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Piloting a New Model of Crisis Counseling: Specialized Crisis Counseling Services in Mississippi After Hurricane Katrina

Kris Jones · Mardi Allen · Fran H. Norris · Christy Miller

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Abstract During January–April 2007, Project Recovery, a federally funded crisis counseling program implemented by Mississippi's Department of Mental Health, piloted a new model of Specialized Crisis Counseling Services (SCCS) on the Mississippi Gulf Coast. In this team-based approach, a masters-level counselor trained in a variety of intervention techniques and a resource coordinator worked together with persons whose needs were relatively intense. Compared to regular program (RCCS) participants over the same interval ($n = 29{,}522$), SCCS participants ($n = 281$) were more likely to be female, middle-aged, and at greater risk for severe distress. In a participant survey conducted in both programs over the same week, SCCS participants reported significantly greater benefit than did RCCS participants. A subset of 129 SCCS participants provided pre- and post-participation assessments and showed large improvements in disaster-related distress.

Keywords Disaster mental health services · Hurricane Katrina

K. Jones · M. Allen · C. Miller
Mississippi Department of Mental Health, Jackson, MS, USA

F. H. Norris (✉)
National Center for PTSD, VAMC (116D), 215 North Main Street, White River Junction, VT 05009, USA
e-mail: fran.norris@dartmouth.edu

F. H. Norris
Dartmouth Medical School, Hanover, NH, USA

Introduction

Hurricane Katrina made landfall as a strong Category 3 hurricane in Mississippi in the early morning hours of August 29, 2005. Hurricane force winds finally slowed to tropical storm force winds upon reaching the central part of Mississippi. Eleven tornadoes spawned from Katrina were recorded in Mississippi. A massive storm surge caused flooding in areas of the Gulf Coast that have never flooded, rendering acre after acre of what were once homes and businesses to piles of rubble and slabs. Massive casino and shipping barges were pulled from their pilings and blown inland several hundred feet, causing further damage. Thousands of trees as far as 100 miles north of the Gulf Coast were blown over onto homes and snapped power lines. Power outages lasted for up to a month in the lower half of the state. Thousands of families lost homes, jobs, and schools. Hospitals, nursing homes and other healthcare facilities' services were severely interrupted. Forty-nine counties were declared eligible for full federal disaster assistance. Of the state's 2,845,000 population, two-thirds resided in the affected area.

Mississippi's Crisis Counseling Program

The Mississippi Department of Mental Health (MDMH) applied for and was awarded grants from the Federal Emergency Management Agency through the Crisis Counseling Assistance and Training Program (CCP; administered by the Substance Abuse and Mental Health Services Administration) to assist persons affected by Hurricane Katrina in their emotional recovery (Norris and Bellamy 2009). The goal of Mississippi's CCP, Project Recovery, was to enhance the resiliency of individuals, families, and communities affected by Katrina. From the

beginning, however, MDMH anticipated that many individuals would experience levels of postdisaster distress greater than crisis counselors are trained to address. MDMH began to investigate the "enhanced services" models used by Project Liberty in response to the September 11, 2001 terrorist attacks in New York (Donahue et al. 2006) and by Project H.O.P.E in response to the 2004 hurricanes in Florida. Although its initial request was denied, MDMH continued to advocate for the need for an enhanced services model in Mississippi.

A year later, in October 2006, MDMH requested and gained approval for a change of scope of Project Recovery to provide "specialized crisis counseling services" (SCCS) that would offer a broader repertoire of interventions for some of the more distressed service recipients. SCCS was considered an adjunct component of regular crisis counseling services (RCCS). This program would utilize existing staff and could be provided within the already approved budget allocation. Effort was made to integrate a new focus in Project Recovery without jeopardizing the integrity of the ongoing services being offered by outreach workers. The new program was considered a pilot project for FEMA and SAMHSA.

SCCS differed from the earlier enhanced services model in three primary ways. First, whereas the enhanced services model was based largely on Cognitive Behavioral Therapy (CBT; see Hamblen et al. 2009), SCCS used a blend of elements from Solution Focused Therapy with certain philosophical anchors from CBT. SCCS was delivered in a person-centered manner that sought to focus and build on the strengths of the service recipients to assist them in developing the skills necessary to find solutions to identified needs. Second, SCCS allowed service recipients the flexibility to set specific goals for each visit. Whereas enhanced services employed a sequential 10–12 session protocol, SCCS recipients were not required to participate in a prescribed number of visits. Counselors conducted each visit as a stand-alone visit, with continuation determined by the service recipient. Third, SCCS used a team approach. Each SCCS team was staffed with a specialized crisis counselor and a resource coordinator. SCCS provided additional support and counseling services, along with more intense assistance in linking individuals with the resources needed to address postdisaster distress.

The Evaluation of SCCS

After Hurricane Katrina, in fall 2005, the administrators of the CCP implemented, for the first time, a standardized data collection system. Seventeen states, including Mississippi, participated in the cross-site evaluation of services provided to Hurricane Katrina survivors and evacuees (see Norris and Bellamy 2009). This system aimed to document the reach, quality, and consistency of the program through routine collection of crisis counseling encounter logs and periodic surveys of providers and participants. Also included in the toolkit was an assessment and referral tool that was used optionally by programs to help counselors make decisions about which participants should be referred to more intensive psychological interventions.

Project Recovery largely made use of these existing tools in its evaluation of SCCS. This approach had two primary advantages. First, it minimized the time and effort required of project leadership to plan and implement the evaluation component of the new program. Second, it allowed the performance of the new SCCS program to be compared to that of the regular program (RCCS). The planners of the cross-site evaluation had envisioned that common use of standardized tools would yield norms for program reach and quality that could, in turn, provide benchmarks for evaluating the impact of program innovations. Thus Mississippi's SCCS program constituted not only an important pilot for testing a new model of counseling services but also an important pilot for testing the utility of the evaluation toolkit in such contexts.

More specifically, we evaluated three aspects of Mississippi's SCCS. First we compared the characteristics of SCCS participants to those of RCCS participants. We hypothesized that SCCS participants would exhibit a higher level of risk factors and needs than RCCS participants but would otherwise be comparable, suggesting minimal disparities in provision of services across populations defined by gender, age, and race. For this, we relied primarily on the Individual Crisis Counseling Encounter Logs, but we also used some data provided by the Participant Feedback Survey. Second, we compared the ratings of program quality provided by SCCS and RCCS respondents to the Participant Feedback Survey. We hypothesized that SCCS participants would report superior benefits. The "outcomes" measured by the survey are realistic immediate aims of crisis counseling, such as reducing stigma of help-seeking, normalization of reactions, and increased coping skills, rather than symptom reduction. Third, we examined change in levels of disaster-related distress within a subset of SCCS participants who were interviewed on two occasions with the Adult Assessment and Referral Tool. We hypothesized that there would be significant reductions in distress and furthermore that the amount of improvement would increase as the level of program participation increased.

Method

SCCS Participants

Between January and April 2007, 281 adults participated in SCCS. This total represents 81% of the 346 persons who

were referred, accepted the referral, and assigned to a team. All participants lived within a 15-county area in southernmost Mississippi. During this interval in the same geographic area, 29,522 adults participated in RCCS. Because all SCCS participants were referred by RCCS outreach workers, they may also be included in the RCCS data if their first encounters occurred after January 1, 2007.

Referral to SCCS involved several steps. Outreach workers in the RCCS identified individuals (adults only) in the community who appeared to have high emotional needs and referred them to their team leaders for assessment. The team leader, usually accompanied by the outreach worker, visited the individual to discuss the SCCS phase of Project Recovery and administered the Adult Assessment and Referral Tool (described subsequently). When individuals desired SCCS and evidenced significant Katrina-related stress, based on their referral tool score and interview, the team leader made formal referrals to the SCCS program. This process was completed within 24 h of receiving the file. The clinical supervisor assigned participants to SCCS teams in their geographic areas and gave them service recipient numbers.

Special circumstances did occur during the SCCS program in which several service recipients were in acute need of mental health treatment, exhibited significant suicidal behavior, or needed urgent placement in an alcohol treatment center. These individuals were dealt with immediately and the routine referral processes was circumvented.

Data Sources and Measures

We used four different sources of data to evaluate SCCS in Mississippi: Individual Crisis Counseling Encounter Logs, SCCS Activity Tallies, the Participant Feedback Survey, and the Adult Assessment and Referral Tool. Cross-site data collection forms (encounter log, survey, assessment tool) were approved by the Office of Management and Budget in September 2005. The SCCS activity tallies were used only in Mississippi; thus OMB approval was not required. Participants, procedures, and measures varied with data source, so each is described separately.

Individual Crisis Counseling Encounter Logs. SCCS participants gave their permission to be identified by a numerical code that was entered on each log pertaining to an encounter with them. Identification codes were not used in the RCCS program. Thus RCCS participant characteristics were based on logs submitted for first encounters, as these data provided the best estimate available of unique individuals seen by RCCS crisis counselors. These first encounters accounted for 63% of the total 46,701 encounters documented by RCCS crisis counselors during this period in these counties.

Counselors recorded basic descriptive information about each individual encounter on a one-page form. Demographic characteristics of gender, race (one or more of the census-defined categories of *American Indian/Alaskan Native*, *Asian*, *Black/African American*, *Pacific Islander/Hawaiian native*, *White*), ethnicity (*Latino/Hispanic* or *not*), and age (adult categories: *18-39*, *40-64*, *65+*) were based on the counselor's observations, i.e., counselors did not ask people their gender, age, race, or ethnicity. Counselors also checked risk factors that were identified during the course of their conversation, including predisaster mental health problems, disability, or exposure to trauma.

SCCS Activity Tallies. Specialized crisis counselors and resource coordinators tallied the number of times they provided particular services by day. These forms did not identify the person for whom the service was performed. For counselors, the options were psycho-education, breathing techniques, pleasant activity scheduling, goal setting, relaxation/stress management, supportive counseling, referral to mental health treatment, and referral to substance abuse treatment. For resource coordinators, the categories were housing, transportation, employment, physical health care, social support, recreation, and disaster-related financial assistance.

Participant Feedback Survey. During the week beginning March 11, 2007, a brief survey was distributed to all adults participating in face-to-face crisis counseling in either the SCCS or RCCS program. The packet contained a copy of the two-page survey, a pen, and a stamped addressed return envelope. A bar code on the form identified the survey recipient as RCCS or SCCS. Counselors were instructed to introduce the survey when their conversation with the participant was winding down, and they were told that they could not help the participant to complete it. Participants completed the surveys anonymously and returned them by mail to the state's evaluation coordinator. Surveys were returned by 42 SCCS participants and 281 RCCS participants. Response rates (55% SCCS, 12% RCCS) were estimated on the basis of the encounter logs submitted for the same days in which the surveys were conducted. This approach takes into account both potential forms of noncompliance: (1) counselors not giving out the survey as instructed and (2) participant non-response.

SCCS survey participants did not differ significantly from survey-eligible SCCS participants in age (respectively, 24 vs. 17% age 18–39, 56 vs. 64% age 40–64, 20 vs. 20% age 65+) or sex (74 vs. 71% female), but survey participants were disproportionately African American (32 vs. 22%). RCCS survey participants did not differ from survey-eligible RCCS participants in age (respectively, 34 vs. 33% age 18–39, 48 vs. 49% age 40–64, 18 vs. 17% age 65+) or race (34 vs. 31% African American), but survey respondents were disproportionately female (69 vs. 61%).

Weights were created that corrected the sex, age, and race distributions of the survey samples to match the survey-eligible populations within programs; we present both weighted and unweighted results.

The primary evaluation measure provided by the participant survey was the Counseling Outcomes and Experiences Scale (COES), which aims to assess the extent to which the counselor (1) created an encounter characterized by respect, cultural sensitivity, and sense of privacy and (2) achieved realistic immediate outcomes (e.g., reducing stigma of help-seeking, normalization of reactions, increased coping skills) as perceived by the participant. The COES has ten items ($\alpha = 0.95$) scored on a 10-point scale from *worst* = 1 to *best* = 10, yielding a maximum score of 100. To adjust for missing data, the total scale was scored as the mean of valid items multiplied by 10. (For additional detail on the COES, see Norris et al. 2009).

The participant survey also included measures of stress and distress. Participants were instructed to "check all that apply" from a list of 13 disaster stressors: threat to life, injury, witnessing death or injury, family member missing or dead, friend or co-worker missing or dead, rescue/recovery work, community destruction, home damage, displacement, sudden evacuation, disaster-related unemployment, financial loss, and separation from family. In addition, the survey included the Sprint-E, the same measure of distress included in the Adult Assessment and Referral Tool that is described subsequently.

Adult Assessment and Referral Tool. The Adult Assessment and Referral Tool (AART; Norris et al. 2006) is used optionally in crisis counseling programs to help guide counselors' decisions about referrals to more intensive services. All SCCS participants were assessed for disaster-related distress upon referral to the program. A subset of SCCS participants ($n = 129$) was assessed for disaster-related distress levels a second time.

SCCS program guidelines recommended (but did not require) that specialized counselors re-administer the AART when the participation appeared to be nearing its end. This judgment was complicated by the fact that SCCS did not involve a set number of sessions. Quite often, attempts to schedule the next encounter that would have included the assessment were not successful, as participants would report that they were feeling better and no longer wished to participate in specialized counseling, although sometimes they did wish to continue with the resource coordination activities. The transient nature of recipients during this stressful time also contributed to missed appointments or poor follow-through. When some recipients found a job or place to live, they sometimes stopped the services abruptly without a final visit.

The sex, age, and race distributions of the twice-assessed subset (74% female, 68% middle-aged, 33% African American) were very similar to those of the entire set of SCCS participants (75% female, 67% middle-aged, 29% African American). However, the subset was biased toward participants with more intensive participation in SCCS; 23% of participants with <3 sessions, 56% of participants with 3–6 sessions, and 78% of participants with >6 sessions provided a second assessment, χ^2 (2, $n = 281$) = 49.81, $P < 0.001$.

The primary measure on the AART is the 12-item Short Post-Traumatic Stress Rating Interview-Expanded (Sprint-E; Norris et al. 2006). The first 11 items ($\alpha = 0.88$) assess disaster-related symptoms of PTSD, depression, functional impairment, and perceived need for assistance on a 5-point scale (*not at all* = 1, *very much* = 5). The 12th item, a suicidality check, is not included in the score. As a screening tool, the Sprint-E is scored as the number of intense reactions, where an "intense reaction" is an item with a score of 4 or 5, but to evaluate pre-post change related to SCCS participation, we also used the entire range of the measure, scored as the sum of the first 11 items with range of 11–55. Previous research on the Sprint-E has suggested that persons who report seven or more intense reactions are highly likely to suffer from current PTSD or a related disorder (Norris et al. 2008).

SCCS Staffing, Training, and Supervision

Each SCCS team was staffed with a specialized crisis counselor and a resource coordinator. They were supervised administratively by an area manager and clinically by the SCCS clinical supervisor. All specialized crisis counselors were required to have a minimum of a Master's Degree in a mental health or related field. Most of them had held team leader positions in Project Recovery prior to being transferred to the SCCS program. Resource coordinators were paraprofessionals who had worked previously as outreach workers and had demonstrated outstanding skills in locating community resources and interacting with the public. Other determining factors in being chosen were their previous work ethic and ability to work independently. SCCS teams were geographically distributed throughout Mississippi's 15 southernmost counties. Some teams had a relatively small urban area to cover, while others covered extremely large rural areas. There was no set expectation about the number of service recipients to be seen each week due to the variability in geographic regions to cover and varying stress levels of the recipients.

In addition to training received as part of their work in RCCS, SCCS counselors and resource coordinators received 45 additional hours of didactic training provided by guest lecturers, Project Recovery staff, and other disaster mental health specialists. Some of the topics included in training were: confidentiality; administering the

Adult Assessment and Referral Tool; identifying strengths and setting goals; stress reduction techniques; signs and symptoms of depression; overcoming sleep problems; anger; body and mind connection; dealing with suicidal individuals; alcohol and drug screening and assessment; and cultural competency.

Clinical supervision was provided by a licensed clinical psychologist who was an employee of MDMH and familiar with Project Recovery. A SCCS office was established on the Gulf Coast, staffed with a full-time administrative assistant. All specialized crisis counselors met individually with the clinical supervisor at least twice a month in addition to weekly group supervision, case consultation, and didactic training. The resource coordinators usually met with the clinical supervisor during group supervision and sometimes with the specialized crisis counselors during individual supervision. The clinical supervisor accompanied each team during at least one full day of service delivery during the SCCS program.

Data Analysis

We hypothesized (1) that SCCS participants would exhibit a higher level of risk factors and needs than RCCS participants but would otherwise be comparable, suggesting minimal disparities in provision of services across populations defined by gender, age, and race. The comparison of SCCS participants to RCCS participants was based largely on data from the encounter logs with the exception of information pertaining to their stress and distress, which was drawn from the participant survey. The descriptions of activities were compiled from the weekly tallies submitted by specialized counselors and resource coordinators.

We hypothesized (2) that SCCS participation would yield superior perceived benefits, as assessed by the COES, compared to RCCS participation. We tested this hypothesis by comparing the ratings of SCCS participants to those of RCCS participants on the survey conducted simultaneously in both programs. The effect of program (SCCS vs. RCCS) on overall COES ratings was tested in a regression analysis that controlled for survey measures of sex, age, race, education, stress, and distress. To identify the specific areas in which SCCS performance might be superior, we also compared the percentages of SCCS and RCCS respondents who gave excellent ratings (defined as a score of 9 or 10 on a 10-point scale) on each COES item. These differences were examined in chi-square tests.

We hypothesized (3) that SCCS participation would lead to a reduction in postdisaster distress. We tested this hypothesis by analyzing change in Sprint-E scores within the subset of SCCS participants who completed the AART twice. We used a paired *t*-test to test overall change in the number of intense reactions (range 0–11), but the primary test was a 2×3 repeated-measures ANOVA of total Sprint-E scores (range 11–55) with Time (2 levels) as the within-subjects factor and Number of Sessions (3 levels) as the between-subjects factor. The effect size (Cohen's *d*) was calculated as the mean difference (*M* diff) between the first and second measurements divided by its standard deviation (Kotrlik and Williams 2003). The "rule of thumb" for interpreting these effect sizes is that $d = 0.20$ indicates a small (but not trivial) effect, $d = 0.50$ indicates a medium effect, and $d = 0.80$ indicates a large effect.

Results

Comparison of SCCS Participants to RCCS Participants

Table 1 shows the encounter log characteristics of SCCS and RCCS participants for the January–April 2007 evaluation interval. Compared to RCCS participants, SCCS participants were disproportionately female and disproportionately middle-aged (rather than younger) adults. Ethnically, RCCS and SCCS participants were comparable, with African Americans composing 29.2 and 30.5%, respectively, of the counseling populations. SCCS participants, however, were far more likely to have been identified as having predisaster mental health problems, physical disabilities, or trauma exposure.

The participant survey allowed additional comparisons between the two counseling groups. Education levels did not differ: 28% of SCCS participants had <12 years of education, 28% had 12 years, and 44% had >12 years, compared to 21, 35, and 45%, respectively, of RCCS participants, χ^2 (2, $n = 304$) = 1.26, *ns*. Consistent with the goals of the program, SCCS participants had experienced more disaster-related stressors ($M = 5.6$, $SD = 2.9$) than had RCCS participants ($M = 4.5$, $SD = 2.7$), $t(321) = 2.54$, $P < 0.01$. SCCS participants reported a greater number of intense reactions on the Sprint-E ($M = 7.8$, $SD = 3.1$) than did RCCS participants ($M = 4.1$, $SD = 3.9$), $t(313) = 5.97$, $P < 0.001$. Their Sprint-E total scores differed as well (SCCS $M = 44.7$, $SD = 8.7$; RCCS $M = 33.4$, $SD = 11.8$), $t(313) = 5.89$, $P < 0.001$.

SCCS Activities

Staff documented a total of 1,076 counseling encounters (in-person visits) and 1,058 resource coordination encounters in the SCCS program. SCCS participants received up to 19 counseling encounters ($M = 3.8$, $SD = 3.1$, median = 3) and up to 18 resource encounters ($M = 3.8$, $SD = 3.2$, median = 3). There were no sex

Table 1 Service recipient characteristics in Mississippi's specialized and regular crisis counseling programs

	Specialized program		Regular program		
	n	%	*n*	%	χ^2
Total participants	281	100.0	29,522	100.0	
Sex					28.53***
Male	70	25.0	11,879	40.2	
Female	210	75.0	17,637	59.8	
Age					31.84***
18–39	58	20.6	10,161	34.4	
40–64	187	66.5	14,910	50.5	
65+	36	12.8	4,451	15.1	
Race/ethnicity					3.48
Non-Hispanic White	194	69.0	19,289	66.0	
Non-Hispanic Black	82	29.2	8,902	30.5	
Other, mixed, or Latino	5	1.8	1,030	3.5	
Risk factors (not mutually exclusive)					
Predisaster mental health problem	95	33.8	936	3.2	300.31***
Disability	121	43.1	2,489	8.4	238.53***
Predisaster trauma	90	32.0	1,699	5.8	180.81***

Regular program data based on first visit counseling logs, 63% of the total *n* of 46,701 counseling encounters for January–April 2007

*** $P < 0.001$

differences in the number of counseling encounters, $t(278) = 1.17$, *ns*, or in the number of resource encounters, $t < 1$. There were no age differences in the number of counseling encounters, $F < 1$, but the number of resource encounters increased with participants' age (for 18–39, $M = 3.0$, $SD = 2.8$; for 40–64, $M = 3.8$, $SD = 3.3$; for 65+, $M = 4.8$, $SD = 3.4$), $F(2, 278) = 3.43$, $P < 0.05$. White and Black participants did not differ in either the number of counseling encounters or the number of resource encounters, *t*s < 1.

Table 2 shows the activities tallied by specialized crisis counselors and resource coordinators by month (January through April 2007). It was possible for there to be multiple actions for each in-person encounter, and resource coordination actions often took place outside of encounters, so the data are shown as ratios rather than as percentages. The ratio was computed as the number of tallies for that activity divided by the total number of relevant (counseling or resource) encounters. The most common counseling activities were supportive counseling (0.6 activities per participant) and goal-setting (0.6), followed by psychoeducation (0.4). Pleasant activity scheduling (0.2) and relaxation/stress management (0.2) were used less often. The most common resource coordination activity, by far, was assistance with housing (2.8 activities per participant), but assistance in finding financial services (1.5 activities per participant), physical health care (1.0 activities), employment services (0.9), and social support resources (0.9) were also common.

Counseling Outcomes and Experiences

Analyses were limited to respondents with no more than two missing items on the 10-item COES. The 41 SCCS survey respondents averaged 85.7 on the COES (out of 100 possible, $SD = 24.8$), whereas the 237 RCCS survey respondents averaged 78.5 ($SD = 19.7$), $t(276) = 2.06$, $P < 0.05$, $d = 0.35$. The superior effects for the SCCS program ($\beta = 0.13$, $P < 0.05$) held in a multiple regression analysis, that controlled for participant sex, age, race, education, number of disaster-related stressors, and severity of distress (Sprint-E total score). When weights were applied to correct the age, sex, and race distributions of each sample to match each population of survey-eligible participants, the difference was more pronounced: SCCS $M = 88.8$ ($SD = 19.4$), RCCS $M = 77.8$ ($SD = 19.7$), $\beta = 0.22$, $P < 0.001$, $d = 0.55$.

Table 3 shows the unweighted results for the specific outcomes and experiences measured by the COES. In both programs, positive responses predominated, but a significantly higher percentage of SCCS participants provided ratings in the *excellent* range on nine of the ten COES items (all ten in the weighted data). The largest differences in % excellent ratings emerged for the quality of help received regarding social functioning (85% SCCS vs. 42% RCCS weighted), confidence gained (86 vs. 48% weighted), normalization of distress (81 vs. 43% weighted), and the quality of information received (76 vs. 36% weighted).

Table 2 Specialized crisis counseling encounters and activities by month

Activities	Jan 2007		Feb 2007		Mar 2007		Apr 2007		Total	
	n	Ratio	*n*	Ratio	*n*	Ratio	*n*	Ratio	*n*	Ratio
Counseling encounters	137		411		345		183		1,076	
Goal setting	94	0.69	264	0.64	166	0.48	71	0.39	595	0.55
Psycho-education	82	0.60	166	0.40	125	0.36	45	0.25	418	0.39
Supportive counseling	76	0.55	209	0.51	229	0.66	107	0.58	621	0.58
MH referrals	38	0.28	62	0.15	45	0.13	38	0.21	183	0.17
Pleasant activity scheduling	27	0.20	78	0.19	80	0.23	37	0.20	222	0.21
Relaxation	21	0.15	73	0.18	74	0.21	39	0.21	207	0.19
Breathing techniques	7	0.05	31	0.08	40	0.12	28	0.15	106	0.10
SA referrals	0	0.00	3	0.01	2	0.01	1	0.01	6	0.01
Resource coordination encounters	131		343		332		252		1,058	
Housing	386	2.95	1,128	3.29	526	1.58	936	3.71	2,976	2.81
Employment	206	1.57	392	1.14	90	0.27	252	1.00	940	0.89
Financial assistance	192	1.47	736	2.15	256	0.77	440	1.75	1,624	1.53
Physical health	132	1.01	588	1.71	132	0.40	216	0.86	1,068	1.01
Transportation	122	0.93	210	0.61	18	0.05	112	0.44	462	0.44
Social support	100	0.76	448	1.31	100	0.30	254	1.01	902	0.85
Recreation	50	0.38	144	0.42	32	0.10	70	0.28	296	0.28

Encounters refer to in-person activities. A ratio rather than percent is shown because it was possible and common for there to be multiple resource coordination actions for each in-person encounter. The ratio was computed as the number of tallies for that activity divided by the total number of relevant (counseling or resource) encounters

Table 3 Percent of survey respondents providing excellent ratings on counseling outcomes and experiences

Outcome or experience	SCCS % ($n = 41$)	RCCS % ($n = 237$)	χ^2 (1, $n = 278$)
Information on reactions to disaster	68.3	39.7	11.56***
Helped to know feelings were okay	74.4	45.1	11.84***
Treated with respect	75.6	61.5	3.14
Cultural sensitivity	78.0	60.2	5.09*
Made comfortable with seeking help	80.0	55.8	8.93**
Made confident in abilities to help self or family	80.5	50.9	13.37***
Trust in privacy	82.9	61.6	7.68**
Help with staying healthy	73.2	49.6	8.11**
Help with social functioning	76.9	45.5	13.84***
Would recommend CCP to others	75.0	57.7	4.50*
Total counseling outcomes and experiences scale	70.7	41.4	12.32***

Note: All items were scored on a 10-point scale, 1 = *worst* and 10 = *best*. A score of 9 or 10 was considered excellent at the item level

SCCS, specialized crisis counseling services; RCCS, regular crisis counseling services

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Symptom Change

The 129 SCCS participants who were assessed twice averaged 7.7 intense reactions ($SD = 2.5$) on the first assessment and 4.7 intense reactions ($SD = 3.3$) on their second assessment, $t(128) = 9.76$, $P < 0.001$, (M diff $= 3.0$, $SD = 3.5$, $d = 0.86$). One-third ($n = 43$, 33.3%) were above the cut-point of seven intense reactions at Time 2, compared to two-thirds ($n = 86$, 66.7%) at Time 1. Of the 43 participants below the cut-point of 7 at Time 1, 8 (19%) were at or above the cut-point at Time 2. These eight persons who worsened averaged 4.9 intense reactions ($SD = 1.4$) at Time 1 and 7.8 intense reactions ($SD = 1.0$) at Time 2. Of the 86 participants at or above the cut-point of 7 at Time 1, 35 (41%) were at or above the cut-point at Time 2. These 35 persons who remained at risk averaged

9.4 intense reactions ($SD = 1.5$) at Time 1 and 8.9 intense reactions ($SD = 1.4$) at Time 2.

We further tested change in Sprint-E total scores by using a 2×3 repeated measures ANOVA with Time as the within-subjects factor and Number of Sessions as the between-subjects factor. The hypothesis was that a greater number of sessions between the two assessments would be associated with greater decrease in distress levels, as reflected in an interaction between Time and Number of Sessions. Four groups of roughly equal n emerged by dividing the number of sessions into <3 (23.8%), 3–4 (26.2%), 5–6 (27%), and >6 (23.0%). However, in preliminary analyses, the two middle groups did not differ, so were combined to increase the power of the test.

A very strong main effect of time emerged in the analysis, $F(1, 123) = 83.51$, $P < 0.001$, $\eta^2 = 0.40$, but there was also an interaction between Time and Number of Sessions, $F(2, 123) = 3.28$, $P < 0.05$, $\eta^2 = 0.05$. The results are illustrated in Fig. 1. The main effect of time is quite evident in this figure, as mean Sprint-E scores of each group declined between the first and second assessments. However, the amount of improvement was least in the group with <3 sessions (M diff = 5.1, $SD = 8.0$, $d = 0.64$), intermediate in the group with 3–6 sessions (M diff = 8.2, $SD = 8.7$, $d = 0.94$), and greatest in the group with >6 sessions (M diff = 11.3, $SD = 11.8$, $d = 0.96$). There was more variability in the last group, yielding a within-group effect size comparable to the middle group.

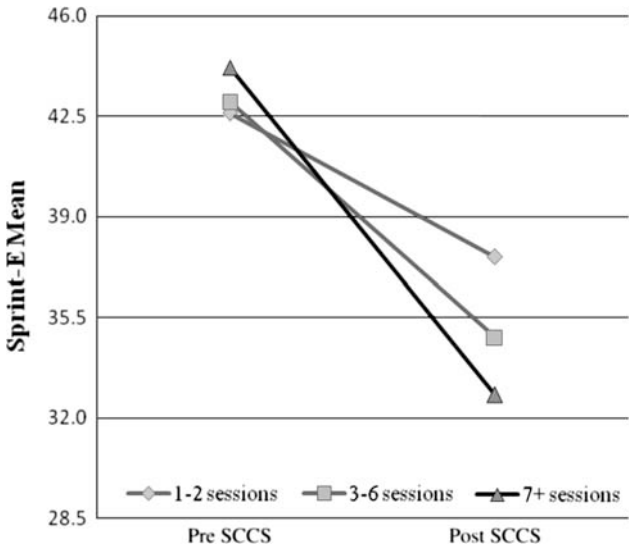

Fig. 1 Means on the Sprint-E before and after participating in Specialized Crisis Counseling Services for groups differing in the number of sessions between pre- and post-measures. Each *horizontal line* on the graph represents 0.5 pretreatment SDs. Group *n*s were 30 for 1–2 sessions, 67 for 3–6 sessions, and 29 for 7+ sessions

Discussion

Research on the effects of Hurricane Katrina has documented high rates of clinically significant distress in both Louisiana and Mississippi (e.g., Galea et al. 2007; Kessler et al. 2008; Larrance et al. 2007). Such data heightened pre-existing policy concerns about the need for the public sector to provide mental health services more intensive than crisis counseling after especially severe disasters (Gibson et al. 2006; Pfefferbaum et al. 2002; Weisler et al. 2006). New York's "enhanced services" program was a notable effort to fill this gap (Donahue et al. 2006), but ultimately program administrators did not judge it to be a viable supplement to subsequent CCPs. After Hurricane Katrina, Louisiana and Mississippi were allowed to experiment with developing "specialized crisis counseling services." This model was consistent with the regular program in its focus on solving current problems and building skills and in its use of encounters that could stand alone as opposed to interventions that require multiple sessions. The heart of the SCCS model was its team approach that combined the efforts of specially trained masters-level counselors, who attended to participants' psychological needs, with resource coordinators, who attended to participants' tangible needs. Mississippi piloted this approach for only a short while, as Project Recovery closed down at the end of April 2007, roughly 20 months after Hurricane Katrina struck the Gulf Coast. Nonetheless, the SCCS program lasted long enough to allow an initial evaluation of its promise as a new model of crisis counseling.

The experiences of the counselors and clinical supervisor supplement the quantitative approach emphasized in this evaluation. Many of the SCCS counselors had worked for Project Recovery for over a year as team leaders and were moved to serve as specialized counselors. They had functioned very independently prior to SCCS. Until SCCS, there was no Project Recovery central office located on the Gulf Coast. Specialized counselors were required to have a Master's degree in a mental health related field, yet only one was licensed. The clinical expertise and approach of the counselors varied tremendously, and some counselors offered little more than consistent support. From feedback, it seems that most staff felt that SCCS was needed much earlier and should have continued longer. Many counselors were survivors of the storm and became anxious as Project Recovery started closing down. They too needed supportive counseling and goal-setting as they tried to move beyond Project Recovery.

Their concerns notwithstanding, counselors felt that the SCCS program was functioning very well as it closed, an opinion that appears to be supported by the evidence presented here. The evaluation design was flawed in many

ways and cannot provide definitive evidence that SCCS was superior to RCCS in terms of how well it reached and helped Mississippi residents with higher than average needs. Ultimately, the most important question this evaluation can answer is whether the pilot provided sufficient support to justify further refinement and testing of the approach. To this overarching question, we believe we can safely answer "yes."

More specifically, we tested three hypotheses in this study of Mississippi's SCCS. First, we hypothesized that SCCS participants would exhibit a higher level of risk factors and needs than RCCS participants but would otherwise be comparable, suggesting minimal disparities in provision of services across populations defined by gender, age, and race. There was partial although not complete support for this hypothesis. As for needs, the data did suggest that participants in SCCS had higher needs. For example, on the encounter logs, 34% of SCCS participants were coded as having predisaster mental health problems compared to only 3% of RCCS participants, and on the participant survey, SCCS participants averaged a greater number of disaster-related stressors and more disaster-related distress than did RCCS participants.

As for potential disparities in service provision, the evidence was more mixed. On one hand, there were gender and age disparities in use of SCCS. Women and middle-aged adults were over-represented in SCCS relative to their frequencies in RCCS. This finding, however, may simply reflect their higher-risk status. Past research on the psychological consequences of disaster suggests that women and middle-aged adults are disproportionately likely to develop PTSD, depression, and other postdisaster mental health problems (Norris et al. 2002).

On the other hand, SCCS participants were educationally and ethnically comparable to RCCS participants. This is important because past research has pointed to striking disparities for minorities in use of mental health services (e.g., Gallo et al. 1995; Kessler et al. 1994; Sussman et al. 1987). The disparities appear to hold specifically for PTSD treatment as well as treatment for mental disorders in general (Koenen et al. 2003). The Surgeon General's Report (U.S. Department of Health and Human Services 2001) concluded that minorities bear a greater burden than do White Americans from unmet mental health needs. Crisis counseling programs may exceed these norms for performance because of their emphasis on providing free and accessible services in the community (Norris and Alegria 2005). SCCS may have done especially well because of its joint attention to psychological and tangible needs.

Our second hypothesis was that SCCS participants would perceive greater benefit. To test this, we compared the ratings of program quality provided by SCCS and RCCS respondents to the Participant Feedback Survey that was conducted simultaneously in both programs. SCCS participants provided significantly higher overall ratings on the COES. Differences were greatest for the quality of information received, help with social functioning, growth in confidence in their abilities to help themselves, and reassurance that their feelings were okay. These findings have to be interpreted cautiously because of the low response rate in the RCCS sample, but this difference may further reflect the fact that SCCS participants were more fully engaged than were RCCS participants. There may be a bias in these data resulting from more satisfied participants being more likely to return the survey, but we have no way to test this possibility.

Finally, we hypothesized that SCCS participants would experience significant reductions in distress and furthermore that the amount of improvement would increase as the level of program participation increased. To test this, we examined change in levels of disaster-related distress (Sprint-E scores) within a subset of 129 SCCS participants who were interviewed on two occasions with the Adult Assessment and Referral Tool. Conclusions from this analysis must be tempered by several design flaws: follow-up was not conducted in a consistent manner (routine re-administration of the Sprint-E at Sessions 3, 6, and 9 would have been a better approach), assessments were not blind, and there was no non-treated group against which to contrast the amount of change observed. Biases introduced by these elements may not necessarily have inflated the results. Anecdotal evidence suggests that many of those who did not receive a second assessment stopped because they no longer perceived a need for specialized counseling; Sprint-E scores were based on participant self-report rather than counselor assessment of symptoms; and the expectation of natural recovery in the absence of services should be relatively low for a program that began 16 months post-event.

Notwithstanding these limitations, the subset of SCCS participants who were assessed twice showed large and significant reductions in distress. They averaged 7.7 intense reactions (out of 11 possible) on the first assessment and 4.7 on the second assessment. One-third had severe distress at Time 2, compared to two-thirds at Time 1. Moreover, a small but significant amount of the variance in distress reduction was explained by the extent of SCCS participation, with persons having fewer than three encounters between Times 1 and 2 evidencing the least change, and persons having more than six encounters evidencing the greatest amount of change. The findings regarding the strengthening of effects with increasing number of encounters may be important for program policy. In supervision, many counselors expressed the opinion that an evidence-based model with clear step-by-step procedures

would have worked better. They could have reviewed and reinforced each week's focus and homework, and they could have learned new techniques while providing a more meaningful experience for the recipients. Counselors reported difficulty understanding the program guidelines stating that each session had to be independent and stand alone. The counselors seemed to interpret that as meaning they had to wait and see if the recipient called back. Part of the problem was that many of the recipients were too distraught to make the effort. In addition, when recipients define a new goal for each session, it may be hard for them to see progress.

Altogether, these results do suggest that the new SCCS model is worthy of further refinement and more rigorous evaluation in the future. The introduction of the program earlier in the life cycle of a CCP would allow a greater number of persons to participate and would allow those who do participate to experience relief more quickly. Still, it has to be recognized that SCCS is an intermediate intervention that cannot fully meet the severity of mental health needs likely to be present after a catastrophic disaster such as Hurricane Katrina. As we observed here, one-third of SCCS participants demonstrated a continuing need for treatment at the program's conclusion. Identified data (rather than de-identified tallies) on the specifics of service delivery, more systematic collection of outcome data, and better survey response rates would help future program planners and evaluators to determine which particular services are most closely tied to individual recovery, as well as to overall progress success.

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