Conceptualizing and operationalizing community resilience: A scoping review of the social and health sciences literature

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Abstract

Literature from various academic disciplines indicates that in recent decades, community resilience (CR) has evolved significantly in conceptualization and operationalization. However, the relevance and empirical inclusion of CR in social and health sciences research remain sparse and fragmented. This scoping review, therefore, aimed to assess the conceptualization of CR in social and health sciences research; determine the availability of tools measuring this construct; and identify the psychometric properties of available instruments. Findings highlight how CR has shifted from a peripheral ecological concept to a central goal in the psychosociological discourse. Though results indicated little consensus regarding the definition of CR, several common core elements were identified in the included literature. Furthermore, there is minimal evidence on robust metrics that comprehensively measure CR as a complex psychosocial construct. Review results highlight the importance and provide pragmatic implications regarding the inclusion of core elements of CR in community-based strategies and development efforts.

Keywords: Community Resilience; Social Capital; Collective Action; Social Development

Introduction

Four decades of research suggest an evolution in the conceptualization and operationalization of community resilience (CR) in the broader social sciences (Patel et al., 2017). Historically, CR has been generally understood as the adaptive capacity of communities to respond to adverse situations (Patel et al., 2017). Based on this definition, CR has been a widely used concept in the ecological sciences, particularly in the context of disasters caused by natural hazards (hereby simply referred to as 'disasters') (Cutter et al., 2008). Recently, however, the concept of CR has been increasingly applied across a wide range of health and social science disciplines in myriad ways. In this evolving body of literature, CR has been broadly used to describe the capacities of communities to respond to and recover from stressful events, situations, or circumstances (Folke, 2006; Norris et al., 2008; Plough et al., 2013; Vallance and Carlton, 2015).

Although the utility of the CR concept has broadened beyond the disaster context, challenges remain in defining and operationalizing the concept of CR and its core characteristics beyond ecologically focused research. For instance, how communities are identified and sampled and the data collection and analysis methods for CR-related study variables (e.g., community structures and capacities, change catalysts and mechanism, resilience processes and outcomes) can vary significantly based on the general research discipline and specific study purpose and aims. Furthermore, inconsistencies in the definitions of CR concomitantly affect the development and refinement of robust and comprehensive measurement tools, which are essential for rigorous research-related activities.

Thus, remaining gaps in the literature limit current evidence and applications of CR-related research in other health and social science fields. In emerging research areas, scoping reviews have been identified as an appropriate and rigorous method of exploring and synthesizing the relevant literature (Colquhoun et al., 2014). To assess and subsequently strengthen the current state of knowledge, we therefore conducted a scoping review of CR conceptual and operational evidence in the social and health sciences literature. By identifying areas of convergence and divergence in the conceptualization and

operationalization of CR, the results of our review can support rigorous utility of the concept in broader fields and populations and inform future applications of CR to community-related research, policy, and practice efforts.

Background: conceptual evolution of CR

Originating in the ecological disciplines, the term *resilience* was introduced in an effort to conceptualize the states of ecosystems and operationalize their capacity for self-sustainment (e.g., structures, functions) when faced with disturbances (Carpenter et al., 2001; Patel et al., 2017). According to this initial equilibrium-based conceptualization, resilient responses to disturbance are based on efforts to conserve the system's original state, which can be defined and explained as a mathematical function (Folke, 2006). Given these conceptual origins, much of the contemporary resilience research has centered on the natural sciences, including economics, human geography, and environmental planning (Folke, 2006).

In recent years, however, researchers from the social sciences have adapted and applied the concept of resilience to various aspects of human systems and processes (Jain et al., 2014). Subsequently, conceptualization and operationalization of resilience evolved from an equilibrium-centered focus to a more dynamic, adaptation-based theory (Bec et al., 2016). Regarding the resilience of communities, this iteration of resilience theory describes communities as responding to change through adaptive cyclical processes, in which systems do not enter a state of equilibrium but rather shift through phases of growth, conservation, collapse, and reorganization (Gunderson and Holling, 2002).

As a concept of socioecological responses to change, the development of CR theory has been informed by three primary change theories: adaptive, chaos, and transformation theories (Davoudi, 2012). Additionally, given the focus on human social development and systems in social and health research, the theory of CR has also evolved to incorporate concepts from the discipline of developmental psychology (Kulig et al., 2013). Expressly, resilience theories have increasingly incorporated three previously separate concepts of vulnerability or risk, adaptive capacity, and resilience (Bec et al., 2016).

In this context, previous resilience literature focused primarily on individual protective and risk factors for growth and functioning (Kulig et al., 2013). More recently however, CR research has conceptually shifted from a focus on stability and control toward understanding how individuals and systems respond to change through processes of self-organization, learning, and transformation (Bec et al., 2016). For instance, such shifts are reflected in similar changes in medical and public health fields, which have increasingly focused on community influences and other social determinants of health-related behaviors and outcomes (Allmark et al., 2014; Poortinga, 2012).

Thus, the concept of CR has evolved into a synergistic concept, incorporating individual and social construct and processes alongside those of its ecological origins (Buikstra et al., 2010). In health and social science fields, the concept of CR has been incorporated into multiple disciplines, including but not limited to: psychology, medicine, public health, education, sociology, economics, and social work. However, the variation of scholarly fields and foci (e.g., individual, systemic) through which CR has developed has resulted in a wide-ranging body of theories, models, and frameworks (TMFs; Davoudi, 2012; Jain et al., 2014; Patel et al., 2017). For example, one study identified six models for CR (Kulig et al., 2013). Subsequently, the concept of CR has been applied to understand many types of shifts in social systems, including social trauma (e.g., war, violence; Eshel and Kimhi, 2016), natural resource dependence (e.g., environmental degradation, climate change; Folke, 2006), and changing socioeconomic and political conditions (e.g., migration, globalization, technology; Bec et al., 2016).

Moreover, in an era of increasingly globalized social, economic, and political contexts, the parameters by which communities are defined have become similarly complex (Barr and Divine-Wright, 2012; McNally, 2015). In addition to the catalysts that trigger CR processes, the operationalization of CR has subsequently varied in social science research in terms of scope, population, and outcomes. Regarding the measurement and outcomes of CR processes, Bec et al. (2016) noted that studies have fallen along a continuum, with foci ranging from threats and vulnerabilities to opportunities and growth. The authors went on to note that these inconsistencies are reflected in the temporal nature of outcomes

in these studies, with some focusing on short-term responses and functioning, whereas others incorporated the long-term structural changes and efficacy of communities (Bec et al., 2016).

Furthermore, questions have been raised as to how features of CR and related outcomes are best measured; for instance, researchers have noted that in many studies, CR is indicated through the average resilience of individual members (McNally, 2015). Relatedly, concerns have been raised regarding the need for conceptual distinctions between constructs of resilience and other indicators of community quality (e.g., social determinants of health; Allmark et al., 2014). Thus, the literature highlights how complexities and variations in the conceptual evolution of CR are potentially problematic, particularly for CR-focused research outside its ecological origins. For instance, current conflicts in literature and evidence from the same research field (i.e. focus on threat or vulnerability versus opportunity or growth) emphasize the need for conceptual convergence regarding key resilience constructs.

In addition, potential implications and applications of available CR evidence are further limited by the lack of consistent and psychometrically robust methods for studying this concept. Moreover, even among studies using the same CR concepts or measurement tools, inconsistencies in how research populations (e.g., communities) and outcomes are defined (e.g., short-term responses versus long-term changes) subsequently limit the validity and generalizability of resultant evidence. Therefore, further research is needed to address current challenges with validly and reliably transferring CR frameworks to specific research approaches (populations, purpose, aims, designs, and methods) and appropriately applying subsequent findings to pragmatic action (e.g., community-related policies and practices; McNally, 2015).

Study purpose and design

Scoping reviews are an appropriate and rigorous method of exploring and synthesizing literature in emerging areas of research (Colquhoun et al., 2014). Although CR is prevalent in ecological studies, its use in the social sciences is in its nascent stages (Patel et al., 2017); thus, the emergent nature of this area of research indicates a scoping review is the best method for achieving the aims of this study

(Colquhoun et al., 2014). This study, therefore, followed the five-stage scoping review framework first outlined by Arksey and O'Malley (2005) and refined by Levac et al. (2010). Specifically, the five stages of this scoping review process were: (1) research question identification; (2) identification of relevant studies; (3) selection of studies; (4) data extraction; and (5) summary and analysis of the results.

The first step in this methodology is to clearly define the research question, then determine the appropriateness of a scoping review as the methodological approach (Levac et al., 2010). For this scoping review, the overarching research question was: In health and social science research, what is the current state of literature regarding the concept of CR and its operational dimensions beyond ecological contexts (e.g., natural disasters, climate change)? To address this research question, our review included the following specific aims:

1. To identify areas of convergence or divergence in the conceptual definitions of CR as utilized in health and social science research.
2. To assess levels of consistency and variation in how CR conceptual definitions are operationalized and applied in related research designs and methodologies.
3. To determine the availability and nature of data collection tools (e.g., constructs, psychometric properties, applications) intended to measure CR-related variables.

Upon identifying the study's purpose and confirming a scoping review as the appropriate research design (i.e., Stage 1), an iterative team approach was used to complete the scoping review process (e.g., Stages 2–5).

Method

Initially, two research team members independently identified and reviewed the resultant articles, then conducted data extraction and analysis procedures. In accordance with guidance from Levac et al. (2010), all members of the research team then reviewed the initial article selection, data extraction, and analysis results. Using an iterative team approach, areas of divergence were identified and discussed, whereupon consensus was reached regarding finalized study results (Levac et al., 2010). In the following subsections, we describe in detail the methods used during each stage in our review.

Literature search

Relevant articles were located using the EBSCO Discovery Service e-resource management system. Specifically, the following research databases were searched due to their relevance and established standards for study and article quality: Academic Search Complete, APA PsycInfo, CINAHL Plus, Health and Psychosocial Instruments, MEDLINE, Psychology & Behavioral Sciences Collection, SocINDEX, Social Work Abstracts, and Sociological Collection. In these database searches, EBSCO filters and topic selection were utilized to narrow publications, allowing the resulting literature to be specific to studies from the health and social sciences. Finally, Google Scholar was searched to ensure that all relevant articles were identified. The initial search yielded 8,258 potentially relevant studies (see Figure 1). Once duplicates were removed, 3,032 articles remained for screening and possible inclusion in the scoping review.

[Figure 1]

Article screening

Upon reaching team consensus that all potentially relevant articles had been identified, the researchers conducted the process of screening and selecting studies for review. To ensure that only studies appropriate for the scope of this study were selected from the literature search results, inclusion and exclusion criteria were first defined. Our inclusion criteria to establish academic quality and rigor standards for the literature reviewed (Levac et al., 2010) included studies: (a) published in peer-reviewed journals; (b) published in English; (c) published between 2008 and 2018; (d) that reported the methods and results of empirical qualitative, quantitative, or mixed-methods research (i.e. no systematic reviews, meta-analyses, conceptual papers, or study protocols); and (5) that described the application of CR-related concepts to health and social science research.

In addition, exclusion criteria were developed to ensure that all reviewed articles were in the scope of this study (Levac et al., 2010). As such, articles were excluded from the review if they: (a) did not specifically cite CR as a primary focus of the study; (b) did not fall in the scope of health or social sciences; or (c) were limited to the ecological context (i.e., disasters). Upon defining study inclusion and

exclusion criteria, the researchers initiated the process of selecting articles for inclusion in this scoping review (Levac et al., 2010). After screening the initial 3,032 search results by title, 93 articles required a subsequent screening by abstract. Abstract screening resulted in 59 articles that required a full-text review, following which 45 articles were identified as meeting the inclusion criteria for this study.

Data extraction and analysis

A descriptive-analytic method was used for article data extraction (Levac et al., 2010); specifically, a data-charting form (i.e. spreadsheet) was developed, after which two independent coders conducted a narrative review of the articles, entering relevant contextual and process-oriented information into the form (Levac et al., 2010). To this end, the following information was extracted from each study (n = 45): (a) research purpose and aims; (b) community parameters and definition; (c) CR definition and theoretical evidence; (d) study design and variables; (e) data collection and analysis methods; (f) measurement tools; and (g) psychometric properties of the measurement tools.

Upon completion of data extraction, numerical analyses were used to summarize the reviewed studies' characteristics in terms of research design, methodology, and measures used (Levac et al., 2010; see Tables 2–6 for further methodological details and results). Specifically, counts were taken for each study in the following characteristic categories: (a) definitions and delineations of studied communities, or the key or defining feature(s) of the research population (i.e. community), grouped into overarching domains based on descriptions provided by the researchers; (b) study designs, or reported type and purpose of study, based on the designs commonly utilized in social science research; (c) data collection methods, or the main type(s) of social science data collection methods (e.g., quantitative, qualitative, mixed) utilized for the reported study; (d) quantitative data collection, or the research purpose and evidence base for methods and measures used during study to collect and analyze quantitative data; (e) previously validated measures, including the stated purpose, constructs, and psychometric properties of previously validated quantitative measure(s) used during study to collect and analyze CR data; and (f) study-developed tools, including the development process, constructs, and psychometric properties (if

reported) of quantitative data collection tool(s) developed by the study researchers to measure and analyze CR-related concepts.

Finally, a thematic analysis was conducted to synthesize and analyze the extracted qualitative data regarding CR conceptual definitions and key constructs. Specifically, Braun et al.'s (2019) thematic analysis procedures were followed, using an iterative team approach. Initially, preliminary codes (e.g., words, phrases, labels) were identified by each researcher independently, based on their salience to CR components (e.g., communities, resilience) and frequency or uniqueness of occurrence. Next, initial coding results were compared to identify interrater discrepancies, which were resolved by a third research team member. Codes were then organized into categories based on commonalities in conceptual focus (e.g., internal or external, static or dynamic, threat or opportunity). Subsequently, these categories were collated into overarching themes of general CR-related construct types (e.g., structures, processes, outcomes), which the researchers then assessed for consensus regarding the overarching understanding of the concept of CR (Saldaña, 2016).

Results

Conceptual definitions of CR

Thematic analysis (Braun et al., 2019) of the conceptual understanding of CR revealed no agreed-upon definition of CR among reviewed studies. Although no consensus was identified as to an overarching definition of the concept, analyses found that across the literature, elements of CR fell into three overarching themes with related categories (see Table 1). Theme 1 involved descriptions of the characteristics of the community, terms for which fell into the categories of (a) resources and risks, (b) individual and interpersonal attributes, and (c) structures and processes. Theme 2 included descriptions of the community's context or external elements that relate to CR; in this theme, terms used fell into the categories of general catalysts and threats. Finally, Theme 3 involved how studies conceptualized CR as an outcome, elements of which fell into the categories of (a) static and dynamic goals and (b) observed or operationalized outcomes.

[Table 1]

Study characteristics

Definitions and delineations of researched communities. The studies included in the scoping review varied widely in purpose, design, and measurement tools utilized. Broadly, we viewed a community as a geographically defined collection of people. Studies included in the scoping review occurred in several countries, including Australia, Canada, Costa Rica, Croatia, Ghana, Honduras, India, Israel, Italy, Mexico, Sri Lanka, Sweden, the United Kingdom, and the United States. Relatedly, the communities included in these studies ranged in geography, type, and detail of definition (see Table 2). Overall, only one community was not defined by geographic or other demographic parameters (e.g., LGBTQ+ identity; Shilo et al., 2015).

Among the other 44 studies reviewed, resource availability or use was the most common parameter (n = 18). Specifically, 10 studies defined their community of focus as 'resource dependent' (e.g., farming, forestry, tourism, gas, or coal), whereas the other eight described their included communities as 'resource deprived' or 'impoverished.' Population dispersion (e.g., rural or urban) was the second most common delineation for the communities assessed (n = 17). The final nine studies identified communities as a combination of geographic and individual characteristics; seven studies focused on refugees or other communities affected by war or oppression, and the other two focused on 'children at risk' due to specific community characteristics.

[Table 2]

Study designs and methods. The variation in participating communities and individuals may relate to the wide range of study purposes, designs, and methods in the literature (see Table 3).

[Table 3]

Regarding study designs, the largest group of articles (n = 20) described research aims related to testing CR frameworks or models developed by the researchers (i.e. conceptual). Of these 20 studies, 14 tested research methods and tools, whereas the other six evaluated the presence of conceptual variable

relationships among constructs related to CR. Among these 20 articles, overarching study goals ranged widely, from developing assessment methods, policies, or interventions to determining comparative approach feasibility and effects.

As for the other 25 articles included in this scoping review, study types included explanatory (*n* = 10), intervention evaluation (*n* = 7), descriptive or exploratory (*n* = 4), and feasibility testing of previously validated methods or tools (*n* = 4). The constructs identified in descriptive and explanatory studies varied widely among the articles reviewed; examples include collective action activities, social networks, psychological distress, health, life satisfaction, and capital (e.g., social, economic). Moreover, studies evaluating intervention effectiveness included both study-developed programs and intervention comparisons.

Regarding data collection across the 45 studies reviewed, research methods utilized were fairly balanced in the three major types (i.e. quantitative, qualitative, mixed); 18 studies used qualitative methods only, 12 used quantitative only, and 15 described a mixed-methods approach (see Table 3).

Measurement tools

Previously validated instruments. Among the 25 studies in which quantitative data were collected (see Table 4), almost half (44%, *n* = 11) utilized instruments being tested as part of the study's research aims.

[Table 4]

Among the remaining 14 articles (see Table 4), four (Arana and Wittek, 2016; Hansen-Nord et al., 2016; Molyneaux et al., 2014; Otsuki et al., 2018) described the use of researcher-developed tools that were not assessed for validity and rigor, which may have significant implications regarding the quality of findings among these studies. Two of the remaining studies utilized social network analysis strategies (Beilin et al., 2013; Cinderby et al., 2016), and three conducted secondary data analyses (Milani and Russo, 2016; Pfefferbaum et al., 2015; Saxena et al., 2016; Smith et al., 2012; Steiner and

Markantoni, 2014); the sources of data varied among these studies. Such inconsistencies highlight the emergent nature of CR research in the social sciences.

Finally, five studies utilized measures with previously established validity or reliability; however, the tools were inconsistent, with six measures used across these five studies (see Table 5).

[Table 5]

The Conjoint Community Resilience Assessment Measure (CCRAM; Leykin et al., 2013) was the most prevalent tool among the articles reviewed (n = 4; Braun-Lewensohn and Mosseri, 2014; Braun-Lewensohn and Sagy, 2014; Eshel and Kimhi, 2016; Goroshit and Eshel, 2013), and it was the only previously validated measure specifically designed to measure CR. Specific constructs in the CCRAM include leadership (Cronbach's α = .91), collective efficacy (α = .83), preparedness (α = .80), place attachment (α = .75), and social trust (α = .85; Leykin et al., 2013). The Sense of Coherence Scale (SOC; Antonovsky, 1993) was the second most common previously validated measure, used in three of the studies reviewed (Braun-Lewensohn and Mosseri, 2014; Braun-Lewensohn and Sagy, 2014; Eshel and Kimhi, 2016). The SOC has demonstrated instrumentation reliability (α = .70–.92; Antonovsky, 1993); however, the sense of coherence was originally described as an individual property, only later being expanded to include family, organization, and finally, societal levels (Braun-Lewensohn and Sagy, 2014). Consequently, the constructs measured by the SOC (e.g., comprehensibility, manageability, meaningfulness) differ significantly from those of the CCRAM.

The National Resilience Scale (NRS; Goroshit and Eshel, 2013) was the only other measure with established psychometric properties (α = .88) used in more than one of the studies reviewed (n = 2; Eshel and Kimhi, 2016; Goroshit and Eshel, 2013). Although resilience at a national and community level may be related, the concepts are not interchangeable; differences between the two levels are evidenced by the different constructs measured by the NRS (e.g., identification with the country, solidarity and social justice, trust in public institutes). Other tools researched, and subsequent constructs measured, by only one reviewed study included the Sense of Safety Scale (Solomon and Prager, 1992),

measuring postwar perceptions of personal danger, familial danger, and national danger (Eshel and Kimhi, 2016); the Recovery from Adversity scale (Kimhi and Shamai, 2004), which assesses physical health, morale, social activity, and work productivity (Eshel and Kimhi, 2016); and the LGBTQ+ Community Connectedness scale (Shilo and Savaya, 2011), designed to measure availability and participant access to LGBTQ+ social groups, internet forums, and LGBTQ+-oriented parties or social gatherings (Shilo et al., 2015).

Newly developed and tested tools. Among the 11 studies reporting on newly developed measurement instruments, the design, constructs, and implementation methods differed vastly. Moreover, only four of these 11 articles listed the psychometric properties of reliability and validity for the tools tested (see Table 6).

[Table 6]

Bec et al. (2019) described a three-stage approach to the development, testing, and refinement of the Community Resilience to Change Index (CRCI). Initially, the researchers conducted a systematic literature review to identify existing indicators, which were then tested and refined with experts via a Delphi panel and finally validated through a resident survey (Bec et al., 2019). The dimensions of CR measured in the final version of the CRCI included collaboration, diversification, planning and communication, and access to resources (Bec et al., 2019). Final index validation analysis resulted in a standardized root mean squared residual score of .069 and a coefficient of determination score of .862 (Bec et al., 2019), indicating the potential of this index as a valid and reliable tool for measuring CR.

Alternatively, in the other three studies reporting the psychometric properties of the tools tested, CR was included as one of several constructs measured by the instrument. For instance, Distelberg et al. (2015) described CR as one domain of their Individual, Family, and Community Resilience (IFCR) Profile. The IFCR includes 75 items measuring 20 dimensions of constructs often associated with resilience; dimensions specific to CR include involvement in the community, social support, safe neighborhoods, access to quality schools, childcare, and health care (Distelberg et al., 2015). The

authors described the development of the IFCR as including an initial review and synthesis of previous measurement items into one survey measure, which was then tested with a sample of 650 low-income families (Distelberg et al., 2015). After participant testing, the authors reported interitem reliability coefficients ranging from $\alpha = .71$ to .93, as well as 'strong predictive abilities for education levels, employment, and mental health' (Distelberg et al., 2015, p. 552). Designed to be a pragmatic assessment tool for socioeconomic mobility programs (Distelberg et al., 2015), the IFCR requires further research to ascertain if and how it can be utilized in other areas of CR research.

In contrast to community as a resilience subtype, two other articles described resilience as one of several domains in tools measuring community functioning. In McCrea et al.'s (2016) Community Wellbeing and Resilience in Response to Change tool, overall CR was included as one construct in a larger model encompassing CR, community well-being, place attachment, and expected future well-being. CR was operationalized for this study's survey primarily through the results of a previous qualitative study focused on CR (McCrea et al., 2016). Aspects of CR subsequently identified in the survey tool included strategic thinking, leading, linking, effectively using resources, commitment and perseverance, and collective efficacy. However, although the authors reported that CR items had a Cronbach's $\alpha = .92$ (McCrea et al., 2016), the specific nature of this tool's development, testing, and multiple measurement goals (e.g., community well-being, resilience, and attitudes toward coal seam gas developments) may limit its internal and external validity.

Similarly, Poortinga (2012) identified CR as one component of community function, though in this study, community health was the other major domain included in the framework tested. Although CR was described as a primary study variable, all constructs in the measurement tool were framed by aspects of social capital. The domains of social capital were described, each with multiple subconstructs: bonding social capital (social cohesion, neighborhood trust, neighborhood belonging, and civic participation); bridging social capital (social cohesion and mutual respect, social trust, and heterogeneous relationships); and linking social capital (political participation, activism, efficacy, and

trust). Using secondary data from the United Kingdom 2007 and 2009 Citizenship Surveys, the researchers argued that relationships among and between various types of social capital, neighborhood deprivation, and individual health can explain how social capital protects individual health from the detrimental effects of neighborhood deprivation. The potential overlap or distinctions between social capital types and CR is an issue in need of future exploration.

Discussion

Results of our systematic scoping review show that in the health and social science discourse, CR has evolved from a peripheral ecological concept to a central area of inquiry. Despite this increasing focus in various research disciplines, review findings indicate little evidence of a consistent, agreed-upon definition of CR. Moreover, our review results suggest that a certain level of variation may be appropriate, depending on the general research discipline and specific study aims involved in researching the concept. In terms of the specific subcomponents of CR and how they are defined—for instance, historical relationships (e.g., rural Scotland; Zweirs et al., 2018) and larger national and global events (post-World War II Japan; Kusago and Hirata, 2017)—indicate differing salient resilience factors across specific communities.

Although some level of variation in definition and measurement may be acceptable across disciplines, review findings also highlight key components of CR that should be explicitly defined and consistently operationalized in the same research area. In addition, results of our review indicate that in defining and operationalizing CR, careful consideration should be given to the subconstructs that comprise each component. Specifically, the conceptual commonalities identified by this scoping review indicate that CR research should involve defining and operationalizing three key components: the community, the catalyst that disrupts said community's equilibrium, and the resilience response evoked by said catalyst.

Regarding the community of focus, it is important that CR researchers clearly define and delineate the members and structures involved (e.g., study sample, population parameters). As to the

catalyst responsible for evoking a resilience response, researchers should explicitly define the nature of said catalyst; in other words, what is causing a disruption to the community's equilibrium, what about the community is being disrupted, and how this disruption affects community structures and functioning. Finally, it is important that CR researchers clearly define the nature of the community's resilience in terms of processes, outcomes, and how it is operationalized in the study.

Our review results indicate that to date, significant variation and inconsistencies remain in terms of how CR components are identified and defined in similar research fields. Based on findings from this scoping review, such gaps in CR research may be partly explained by the varied and inconsistent theoretical evidence-base currently available in the relevant literature.

CR conceptualization: theories, models, and frameworks

Initially, although inconsistencies were identified across TMFs referenced in the literature in terms of the specific nature of CR, few articles identified a CR-specific TMF as forming the foundation of the study. Indeed, many did not cite a TMF at all, instead referencing specific constructs related to the concept of CR. Only three articles cited TMFs developed for the concept of CR: (a) model of resilience in socioecological systems (Walker et al., 2004) combined with frameworks of rural CR and environmental transition (Jarzebski et al., 2016; Wilson, 2010, 2012); (b) Kulig's (1999) CR model (Oncescu, 2014); and (c) the (2011) U.K. Strategic National Framework on CR (Cinderby et al., 2016).

An additional three studies, instead of referencing a specific TMF, described a general use of 'resilience theory' concepts: (a) as applied to systems and economics in the Resilience Assessment Projects Database (Graugaard, 2012); (b) in combination with community capacity research to inform a framework for qualitative interview analysis (Slack and McEwen, 2013); and (c) alongside Bronfenbrenner's (1986) ecological model to analyze risk and protective factors (Somasundaram and Sivayokan, 2013). Meanwhile, eight other studies cited the use of TMFs that reference related constructs but were not based on the concept of CR (Arana and Wittek, 2016; Braun-Lewensohn and Mosseri,

2014; Braun-Lewensohn and Sagy, 2014; Eshel and Kimhi, 2016; Hansen-Nord et al., 2016; Madsen and O'Mullan, 2014; Shilo et al., 2015; Tintor, 2013).

Alternatively, many of the articles reviewed described theories or measurement tools that were developed or tested by the researchers to address the study aims. However, there was wide variation in the theory constructs, methods of development, and model testing. Studies indicated that methods for theory or instrument development included reviews of CR and related literature (e.g., community capacity, competence) for construct indicators (Bec et al., 2019; Matarrita-Cascante and Trejos, 2013; Pfefferbaum et al., 2015) and interviews with key stakeholders (e.g., community members, researchers engaged with the topic; Ellis and Dietz, 2017; Imperiale and Vanclay, 2016), sometimes in combination with case studies or literature reviews (Platts-Fowler and Robinson, 2016; Stark and Taylor, 2014; Steiner and Markantoni, 2014).

In some cases, studies did not identify methods for identifying theoretical constructs in broader areas of research. Rather, these studies described model or measurement instrument development and testing as being based on a specific theory or model. In other studies, these methods resulted in the development of a new theory or model, as with the building CR model (Ellis and Dietz, 2017), the social impact assessment framework for action (Imperiale and Vanclay, 2016), the CR enhancement framework and subsequent Communities Advancing Resilience Toolkit (Pfefferbaum et al., 2015), the Capacity for Change program and resultant model for CR measurement (Steiner and Markantoni, 2014), and the community decentralization model (Stark and Taylor, 2014).

Finally, a subset of the reviewed articles omitted the use of a specific TMF in study descriptions; however, justifications were provided to explain these omissions. For example, many qualitative and some mixed-methods studies aimed to explore concepts salient to CR; subsequently, methods were described as being influenced by either specific theories or reviews of related research (Goroshit and Eshel, 2013; Gram-Hanssen, 2018; Linnell, 2014; Lyon, 2014; Molyneaux et al., 2014; Omata, 2013; Otsuki et al., 2018; Roberts and Townsend, 2016; Salvia and Quaranta, 2017; Skerratt, 2013; Wilson et

al., 2017). Alternatively, some authors stated that adherence to one theory or model is not always appropriate for CR research. For instance, Distelberg et al. (2015) stated that although a definition of CR guided their measurement indicators, the study's purpose was to develop an assessment tool that could be used beyond one theory or discipline. In several studies, the reasons cited for theory omission related to perceptions of CR as a socially constructed phenomenon, with its definition varying according to the social, cultural, and economic characteristics of a specific group (Mason and Pulvirenti, 2013; Milani and Russo, 2016; Steiner et al., 2018).

Implications of study findings

The lack of consensus on the conceptualization of CR reflects the wide variation found in terms of the application of CR-related TMFs to research designs, methods, and tools. Results indicate that CR elements are often broadly defined and frequently overlap in terms of their application in relevant research. Therefore, additional studies are needed to distinguish the essential and parsimonious aspects of CR. Furthermore, the large number of qualitative studies that often focused on individual-level perceptions of CR indicate the exploratory nature of this area of research.

In addition, inconsistencies in CR conceptualization may partly explain the wide range of community definitions and parameters described in the reviewed articles, which ranged from geography to resources to individual characteristics and experiences. Furthermore, significant inconsistencies were identified in how studies reported the distinction between and potential interaction among community characteristics. For example, resource dependence and deprivation may be interrelated with geographic characteristics, and they may also disproportionately affect some subpopulations (e.g., children, LGBTQ+ people). However, most studies treat these characteristics as mutually exclusive, often focusing on one (e.g., rural, forestry dependence) as the defining feature of the community being researched. Wide variation in inclusion and description of the communities assessed in these studies highlights an important gap in this area of literature.

Although the conceptualization of CR has been a popular concept, there were challenges in the operationalization of CR measures. For instance, many descriptive and explanatory studies reviewed did not utilize instruments with prior evidence of validity or reliability. Furthermore, only one tool with prior evidence of rigor had been developed specifically to measure CR (i.e., CCRAM). Among the 11 articles reporting on the development and assessment of new measurement tools, only four reported the psychometric properties of said instruments (see Table 5). Of these four studies, only one described a tool developed specifically to measure CR only (i.e., CRCI; Bec et al., 2019).

Subsequently, both newly developed and previously researched assessment tools varied widely in the specific domains of CR included in the instruments. Subconstructs among previously validated instruments included leadership, collective efficacy, preparedness, place attachment, and social trust in the CCRAM (Leykin et al., 2013); comprehensibility, manageability, and meaningfulness in the SOC (Antonovsky, 1993); and identification with one's country, trust in public institutions, and solidarity and social justice in the NRS (Goroshit and Eshel, 2013; see Table 5). Among study-developed and tested tools (see Table 6), constructs encompassed collaboration, diversification, access to resources, and planning and communication in the CRCI (Bec et al., 2019); involvement in the community, social supports, safe neighborhoods, access to quality schools, child care, and health care as community-specific dimensions of the IFCR (Distelberg et al., 2015); strategic thinking, leading, linking, effectively using resources, commitment and perseverance, and collective efficacy in the Community Wellbeing and Resilience in Response to Change tool (McCrea et al., 2016); and three types of social capital (i.e. bonding, bridging, linking) as the underlying constructs of overall community health and well-being (Poortinga, 2012).

Although continual studies are needed to better operationalize these conceptual models in ways that balance factors unique to specific communities, we argue that understanding CR through a multidimensional concept that encompasses multiple capitals—natural, built, financial, human, social, and political—may provide more pragmatic utility. Application of these six key dimensions is a

foundational premise of CR that provides both a holistic conceptualization of CR and the unique value of each community in tandem. Further, it is crucial to view CR based on historical and structural conditions such as trauma, cumulative stressors, structural racism, system dysfunctions, and shifts in demographic and economic circumstances (National Academy of Sciences, 2019). Promisingly, this study found that among reviewed studies that focused on development and assessment of CR theories and tools, many utilized methodologies based on combinations of reviewing evidence in the literature and exploring findings with stakeholders from either relevant communities or research fields.

Study limitations and future directions

Our scoping review has several limitations. Although efforts were made to ensure rigor during data extraction and analysis processes, some level of confirmation bias could have occurred when identifying and screening publications for review. It may also be unlikely that the researchers identified every relevant study in the literature, especially the grey literature. Moreover, selection bias based on language could have occurred, because there could have been additional useful studies available in other languages than English. Subsequently, if and how CR is conceptualized differently in other cultures is an interesting question that may benefit from further investigation.

Despite these limitations, our scoping review indicated several promising directions to advance the current CR literature. Regarding future research directions, study results emphasize the importance of including core community elements such as collective action, social capital, social cohesion, and community engagement at the outset of CR-related studies. In addition, findings from this review highlight the need for future research that involves consistent utilization of CR-specific measurement tools, as well as further testing and psychometric reporting of newly-developed CR measures. Moreover, review results suggest that the inclusion and measurement of CR should be based on the underlying theoretical foundation of the related study, which should clearly identify the relevant core components of CR, as well as if/how these relate to other research variables.

In terms of future directions for community-related policies and practices, given that CR has become increasingly central to the current debate about achieving positive community development outcomes, our findings provide several pragmatic implications. Based on the results of this scoping review, it is important that future CR-related initiatives begin with clearly defining the parameters of the community, in terms of both its members as well as its structures and functions. Concomitantly, getting buy-in across diverse stakeholders and sectors will be a pragmatic buffer in building and supporting CR across local, national, and global communities.

Conclusion

Our scoping review provided an opportunity to explore the state of literature in the social and health sciences on CR. As such, we identified key concepts, gaps in the research, and types and sources of evidence to inform practice, policymaking, and CR research. Although important core elements (e.g., collective action, social capital, health) remained consistent across the relevant literature, our overall findings indicate differences in the conceptualization and application of CR continue to limit this field of research. However, although it is important that the process of identifying and defining CR core elements remains consistent, we argue that some flexibility in variable parameters may also be necessary, as the constructs essential to CR may differ across specific community contexts. As building CR continues to become an increasingly important topic in current efforts to understand and support positive community outcomes, the consistent inclusion of core CR elements in community-based strategies and development approaches may be a helpful step towards broadening the scope and utility of this concept.

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Table 1. Qualitative Analysis: Codes, Categories, and Themes

Themes	Categories	Codes Examples
Parameters or Focus	Resources and Risks	Commitment(s); opportunities; resources; capital; readiness
	Individual and Interpersonal	Knowledge; skills; social networks; leadership; communication
	Structures and Processes	Complexity; policies; geography; ecological; negotiating
External Context	General Catalysts	Unpredictability; environmental changes; temporality
	Threats	Crises; violence; adversity
Resilience as an Outcome	Static Goals	Renewal; conservation; surviving; managing and change; recovery; resilience
	Dynamic Goals	Adaptability; evolving; thriving; growing
	Observed or Operationalized	Economic impact; collective action; decision making; collective stress; strength

Table 2. Definitions and Delineations of Researched Communities (*N* = 45)

Domains	***n***
Population Dispersion (rural, urban, peri-urban, comparisons)	20
Resource-Dependent Communities (farming, forestry, fishing, hunting, mining, tourism)	8
Resource-Deprived or Impoverished Communities	8
Conflict-Impacted Communities (war, oppression, refugees)	6
Children at Risk	2
LGBTQ+ Identity	1

Table 3. Research Designs and Methods (*N* = 45)

Study Designs	***n***
Development or Testing	
Research Methods and Tools	14
Conceptual Variable Relationships	6
Explanatory	10
Intervention Evaluation	7
Descriptive or Exploratory	4
Implementation (feasibility, appropriateness)	4
Data Collection Methods	**n (%)**
Qualitative	20 (45%)
Quantitative	10 (22%)
Mixed Methods	15 (33%)

Table 4. Quantitative Data Collection (*N*=25)

Method or Measure	***n***
Method or Tool Assessments (reliability, validity, feasibility)	11
Standardized Quantitative Measures	5
Researcher-Developed Measures (unassessed)	4
Secondary Data Analysis	3
Social Network Analysis	2

Table 5. Previously-Validated Measures Reported (N=6)

Measure	Development or Purpose	Constructs	Reliability (Cronbach's α)	*n*
CCRAM	The CCRAM was developed through a scientific process by a group of content experts. Intended as an instrument for decision makers to monitor the resiliency of their communities	Leadership Place attachment Collective efficacy Preparedness Social trust	.91	4
SOC	Originally the sense of coherence was described as an individual property. Concept later expanded to include family and organization levels Research assessing the construct at a societal level is limited.	Comprehensibility Manageability Meaningfulness	.70–.92	3
NRS	Developed to assess a society's ability to cope with national-level hostile environments and events	Identification with my country Solidarity and social justice Trust in public institutes	N/A	2
SOSS	Asks respondents to report their perceptions of vulnerability after conflict	Postwar perceived: Personal danger Familial danger National danger	.83	1
RFA	Asks respondents to compare their present situation with their pre-war situation	Physical health Morale Social activity Work Hobbies or sports Emotional state Level of optimism Hope for a better future	.82	1
LGBQTQ+ Community Connection	Social activities available to LGBQ youth and adults in Israel	Availability or access: LGBQ social groups Internet forums LGBQ-oriented parties	.79	1

Note. CCRAM, Conjoint Community Resilience Assessment Measure; SOC, Sense of Coherence; NRS, National Resilience Scale, SOSS, RFA, Recovery from Adversity; Sense of Safety Scale.

Table 6. Study Developed Tools with Psychometrics Reported (N=4)

Instrument	Development Process	Instrument Constructs	Psychometrics
Community Resilience to Change Index (Bec et al., 2019)	A three-stage approach was used to develop, test, and validate the index items: ● Review of existing indicators ● Delphi panel ● Resident survey	● Collaboration ● Diversification ● Planning and communication ● Access to resources	● Acceptable SRMR score of .069 and acceptable CD score of .862 ● Strong correlations with collaboration (.90); diversification (.62); planning and communication (.73); access to resources (.50)
The Individual, Family, and Community Resilience Profile (Distelberg et al., 2015)	Review of resilience literature to identify measurement tools ● Items reviewed for agreement across: scaling, format, language, style, content.	● Involvement in the community ● Social supports ● Safe neighborhoods ● Access to quality schools ● Child care ● Health care	● Strong reliability - coefficients range from α = .71 to .93. ● Strong predictive abilities for: education levels; employment; mental health

Community Wellbeing and Resilience in Response to Change (McCrea et al., 2016)	Constructs derived from qualitative community resilience study ● Subsequent survey investigated: community well-being and resilience; coal mining attitudes	● Strategic thinking ● Leading ● Linking ● Effectively using resources ● Commitment and perseverance ● Collective efficacy	● Cronbach's α = .92
Community Resilience and Health (Poortinga, 2012)	Data from 2007 and 2009 Citizenship Surveys analyzed from a multilevel perspective: ● Individuals as level 1 ● Sampling points (census output areas) as level 2 units	● Bonding social capital: social cohesion; neighborhood trust; neighborhood belonging; civic participation ● Bridging social capital: social cohesion and mutual respect; social trust; heterogeneous relationships ● Linking social capital: political participation; activism; efficacy; trust	● All social capital variables (excluding civic participation, political participation, political activism) normalized by calculating *Z*-scores ● Cronbach's α not provided for subconstructs or overall measure