



Exploring the Usability of a Community Resiliency Model Approach in a High Need/Low Resourced Traumatized Community

Kimberly Freeman¹ · Kelly Baek¹ · Michelle Ngo² · Veronica Kelley¹ · Elaine Karas¹ · Stephanie Citron³ · Susanne Montgomery²

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Abstract

This study tested the usability of a non-stigmatizing community-based trauma intervention delivered by trained community members. The Community Resiliency Model (CRM) was taught to a high-crime, low-income community designated as a Mental Health Provider Shortage Area (19 MPSA score). Five groups of Latino, African-American, LGBTQ, Asian Pacific Islander, and Veteran participants (N=57) with a history of complex/cumulative traumas and untreated posttraumatic stress undertook a five-day 40-h CRM training with master trainers. Measures included Treatment Relevance, Use and Satisfaction (TRUSS), Brief CRM Questionnaire (Brief CRM), and Symptom Questionnaire (SQ). Participant preparedness to teach CRM to others was high (98%) and sustained at the 3–6 months follow-up with 93% reporting a daily use. Pre-to post comparison analyses showed a significant decrease in distress indicators and increase in wellbeing indicators. CRM's high usability holds promise for a broader, low cost and sustainable implementation in traumatized and under-resourced communities.

Keywords Resiliency · Community · Mental health · Wellness · Community Resiliency Model (CRM) · Trauma

Introduction

According to a recent issue of the Journal of the American Medical Association, the life expectancy in the United States of America (US), after many years of gains is declining across all population groups, and is expected to continue (Woolf & Schoemaker, 2019). The authors attribute this to a complicated mix of major life stressors, often experienced as traumatic events, which impact certain sub-groups more than others. The experiences implicated include systemic poverty, violence, suicide, the recent drug use epidemic, and overweight/obesity related consequences as a result of increasingly poor lifestyle patterns. Additionally, poor mental health and trauma are noted as contributing factors

for poor health outcomes and the authors call for a better alignment of healthcare with population needs, especially for the sub-populations at the highest level of risk. This is further supported by research regarding the Adverse Childhood Experiences (ACE's), which finds that higher levels of traumatic experiences in childhood result in significantly lower life expectancy and quality of life in those affected (Felitti et al., 1998). Experiences of trauma are not random and vary geographically by the social environment people live in, including poverty, lack of well-paying employment, and community violence.

While there are a number of evidence-based approaches to addressing trauma, they require a more traditional patient-therapist approach and there are simply not enough providers to address the population needs, especially within high need areas. Indeed, many of these same geographic areas of high need are also identified as underserved service areas for medical coverage and behavioral health (Holt, 2018), further pointing to a gap of needed services versus a capacity to address this need. This leaves many affected individuals in these communities without the support systems to help them deal with their everyday stressors. Indeed, for most, the impacts of these adverse experiences are rarely addressed except in the most severe cases of mental health sequelae.

✉ Kimberly Freeman
kfreeman@llu.edu

¹ Department of Social Work and Social Ecology, Loma Linda University, 1898 Business Center Drive, San Bernardino, CA 92408, USA

² Department of Psychology, Loma Linda University, 11130 Anderson Street, Loma Linda, CA 9254, USA

³ Private Practice, 53 Arlington Street, Asheville, NC 28801, USA

Given this dilemma of high need and low resources and to meet the need, there is an increasing movement to find effective, and sustainable solutions that are culturally acceptable in a context where seeking help for mental health challenges is highly stigmatized. Community-based interventions that can be successfully delivered by community members could result in greater capacity to dealing with immediate or ongoing stress and trauma (Lukens et al., 2004). These types of approaches have the benefit of being more accessible, less stigmatizing, not requiring a mental health professional and the ability to foster trust as they are delivered by the community to the community. Clearly, given the limited mental health services accessible to most, a more culturally adaptable, accessible, and resiliency focused approach aimed at increasing community wellness is needed to address the everyday trauma so many residents experience.

Trauma Informed Mental Health Models

The most commonly used treatment models for individuals who have experienced trauma are generally based in Cognitive Behavior Therapy (CBT) and include Prolonged Exposure Therapy, Cognitive Processing Therapy (CPT), Eye Movement Desensitization and Reprocessing (EMDR), and Trauma Focused CBT (TF-CBT) (Veterans Affairs, 2019). While these evidence-based models have been shown to be effective for the participants, they are typically conducted in one-on-one sessions or in small therapeutic groups over an extended period of time thereby limiting their usefulness at the community level. Perhaps even more problematic is the presumption that the trauma has been experienced and is no longer occurring, and will not occur again. In areas where ongoing traumatic events continue, a different type of approach is needed. One such approach proposed by Yankellevich & Goodman (Yankellevich and Goodman, 2017) used a resilience-based model to build on protective factors that help individuals and communities cope and adapt to adversity. Resilience based approaches emphasize individuals' inherent strengths, seek to minimize the impact of adversity, and tap into available familial and cultural influences as resources (Saul & Simon, 2016). As such, involving members of the affected communities or groups is imperative in developing a lasting model for working with trauma and building resilience. Engaging members of a community in the change process has also been shown to enhance social cohesion (Torres & Casey, 2017). Providing those who are already a part of the community with tools for self-help and peer counseling can provide leaders with a sense of purpose, though it is important to consider their level of wellness and the different cultural values to identify the most appropriate leaders and interventions (Salem-Pickartz, 2007).

When training community members, it is important to keep in mind the impact of psychological distress that these individuals carry while helping others. In this respect, Prosser et al. (1999) conducted a longitudinal study examining a community-based model in an inner-city that provided psychiatry service for three consecutive years. They found that working in the community may be more stressful than working in in-patient services. However, levels of stress did not increase over time. The first phase of the study found high scores for "emotional exhaustion" and poor psychological wellbeing but that individuals were also satisfied with their work (Prosser et al., 1999). Individuals working in the community were burdened by increasing burnout and decreased job satisfaction. Another study examined crisis-counselor perceptions of job training, stress, and satisfaction during disaster recovery (Bellamy et al., 2019). Crisis counselors used in this study were paraprofessionals who may not have experience providing disaster-related health services. Their backgrounds varied from retired teachers, social workers, nurses, counselors, and more. They were typically unlicensed, but demonstrate a unique skillset and tended to have intricate ties to the community. The counselors were required to participate in trainings where they learn to reduce initial distress, build resiliency, and foster short-term adaptive functioning (Jacobs et al., 2016). Quantitative and qualitative data of the study were analyzed, and results indicated that the higher the job training, the lower the job stress. Additionally, proper training and management of stress among the counselors influence level of job satisfaction. When taken together, research suggests that when using community members to address stress and trauma within an inner-city context, it will be important to provide adequate training while also recognizing that these individuals are both impacted by and part of the distressing environment.

In identifying factors or interventions which can build resilience, an important component which has shown promise is "neurobiological" practices, which has been defined as "movement, breathing, and meditation techniques that engage the body, mind, and emotions for healing and recovering from trauma" (Gerbarg et al., 2011, p. 98). Because these practices borrow from a variety of backgrounds, they can easily be adapted to different cultures and settings. One such practice is the Community Resiliency Model (Miller-Karas, 2015), which provides a wellness program specifically focusing on regulating the nervous system. When used, these skills are thought to help individuals be more balanced, which in turn improves decision making, decreases impulsivity, improves mood, and decreases anxiety (Grabbe & Miller-Karas, 2018; Miller-Karas, 2015). Within this framework, the individual not only learns skills but also has the support of members of the immediate environment who are also using and reinforcing the skills with themselves and each other. Due to the biological basis and flexibility of the

Community Resiliency Model, this model could serve as an effective tool to decrease and cope with stressors that adversely impact health within a variety of settings. Additionally, local community leaders can be trained in these practices more easily and cost-efficiently than in traditional therapeutic practices.

The CRM Innovation Project

Given the stressors and limited mental health resources in communities most likely to experience trauma, the Community Resiliency Model (CRM) was selected to provide wellness skills to the most marginalized groups within a large high-risk county. The biologically based resiliency skills were designed to address the needs of community members needing mental health education and coping skills. The participants were chosen because they were likely experiencing the effects of the cumulative trauma that is associated with racism, homophobia, poverty, community violence, and untreated posttraumatic stress from military service including combat.

CRM provides a biological perspective that teaches wellness skills to people who experience stress or trauma with the goal of creating more resilience communities. The 5-day training program teaches six wellness skills that can be easily integrated into the activities of daily living as well as various social and cultural settings. The learned skills help to reset the human nervous system, returning the individual to a more balance state referred to as the “Resilient Zone”. Ways of thinking, emotions, behaviors, and physical symptoms connected to the stressful and/or traumatic experiences can begin to change, and even in some cases go away as the individual’s natural resiliency is restored. When individuals are in their Resilient Zone they have the best capacity for integrated thinking, feeling, and behaving. The six CRM skills are briefly described below.

Skill 1: Tracking means noticing sensations within the body. Tracking is used with all the skills of the Community Resiliency Model and is the component that is thought to hardwire resiliency into the person’s nervous system. One of the goals of tracking is to learn how to tell the difference between sensations that are pleasant or neutral and ones that are unpleasant. The trainees learn about the autonomic nervous system and the bodily sensations connected with the sympathetic (the accelerator) and the parasympathetic (the brake) of the nervous system. Simple graphics are used to help the trainees understand the nervous system and that natural balance can return when attention is paid to neutral and/or positive sensations.

Skill 2: Resourcing means using positive things in one’s life to bring balance back to the nervous system. The first step is being able to name resources. The second step is

tracking the sensations that happen inside when a person thinks about a resource. There are two types. *External Resources* include positive experiences and can include people, places, spiritual guides, activities, skills, hobbies and animals. *Internal Resources* include experiences, values and beliefs that support and give meaning to life. Personal qualities like kindness, compassion, and humor are also internal resources. Resourcing helps a person bring balance back to his/her nervous system. A resource can be intensified through **Resource Intensification** by asking two or three questions to add more details to the resource thereby deepening the sensation connected with the resource.

Skill 3: Grounding is the direct contact of the body with the ground or with something that provides support to the body. Grounding provides gravitational security which is the foundation upon which we build our interpersonal relationships. Grounding is our relationship to present time and space. When grounding, the person brings awareness to how the body is physically supported in the present moment. The sensory attention to the here and now stimulates an observable and sensed parasympathetic response in the nervous system.

Skill 4: Gesturing refers to a movement of the body or limb that expresses an idea, feeling or attitude. Individuals are asked to identify a self-soothing gesture they make to calm themselves down when in their high or low zone. They are then invited to notice what happens on the inside when they make the self-soothing gesture and if it pleasant or neutral. It should be noted that while gesturing was part of the training it was not recognized as a separate skill until later. It is presented here in order to be consistent with the current CRM model.

Skill 5: Shift and Stay means shifting attention from something unpleasant to something neutral or pleasant and staying there. During the course of daily living, uncomfortable sensations can emerge or can be triggered that can lead to uncomfortable, painful or overwhelming sensations. A person learns to shift attention from the distressing sensations to more comforting or neutral sensations by: Moving attention to a place in the body that is more comfortable, calmer or neutral; using a resource and noticing sensations that are pleasant or neutral; or bringing attention to how body is making contact with the chair, sofa, ground etc. and noticing the places that are more pleasant or neutral inside.

Skill 6: Help Now are specific actions to help bring balance back to the nervous system if stuck on high or stuck on low. The following are the some of the Help Now strategies: drinking a glass of water; looking around the room or wherever you are, paying attention to anything that catches one’s attention; naming six colors in the room (or outside); open one’s eyes if they have a tendency to shut; slowly counting backwards from 20 while walking around the room; if inside, noticing the furniture, and touching the surface, sensing if it

is hard, soft, rough; and/or pushing one's hands against the wall or door slowly and noticing muscles pushing.

The two fundamental goals of the CRM are: (1) to help people learn to track their own nervous systems in order to bring the body, mind, and spirit back into greater balance and; (2) to encourage people to pass the skills along to family, friends and their wider community. CRM can be taught as a peer-to-peer program and/or as a program to train community members to help themselves and others. CRM can also be used for self-care for those practitioners who are the front-line workers, responding to high-stress situations (Miller-Karas, 2015).

Community Context

CRM was offered to members of a high-risk community within Southern California that has been historically affected by extreme poverty and other complex traumas (San Bernardino County Community Indicators Report, 2019). As is often the case in areas with high rates of poverty, other high-risk factors are also present, which adds to the level of accumulated stress and trauma. Besides poverty, one such stressor is violent crime that is often related to gangs and drugs. For instance, our target community has a high rate of aggravated violence with an increase of 24% since 2014 and a multitude of gangs and gang-related crime with 26% of all homicide filings being gang-related (San Bernardino County Community Indicators Report, 2019). In a recent survey, after years of increasing crime rates, approximately 40% of community members expressed a fear of being a victim to a violent crime (Sirotnik & Aldana, 2016). This constant fear of being a victim to a violent crime [on its own or in combination with other stressors] has been shown to have a negative impact on one's quality of life, mental health, and/or overall wellbeing (Holt, 2018; Stafford et al., 2007).

Moreover, the target community has high rates of poverty, with approximately 26% of residents and 23% of children living poverty, 30.6% do not have a high school degree, and 41% speak a language other than English at home. The community is designated as a Mental Health Provider Shortage Area (19 MPSA score) and thus has little access to mental health resources. Given this background, it was the intent of the training to both serve the participants and explore if this approach could be used to expand local response capacity to address mental health challenges (US Census Bureau, 2019).

The objective of this study was to identify the relevance, applicability, use and perceived benefits of the CRM intervention for a diverse group of community members from a high crime, low resourced community. Secondly, we also wanted to determine if the CRM intervention was effective in reducing participant's experiences with anxiety, depression, somatic symptoms, and hostility and result in improvements in well-being indicators.

Methods

Participants and Procedures

The CRM training consisted of 5 groups who were trained for 40 h over 5 days each by two to three master trainers. One training was conducted in Spanish, while all others were conducted in English. During the first four days, trainees learned the skills and key concepts of CRM. The training was a mix of interactive teaching, using a combination of lecture, discussion, practice, and trainee teach backs. Trainees created their own teaching plans with the master trainers helping them find realistic opportunities and giving detailed feedback. On the final day, trainees demonstrate how they would implement CRM to the master trainers.

A total of 109 community members from our target area were invited to participate in the Community Resiliency Model (CRM) training with 57 subjects agreeing to complete pre- post- and follow-up program evaluation measures. The recruitment process comprised presentations at community meetings groups including Latinos, African-Americans, LGBTQ, Asian Pacific Islanders, and Veterans. Individuals self-selected to participate in the study. Participants reported their roles within the community to be a good neighbor, church member, veteran, counselor, parent, spouse, teacher, advocate, volunteer and retiree.

As can be seen in Table 1, approximately 70% of the participants were female and 30% were male, and the age of the participants ranged from 30 to 74 years, with an average age of 54. Eighty one percent of the participants were non-Caucasian. Most self-identified as Latino (33%), African American (28%), and Asian Pacific Islander (16%). Participants also identified as Veterans (14%), LGBTQ (17%) and had lived in the community for more than 10 years. Fifty-eight percent reported having had previous experience with mental health services for self or a family member.

The CRM Innovation Project evaluation consisted of key outcomes associated with the project objectives. Three tools were used to collect evaluation data and are the focus of the current report: (1) Post and Follow-up Treatment Relevance, Use & Satisfaction Scale (TRUSS) Survey; (2) Post and Follow-up CRM Brief Questionnaire; and (3) Pre-Post-Follow-up Symptom Questionnaire (SQ).

Measures

Treatment Relevance, Use & Satisfaction (TRUSS)

The TRUSS was specifically developed for the current study to assess the level of understanding and preparedness

Table 1 Population characteristics

Indicator	Category	N	%
Groups (N=57)	Veterans	8	14
	Latinos	14	25
	LGBTQ	10	17
	African Americans	16	28
	Asian Pacific Islanders	9	16
Gender (N=57)	Female	70	60%
	Male	30	40%
Age (N=57)	Average	54	68% were Adults (18–59) & 32% were Adults (60+)
	Range	30–74	
Ethnicity/race (N=57)	Hispanic or Latino/Latina	19	33%
	White or Caucasian	11	19%
	African American	16	28%
	Native American	2	4%
	Asian/Pacific Islander (API)	9	16%
Years living in the community (N=57)	Average # of years living in the community	21	74% lived in community for over 10 years
	Range	1–62	
MHS experience (N=57)	Previous experience with mental health services for self or a family member	33	58%

of participants in using the CRM skills in their community immediately following the training and at 3 to 6-month follow-up. Understanding of the CRM skills was assessed with questions such as “How satisfied are you with your understanding of the CRM skill of *grounding* that you were taught” with responses ranging from not at all (1) to very satisfied (5). There was one question for each of the CRM skills that were taught. Participants perceived preparedness to teach each of the CRM skills was also evaluated with responses ranging from not at all (1) to very prepared (5). Finally, participants were asked open-ended questions about roles they played in the community and perceptions related to the strengths and weaknesses of their communities.

Brief CRM Questionnaire (Brief CRM)

The Brief CRM was also specifically developed as an evaluation tool for the current study to assess the benefits and use frequency of the CRM skills 3–6 months following the training sessions. In regards to personal benefits, participants were asked to select a number that best fit for them for the following statements: *The CRM skills are helpful to me in managing stress; I have better self-control when I use CRM skills; and CRM skills help me get through hard times*. Response options ranged from strongly disagree (1) to strongly agree (5). Participants were also asked to report

the frequency they used the CRM skills for themselves and how often and in what context they taught the CRM skills to others.

Symptom Questionnaire (SQ)

The SQ includes a total of 92 items with 17 different negative symptoms related to each of the four distress indicators (i.e., anxiety, depression, somatic, and hostility) and six different positive symptoms related to each of the four well-being indicators (i.e., relaxed, contented, somatic, and friendly). This scale has been shown to be suitable for measuring distress and hostility for both research and clinical purposes (Kellner, 1987). The internal reliability for the negative symptoms were all within the acceptable range: Anxiety (Cronbach's $\alpha = 0.90$); Depression (Cronbach's $\alpha = 0.91$); Somatic (Cronbach's $\alpha = 0.90$); Hostility (Cronbach's $\alpha = 0.94$). The well-being indicators ranged from slightly below the acceptable range to good internal reliability: Relaxed (Cronbach's $\alpha = 0.78$); Content (Cronbach's $\alpha = 0.79$); Somatic (Cronbach's $\alpha = 0.68$); Friendly (Cronbach's $\alpha = 0.79$). In regards to scoring a maximum score of 17 is possible on the symptom subscales and 6 for the well-being subscales. For the distress indicators, higher scores suggest more distress than lower scores and for the wellbeing indicators higher scores suggest more wellbeing than lower scores.

Data Analyses

SPSS version 23.0 was used to run the analyses. Frequencies and descriptive analyses were run for each item in each measurement tool. Percentages and means were calculated for the TRUSS and Brief CRM Questionnaire. Repeated measure ANOVA was run to assess if there were significant differences in distress and well-being scores. Before the analyses were run, the data was examined for missingness and if all assumptions were met. Data that had more than 10% missingness for each of the measurement scales were omitted from the analyses.

This research project was reviewed by the Loma Linda University Institutional review board and was given a waiver based on it being de-identified secondary data that was initially part of treatment evaluation process. The work was supported by the California Mental Health Services Act- Proposition 63 through the County of San Bernardino (Community Resiliency Model Project: MHSA-INN—Contract Number10-1103). Potential conflicts of interest are addressed in the title page of this document and are not thought to impact the outcomes of the research. Finally, all authors participated in the completion of this article and certify full responsibility for the manuscript.

Results

Understanding and Preparedness to Deliver CRM by Skill (TRUSS)

Table 2 describes trainees' understanding of the CRM skills and how prepared they felt to teach the skills to other members of the community, immediately after the training sessions (post) and 3–6 months later (follow-up). Across all skills, trainees' understanding of the CRM skills were high (4.41 and above on a 5-point scale) at the immediate post measurement. At the six months follow up the participants' understanding of the skills remained high: it slightly increased for the grounding skill (from 4.41 to 4.47) and only slightly decreased for the other skills. Results were similar for the participant's perceived preparedness to deliver the skills to others: While grounding was a 3.96 after the training, it increased to 4.04 on a 5-point scale, and all other skills were high (mean > 3.97) and maintained at 6 months post. (see Table 2. This finding suggest ease of learning the CRM skills as well as transferability and maintenance of learning.

Brief CRM Questionnaire (BCRMQ) Results

Results of training evaluations received from 56 trainees immediately after their last training session, indicate that

Table 2 TRUSS: understanding and preparedness to deliver CRM skills

<i>Post-test and 3–6 month follow-up understanding of the CRM skills</i>			
<i>Indicator</i>	<i>N</i>	<i>Post-test Mean (SD)</i>	<i>3–6 Month Follow-up Mean (SD)</i>
Grounding	54	4.41(0.71)	4.47(0.69)
Tracking	53	4.42(0.72)	4.26(0.82)
Resourcing	17*	4.53(0.80)	4.51(0.69)
Resource intensification	54	4.48(0.72)	4.25(0.78)
Shift and stay	54	4.46(0.69)	4.20(0.76)
<i>Post-test and 3–6 month follow-up preparedness of delivering CRM skills</i>			
Grounding	54	3.96(0.93)	4.04(0.88)
Tracking	54	3.98(0.94)	3.95(0.89)
Resourcing	54	4.11(0.96)	4.13(0.84)
Resource intensification	54	4.04(0.93)	3.91(0.91)
Shift and stay	54	3.98(0.92)	3.91(0.87)

1 = not at all; 2 = a little bit; 3 = moderately; 4 = quite a bit; 5 = very

*some of the post-test surveys were missing of this item

98% of the respondents believe that the CRM skill training would be very to moderately relevant or useful for their work with people in their community, and 91% said they thought they would use the skills very to moderately frequently during the month following the training. One objective of the training was to enable vulnerable community members to use CRM skills for their own self-care and to prevent burn-out. Nearly all (98%) of the trainees reported that they would be able to use the skills learned from the training for their own self-care, and all acknowledged the personal benefits of the CRM skills. Finally, when asked to report on other specific ways trainees thought the CRM training would help their work with people in the community, over two-thirds indicated that the CRM skills would be useful in teaching others how to reduce distress, depression, anger, and anxiety as well as build hope and resiliency when facing challenges.

Follow-up data of 56 respondents (3–6 months after the training) showed that 98% reported personal benefits of the CRM skills, with over 90% either completely or somewhat agreeing that the CRM skills were useful in managing stress, having better self-control (96%), and helping get through hard times (92%). All used the skills frequently, with 93% reporting they were using the CRM skills daily, with the remaining 7% indicating use a few times a week. This data suggests that the perceived usefulness of the CRM skills to the trainees personally, is likely a motivating factor for trainees to practice them frequently over time.

In addition to using the CRM skills for their own self-care, nearly all (93%) of the respondents indicated that they taught the CRM skills to others and listed key demographic

information for a total of 128 people they taught the skills to during the 3–6 months following the training. Across the 128 people listed, approximately 59% were female and 41% were male and their ages ranged from 4 to 82 years old (average age was 36). The respondents said they taught others the CRM skills to help deal with issues related to anxiety/stress, anger/ frustration, depression/negative thinking, trauma, PTSD, physical pain, family issues, financial problems, childhood abuse, grief/death, menopause, school/work issues, alcohol abuse, homelessness, and hyperactivity/tantrums. Many respondents also mentioned teaching the CRM skills to others during group trainings and presentations, and some specified that they used the grounding skill when teaching others. A sample of the qualitative responses for how trainees reported using the CRM skills for community response includes: using them within school settings with teachers and students; assisting family and friends dealing with stress and difficult life moments; within parenting classes when discussing anger management skills; within ministry to teach individuals and couples how to relate in a calmer manner; assisting veterans with difficulty in regulating their nervous system; and working with teens in group home placements. Taken together, the survey results suggest that the CRM skills worked well as a self-care approach for the individuals trained while also offering them a simple but effective set of skills to teach others within a variety of settings.

Symptoms Questionnaire (SQ) Results

Results from the SQ indicate that all participants demonstrated a significant decrease in the areas of anxiety, depression, somatic, and hostility immediately following the CRM training. Further, although this trend continued during the 3 to 6-month follow-up period, only anxiety symptoms were

significantly reduced from pre-training to follow-up (see Table 3).

In regards to the SQ wellbeing indicators, an overall increase in scores is representative of changes in the desired direction. Specifically, trainees reported a significant increase in wellbeing from pre-training to post-training in the areas of being more relaxed, being content, and presenting as friendlier. Although, the subscale indicated that trainees had fewer somatic symptoms, it was not significant. In comparing the pre-training results to the 6-month follow-up results, the results were once again all in the desired direction but were not significant (see Table 3).

Overall, the SQ results indicate a positive trend in reducing distress and increasing wellbeing in trainees who will be using the CRM skills for self-care as members of their community and who will also be teaching the skills to others. Perhaps the most notable finding is the sustained significant improvement in anxiety symptoms.

Exploratory Analysis Results

Due to the small sample sizes among the different participant groups, it was only possible to conduct exploratory analysis for the sub-groups, which we then highlighted as “data trends”. Specifically, the Latino sub-group at 6-month follow-up demonstrated a significant decrease in somatic symptoms, thereby suggesting improved well-being. For the African American sub-group there were significant decreases in all distress indicators (i.e. anxiety, depression, somatic, and hostility) from pre-training, to post-training, to follow-up. The one exception was hostility which was not significant from pre-training to post-training but was significant from pre-training to follow-up, suggesting that the intervention effects improved with time and skills practice. The well-being indicators (i.e. relaxed, contented, somatic symptoms, and friendly) were not significant but were

Table 3 Symptoms questionnaire distress and wellness indicators

<i>Pre/posttest/follow-up distress indicators</i>						
<i>Indicator</i>	<i>N</i>	<i>Mean scores</i>			<i>Changes in mean scores</i>	
		<i>Pre</i>	<i>Post</i>	<i>F/U</i>	<i>Pre-post change</i>	<i>Pre-F/U change</i>
Anxiety	25	6.12	3.72	4.04	−2.40*	−2.08*
Depression	25	5.76	2.64	4.28	−3.12*	−1.48
Somatic	30	6.20	3.90	5.27	−2.30*	−0.93
Hostility	25	5.76	3.04	4.24	−2.72*	−1.52
<i>Pre/posttest/follow-up wellbeing indicators</i>						
Relaxed	31	4.65	5.39	5.16	0.74*	0.52
Contented	29	4.79	5.48	5.07	0.69*	0.28
Somatic	18	2.96	3.62	3.12	0.65	0.16
Friendly	31	5.13	5.84	5.42	0.71*	0.29

*indicates a significant difference at the .05 level

generally in the desired direction when differences were noted. For the LGBTQ sub-group, significant differences were noted from pre-training to post-training in the areas of depression and hostility and from pre-training to follow-up in the areas of anxiety and somatic experiencing, again suggesting that the intervention effects improved with time and skills practice. Once again, the well-being indicators were not significant but were generally in the desired direction of showing improvement in this area. In regards to the Asian/Pacific Islander sub-group, no significant differences were noted on the distress measures or the well-being indicators. However, all of the indicators were in the desired direction with the exception of depression and somatic experiencing which were slightly higher at follow-up. Finally, while the Veterans sub-group showed no significant difference, there were notable trends in the desired direction for both the distress and well-being indicators. Overall, the small sample size limited our ability to come to stronger conclusions. However, it is encouraging that many significant differences were noted and most of the distress and wellness indicators showed improvement across time among the various sub-groups.

Discussion

The purpose of this study was to evaluate the use of CRM within high need communities in Southern California. As is evident by our pre-test results, our participants reported an array of physical and emotional symptoms, reflecting the extensive impact on the mind–body system when one is a member of a vulnerable group in a high poverty county. Participants reported an average of 6 physical distress symptoms and an average of 5 emotional distress symptoms. The high incidence of physical symptoms shows the importance of models that include biological interventions that help stabilize these types of manifestations of stress and trauma.

Results indicate that at least for the several months' post training, for a majority of the trainees, the positive effects of the training and treatment were sustained. Further, even though symptoms did not maintain the level of improvement that they did at the immediate post treatment point, they continued to demonstrate many significant improvements over their baseline scores over 6 months. The fact that distress symptoms (depression, anxiety, hostility and somatic symptoms) are improved across populations suggests that using the CRM skills, which stabilize the nervous system and teaches a person how to teach the same to others, offers trainees a greater experience of self-control and empowerment to make a difference for other, which can result in a sense of renewed hope. It is important to note that these results, demonstrating the strongly positive impact of CRM skills training, have been generated across five groups of

trainees, of whom 86% were non-Caucasian. This points to the efficacy of the use of CRM skills to people across cultures and ethnicities.

For future programing, our program evaluation results point to the need for refresher trainings, or additional individualized support for trainees who are learning to apply their skills to others. However, overall our results suggest that CRM is easy to learn, results in outcomes that last over time, and is useful for both one's own self-care, as well as is effective across a wide variety of sub-groups. This bodes well as a scale up model that has the potential to serve underserved communities with respect to community mental health.

There is currently a movement in the mental health field to create "trauma informed communities". It is important to emphasize that understanding the neurobiology of trauma and the many human domains that are affected by trauma (physical, cognitive, behavioral, psychological, relational, and spiritual) is only part of helping to create stronger, healthier communities. CRM reduces this gap by moving beyond a simple understanding of trauma to providing concrete intervention skills that are easily learned and taught to others thereby aiding efforts to create more "resiliency-informed" communities.

Study Limitations

While we are excited about our positive program results there are several limitations. There was significant skewedness (-2.48) and kurtosis (5.72) for the well-being scales in that participants over-reported higher levels of wellness for the pre-test. However, when analyzing the post and follow-up tests, the skewedness and kurtosis continued to increase in the same direction, indicating that sense of well-being for friendly continued to increase after the CRM Training, indicating that CRM was able to contribute to greater levels of well-being for participants.

Another limitation is that while one CRM training was offered in Spanish (given that nearly half of the County's population is Hispanic), the evaluation measures were only offered in English limiting results to those whose primary language is English despite the large presence of monolingual Latinos in San Bernardino County. This may be the reason why our sub-group analyses for Hispanics shows fewer long-term results than for other groups. It is strongly recommended that the training be adapted and translated into other languages to disseminate this resource to communities that do not use English as their primary language (i.e. Afghan, Iraqi, Syrian, and Somali refugees who have been heavily traumatized by wars, oppression, and decades-long ongoing violence). While exciting, evaluation results are limited to a 6 months' post intervention period.

Future programing should be expanded to explore results for at least one year to explore how long outcomes last and possibly add a component evaluation of those taught by trainees to determine both the impact on them directly as well as the impact of those who taught them—in other words—to explore if those who teach others do better over time. Finally, while we had a broad participation of sub-groups with high needs, the small size limited further subgroup analyses. Now that we know that CRM has positive outcomes across these sub-groups, future studies should be offered to each group with significant sample to validate and further contextualize results.

Conclusion

In conclusion, the inadequacy of the traditional one-on-one approach to trauma intervention in high-need, low-resourced communities is further compounded by an insufficient number of providers and the social stigma attached to mental services; this leaves vulnerable communities at heightened risk for a reduced life span. The biologically-based stress reduction alternative model CRM has the ability to destigmatize accessing mental health/stress reduction services at community level, given its emphasis on resilience, self-care, and helping others. This study aimed to test the usability of CRM delivered by trained community members to reduce distress, depression, anger, and anxiety, and to build hope and resiliency in spite of ongoing traumas in everyday life. Our evaluation results strongly suggest a CRM usability and transferability across several population subgroups traditionally affected by mental health challenges. CRM's high usability could be scaled up to inform policy changes for a wider implementation in traumatized and undersourced communities.

Author Contributions All authors contributed to the study conception, design, and/or data analysis. The design and implementation of the intervention was developed by the Trauma Resource Institute. EM-K was the co-director of the Trauma Resource Institute at the time. VK assisted with the administrative conceptualization and support of community needs within San Bernardino County. Outcome research design, material preparation, data collection, and project report were conducted by the Trauma Resource Institute with the assistance of its independent contractors, including SC. Data analysis was performed by KF, KB, and SM. The first draft of the manuscript was written by KF, KB, MN, and SM and all authors commented on subsequent versions of the manuscript. All authors read and approved the final manuscript.

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Data Availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of Interest Financial Interests: Author Elaine Miller-Karas received grant funds for conducting this project through San Bernardino County Mental Health. The purpose of the funding was to provide training to staff and community members in the use of the Community Resiliency Model. Funds were used for training materials, independent contractors and staff salaries. Small Stipends were also paid to the participants of the trainings. Stephanie Citron was contracted by the Trauma Resource Institute to collect outcomes data and to write the executive summary of the research. Veronica Kelley is an executive for San Bernardino County where the project was conducted and receives a regular salary. It is important to note that funding for this project was directed at the implementation of a community-based wellness model. Research was written into the proposal. The research was designed by a contractor of the Trauma Resource Institute. The training teams were required to give informed consent for the pre- and post-tests evaluating the effectiveness of the Community Resiliency Model training. The data was given to the Trauma Resource Institute. All informed-consents and completed surveys are kept in locked cabinets held by the Trauma Resource Institute. Outcomes data was collected to add to the knowledge of the effectiveness of the Community Resiliency Model training. As such, the funding was not dependent on the outcomes and the data was analyzed for publication independent of the individuals directly involved in the project implementation. Non-financial interests: None. Authors Kimberly Freeman, Kelly Baek, Michelle Ngo and Susanne Montgomery have no relevant financial or non-financial interests to disclose.

Ethical Approval This research project was reviewed by the Loma Linda University Institutional review board and was given a waiver based on it being de-identified secondary data that was initially part of treatment evaluation process. The study was performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent Written informed consent was obtained from all individual participants included in the study. Participants were also informed in writing that their de-identified data could be used for research.

References

- Bellamy, N. D., Wang, M. Q., McGee, L. A., Liu, J. S., & Robinson, M. E. (2019). Crisis-counselor perceptions of job training, stress, and satisfaction during disaster recovery. *Psychological Trauma: Theory, Research, Practice, and Policy*, *11*(1), 19–27.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, *14*(4), 245–258.
- Gerberg, P., Wallace, G., & Brown, R. (2011). Mass disasters and mind-body solutions: Evidence and field insights. *International Journal of Yoga Therapy*, *21*(1), 7–107.

- Grabbe, L., & Miller-Karas, E. (2018). The Trauma Resiliency Model: A “bottom-up” intervention for trauma psychotherapy. *Journal of the American Psychiatric Nurses Association*, 24(1), 76–84.
- Holt, W. (2018, March 28). Mental Health in California: for too many, care not there. *California Health Care Foundation*. Retrieved from <https://www.chcf.org/publication/2018-editon-mental-health-ca-for-too-many-care-not-there/>
- Jacobs, G. A., Gray, B. L., Erickson, S. E., Gonzalez, E. D., & Quevilion, R. P. (2016). Disaster Mental health and community-based psychological first aid: Concepts and education/training. *Journal of Clinical Psychology*, 72(12), 1307–1317.
- Kellner, R. (1987). A symptom questionnaire. *The Journal of Clinical Psychiatry*, 48(7), 268–274.
- Lukens, E. P., O’Neill, P., Thorning, H., Waterman-Cecutti, J., Gubiseh-Ayala, D., Abu-Ras, W., Batista, M., & Chen, T. (2004). Building resiliency and cultural collaboration post September 11th: A group model of brief integrative psychoeducation for diverse communities. *Traumatology*, 10(2), 107–129.
- Miller-Karas, E. (2015). *Building resilience to trauma: The trauma and community resiliency models*. Routledge/Taylor & Francis Group.
- Prosser, D., Johnson, S., Kuipers, E., Dunn, G., Szmukler, G., Reid, Y., Bebbington, P., & Thornicroft, G. (1999). Mental health, “burnout” and job satisfaction in a longitudinal study of mental health staff. *Social Psychiatry & Psychiatric Epidemiology*, 34(6), 295–300.
- Salem-Pickartz, J. (2007). Peer counsellors training with refugees from Iraq: A Jordanian case study. *Intervention*, 5(3), 232–243.
- San Bernardino County Community Indicators Report. (2019). Retrieved from https://cms.sbcounty.gov/Portals/21/Resources%20Documents/SB_2019%20Report.ONLINE.pdf?ver=2021-04-29-161403-310
- Saul, J., & Simon, W. (2016). Building resilience in families, communities, and organizations: A training program in global mental health and psychosocial support. *Family Process*, 55(4), 689–699.
- Sirotnik, B., Aldana, L. (2016). 2016 Inland Empire annual survey. *California State University San Bernardino: Institute of Applied Research and Policy Analysis*. Retrieved from https://www.csusb.edu/sites/default/files/AnnualReport2016FINALAug2_0.pdf
- Stafford, M., Chandola, T., & Marmot, M. (2007). Association between fear of crime and mental health and physical functioning. *American Journal of Public Health*, 97(11), 2076–2081.
- Torres, J. M., & Casey, J. A. (2017). The centrality of social ties to climate migration and mental health. *BMC Public Health*, 17(1), 600.
- U.S. Census Bureau (2019). *QuickFacts: San Bernardino city, California*. Retrieved from <https://www.census.gov/quickfacts/sanbernardinocitycalifornia>.
- U.S. Department of Veterans Affairs (2019). PTSD treatment basics. Retrieved from https://www.ptsd.va.gov/understand_tx/tx_basics.asp
- Wolf, S. H., & Schoomaker, H. (2019). Life expectancy and mortality rates in the United States, 1959–2017. *Journal of the American Medical Association*, 322(20), 1996–2016.
- Yankellevich, A., & Goodman, Y. C. (2017). You can’t choose these emotions... they simply jump up: Ambiguities in resilience-building interventions in Israel. *Culture, Medicine, and Psychiatry*, 41(1), 56–74.

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