It is also necessary so that other researchers and communities may use or replicate MMCBPR designs in their own studies. The rationale should include an MMR rationale and a CBPR rationale (DeJonckheere et al., 2018), as well as a description of how the two intersect within the study to contribute to mental health research.

As part of identifying the priority issues and research questions, an MMR rationale can inform the type of MMR design to be used and explain the benefits of the design. Examples of MMR rationales identified and

described in the scholarly literature include triangulation, complementarity, intervention development, offsetting weaknesses present in quantitative and qualitative methods alone, and promotion of social justice (see Bryman, 2006; Creswell & Plano Clark, 2018; Plano Clark & Ivankova, 2016). This literature should be consulted and cited when developing the MMR rationale.

Of the CBPR rationales identified in the current review, most describe incorporating community experiences and expertise to create programs that are more relevant to the focal populations. This indicates that the field is interested in research that better aligns with community needs and has made some strides in producing research that at least indirectly questions traditional academic-driven paradigms. That being said, additional exploration of rationales for using CBPR in mental health and related studies would help advance MMCBPR literature within this field of study.

Describe how the selected MMR design contributes to the aims of the CBPR partnership [Designing and conducting research].

The local context, research questions, and MMCBPR rationale should inform the MMR design. To ensure the intersection of MMR and CBPR is intentional and thorough, practitioners should describe how the use of MMR contributes to the broader goals of the CBPR partnership and furthers their work together. Additionally, study authors should state how this intersection benefits mental health research. For example, in studying the effectiveness of a new intervention developed by CBPR partners, a convergent design may be selected to quantitatively measure the impact of the program on individuals and qualitatively examine how the intervention has been implemented within a practice setting. The integration of methods in this example could contribute to the partnership by allowing them to assess their co-created intervention and determine next steps for applying the findings in the local setting, but it also can contribute to the mental health literature about potential effective interventions.

Utilize the expertise of CBPR partners to conduct the MMCBPR study. [Designing and conducting research].

An ideal CBPR partnership incorporates community members throughout all phases of a research project and does not limit them to being external advisors to a research study conducted by academics. MMR studies are complex in their own right, with investigators having to juggle multiple components and potentially long timelines to execute the selected design. Integrating community members in the research design, participant recruitment, and data collection may not only alleviate the constraints many researchers face in reaching out to participants but utilizing their lived experience can enhance the rigor of the study (Balasz & Morello-Frosch, 2013; Vaughn et al., 2018). Studies focused on sensitive topics, such as mental health, may benefit from designs grounded in experiences of members from the target community and data collectors whom participants consider relatable and trustworthy as a means to improve response rates and obtain more detailed qualitative responses that contribute to the reliability of the study.

Collaborate with community partners for interpretation of MMR findings [Feeding back and interpreting research findings].

CBPR is an approach that aims to engender equality. By including community partners, it allows for a more robust and relevant interpretation of the findings leading to community action and change. This enhanced interpretation can be, in part, attributed to the diversity of interpreters, including the view from academia as well as those directly impacted by the phenomenon under investigation. Community strengths are placed in the forefront when interpreting the MMR qualitative and quantitative data streams and increase the potential to inform the social action aspects of CBPR. MMCBPR allows the interpretation of findings to be a place where those who historically have been marginalized in the research process are given meaning, power, voice, decision-making, and leadership. For example, Dickerson et al. (2014) investigated substance abuse in American Indians/Alaska Native (AI/AN) and the intervention of Drum-Assisted Recovery therapy. The research team (2014) developed a community advisory board (CAB), which included leaders, elders, and

drummers in the Los Angeles AI/AN community. During the qualitative stage, the CAB members attended the focus groups, providing input along with interpretation that assisted in the development of community-driven strategies and themes. By collaborating closely with community partners, MMCBPR has the potential to bring about transparency, justice, and community capacity within the research process, thus removing barriers for improved mental health.

Share MMR findings with diverse audiences for practice and community change [Disseminating and translating research findings].
Historically, there has been a gap in the dissemination and implementation of effective mental health interventions and practices; however, CBPR has been identified as a poignant strategy for improving the uptake of these within communities (Mendel et al., 2008). Although a key principle of CBPR is disseminating findings to all community partners and involving partners in the wider dissemination of findings in order to promote change, there was often a lack of explicit explanation of dissemination of findings beyond the academic journal within the studies included in our review. Moreover, when community dissemination was described, the text was often obscure and lacked clarity. A benefit of MMCBPR is having both the numbers and the stories to make the findings more compelling and translatable to diverse audiences, including those who can directly impact mental health, such as peers and community leaders, mental health providers, policymakers, and funders. In one exemplary study from our review, Bell and colleagues (2014) used community forums, discussion panels, social media via their CAB, and cultural enrichment programs as a way to disseminate information on suicide within the Lumbee youth. Future MMCBPR studies in mental health would benefit from consideration of community-academic dissemination strategies early in the process and clearly articulate the employed strategies in study publications.

Using MMR to strengthen CBPR partnerships [Maintaining, sustaining, and evaluating a CBPR partnership].
CBPR projects should seek to benefit all stakeholders by offering a balance between research agenda and action that benefits the community (Israel et al., 2013). The pragmatic and dialectical philosophical underpinnings of MMR (Greene & Hall, 2010) complement and provide a methodological framework for implementing this major tenet of CBPR. Just as CBPR has the potential to improve the execution of MMR, MMR offers a comprehensive approach to furthering the aims of CBPR. That said, none of the studies in this review specifically used MMR to maintain, sustain, or evaluate the CBPR partnership, although a few studies showed long-term commitment to the partnership (Bell et al., 2014; Berkel et al., 2013; Campbell et al., 2014; Conway et al., 2017; Marlow et al., 2015; Sampson et al., 2013). As the field of mental health continues to push for meaningful engagement of individuals and families in research and service provision, MMR can be incorporated to ensure that these partnerships are understood and supported in order to fully actualize community change.

Conclusion

Our findings indicate that MMCBPR studies are being used to examine research questions related to mental health and well-being. This aligns with the field's focus on interventions that are relevant to the focal population and the use of comprehensive research designs that allow for process and outcomes evaluation. In order to effectively leverage the aims of both mixed methods research and community-based participatory designs, researchers should intentionally consider the varied ways in which MMR and CBPR can be intersected. MMCBPR projects require negotiating roles for community and academic partners and identifying specific ways that community partners can be involved throughout the research process, including contributions to the conceptualization, design, data collection, analysis, and dissemination phases. Though the lived experience and expertise community partners' offer is essential to intervention development, we recommend that mental health researchers, practitioners, and students from a variety of fields consider how

they can use MMCBPR more frequently to identify community strengths, needs, and priorities prior to intervention development and implementation. Additionally, given the inherent complexities of MMR studies in mental health, there is room to use MMCBPR in the interpretation of results to improve interventions, program delivery, and the effects on individuals and families. The eight MMCBPR best practices developed as a result of this methodological review can be used to promote social justice and positive change to improve mental health and well-being.

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