Prolonged Financial Distress After the Deepwater Horizon Oil Spill Predicts Behavioral Health

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Abstract

The economic impact of disasters is well known; however, the link between financial loss and behavioral health problems is unknown. Participants included 198 adults of ages 21 to 82, living within 10 miles of the Gulf Coast during the Deepwater Horizon Oil Spill and were involved in the fishing, harvesting, seafood processing, or service/tourism industries. The functional impact of financial resource loss at 2.5 years post spill was measured using the 26-item Financial Life Events Checklist (FLEC). Individuals responded to financial distress by reducing social events and utility bills and changing food-shopping habits. The FLEC significantly predicted higher drug use (Drug Abuse Screening Test), alcohol use (Alcohol Use Disorders Identification Test), mood problems (Profile of Mood States), and depressive symptoms (Beck Depression Inventory II) (p values ≤ 0.05) 4.5 years after the spill. This preliminary study supports the notion that the functional impact of financial loss has a long-term impact on behavioral health after an oil spill.

Introduction

The Deepwater Horizon offshore oil-drilling rig, operated by British Petroleum (BP), exploded on April 20, 2010, resulting in 11 deaths and seriously injuring another 17 workers. Over the next 3 months, about 55,000 barrels of oil spilled daily into the Gulf of Mexico, reaching more than

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950 miles of the Gulf Coast shoreline and resulting in the largest oil spill in U.S. maritime history.[1, 2] The short-term impacts of the Deepwater Horizon oil spill (DWHOS) on coastal communities along the Gulf of Mexico were devastating.[1, 3] Fisheries were closed, resulting in a significant economic impact on the Gulf seafood industry. Oiled beaches led to rapid declines in tourism, and the future of the Gulf ecosystem was under threat. Initially, damages to British Petroleum, the U.S. Gulf Coast economy, and the environment were estimated to be $36.9 billion,[2] but as cleanup efforts progressed, costs reached $61.6 billion.[4]

Financial Impacts of Disaster

The unanticipated loss of financial resources would create distress under most circumstances; however, within the context of disaster, this resource loss occurs among additional and often unforeseeable events. Thus, the association between income loss and behavioral health is neither simple nor linear.[5, 6] The specific nature and extent of these losses have been well documented after hurricanes, floods, wildfires, terrorist attacks, and oil spills.[7–10] Typically associated with the unanticipated expenses of home, property, or environmental damage, financial resource loss may also be the result of accidents, injuries, or death and are often compounded by extended periods of reduced or lost income, social disruption, and the depletion of community resources. Thus, in addition to managing the direct consequences of the disaster, victims must also face disaster recovery with reduced, limited, or otherwise strained financial resources or sources of relief.

Given the frequency of disaster events, the number of people financially impacted by them, and the growing body of literature linking post-disaster financial losses to behavioral health problems, increased understanding of the relationship between post-disaster financial loss and behavioral health is needed. Existing studies are dominated by an over-reliance on assessing income and material or damage losses.[11] Although these are important objective measures of financial resource loss, they do not reflect the life changes or stressors that occur because of the sudden loss of financial resources. For instance, people with adequate savings, property insurance, or access to loans may experience less stress by property loss than those without these resources. Thus, consideration of the *functional impact* of reduced financial resources is an essential link to understanding the relationship between financial losses and behavioral health problems. Identifying the functional impact of financial resource loss would enable clinicians, researchers, and public health professionals alike to be better equipped to determine if a financial loss is great enough to bring about changes in lifestyle or spending patterns that might be considered stressful.

The Behavioral Health Impact of Oil Spills and Financial Distress

Individuals experience both short- and long-term behavioral health problems after an oil spill disaster. During the DWHOS and in the days and weeks thereafter, researchers documented an increased number of calls to domestic violence and mental health hotlines as well as clinically significant levels of anxiety and depression in the Gulf Coast region.[12, 13] These problems continued to be reported in the impacted Gulf regions for months and years, following a pattern of persistence similar to that of the Exxon Valdez oil spill.[14–17] These mental health difficulties have often been accompanied by increases in substance abuse.[18] Several studies have documented increases in alcohol and drug use after a disaster.[19–21] While most researchers would agree that financial losses are a significant contributor to these behavioral health problems, little is known about the link between post-disaster financial loss and these problems.

During the DWHOS, Grattan and colleagues found that spill-related financial instability had a greater association with mental health problems (anxiety and depression) than living in a community where oil damaged the shorelines.[13] Over the past 15 years, resource loss theories have dominated the psychological literature in explaining the links between stress, coping, and

adaptation after a disaster.[22–24] Accordingly, financial resource loss, socioeconomic adversity, and/or loss of job opportunities have been associated with the onset and course of depression, anxiety, number of post-traumatic stress disorder symptoms, and psychological distress following disasters.[25, 26] Moreover, the most severe, lasting, and pervasive psychological effects have been consistently found after disasters which precipitated serious and persistent financial problems.[21, 26, 27] Although there are measures to assess financial resource loss (e.g., Conservation of Resources Evaluation; Psychiatric Epidemiological Research Interview), the link between these losses and behavioral health outcome is less well known.[28, 29] Is it simply a matter of how much income or how many possessions have been lost? Alternatively, does the functional impact of these losses on the daily lives of post-disaster victims represent an important link in the chain of events that relates financial loss to behavioral health problems?

To address these questions, the purpose of this study was to examine the functional impact of oil spill-related financial losses on northeast Gulf Coast residents after the DWHOS and establish the extent to which it predicts behavioral health problems. The hypothesis stated that the functional impact of prolonged oil spill-related financial distress (2.5 years post spill) would predict high rates of behavioral health problems 4.5 years post spill.

Method

This investigation was undertaken as part of a broader and ongoing effort to assess the behavioral health impact of the DWHOS on northeast Gulf Coast communities (Franklin County, FL, and Baldwin County, AL). Using a community-based participatory model, the community partners were involved in all phases of this study, including assistance in measuring financial distress. Recruitment methods have been reported previously and are summarized here.[13]

Participants and Procedures

Study participants included 198 adult men and women, ages 21 to 82 (M = 45.99, SD = 14.09), who lived within 10 miles of the Gulf Coast at the time of the DWHOS and were involved in the fishing, harvesting, seafood processing, or service/tourism industries. The majority of the participants were Caucasian and married, and approximately half had a high school degree or higher (Table 1). Also included in the study were recreational fishers or harvesters, members of related trade associations, and retirees who lived and recreated in the communities of interest. Recruitment was based upon random selection via membership lists of trade organizations, local fishing industry groups, licensed fishers or harvesters, and social service agencies directly assisting with oil spill recovery operations, as well as mailings to randomly selected households within 15 zip code regions in the targeted area of interest. The adult family member who designated themselves “head of household” and made the majority of financial decisions participated in the study. Selection of only one participant per family allowed for obtaining responses representing a broader range of families in the community. Written informed consent was obtained from all participants in compliance with standard procedures required by the University of Maryland and University of Florida Institutional Review Boards. Participants were reimbursed $40.00 for their time. The study team included five examiners formally trained in behavioral assessment under the supervision of a licensed psychologist.

All study participants completed study procedures that took approximately 90 min. A standardized interview assessed demographic, educational, occupational, and income stability backgrounds as well as psychiatric and medical history. All measures were administered in a fixed order. The battery selected was based upon the ability to measure the constructs of interest without redundancy, the educational level of the participants, and brevity to reduce participant burden. A diversity of measures were considered, piloted, and discussed with community social services

Table 1
Characteristics of study participants (N = 198)

Characteristic	N (%)
Gender (female)	104 (52.5)
Age (years)	
21–39	63 (31.8)
40–59	107 (54.0)
60–82	28 (14.1)
Education	
Some high school	98 (49.5)
High school diploma	51 (25.8)
Some college or higher	49 (27.7)
Race	
Caucasian	178 (90.4)
African-American	15 (7.6)
Other	4 (2.0)
Income status after the oil spill	
Stable income	38 (19.2)
Income loss	160 (80.8)
Occupation	
Fishing (e.g., oystering, shrimping) or fishing-related	64 (32.3)
Seafood processing (e.g., work in processing plant, transportation, managerial, sales)	12 (6.1)
Service/tourism (e.g., restaurant, hotel, tours)	21 (10.6)
Retired	14 (7.1)
Other	87 (43.9)
Marital status	
Single	42 (21.2)
Married or partnered	100 (50.5)
Divorced or separated	48 (34.3)
Widowed	8 (4.0)

leaders and members since the overall study was conducted using a participatory-based community research model. The financial distress measure was administered 2.5 years post spill, and all outcome measures were obtained 4.5 years post spill.

Measures

Alcohol Use Disorders Identification Test

The Alcohol Use Disorders Identification Test (AUDIT) was developed by a World Health Organization collaborative project to screen for problematic and harmful alcohol consumption.[30] The first eight items on the scale address the frequency of alcohol consumption, drinking behaviors, and adverse reactions to drinking with scores ranging from 0 to 8. The last two questions assess alcohol-related problems and are scored on a 3-point scale (1 = no, 2 = yes, but not in the last year, and 3 = yes, during the last year). Total scores range from 0 to 40, with higher scores indicating higher levels of alcohol consumption.[30] The reliability coefficient of this measure for the current sample is 0.88.

Beck Depression Inventory II

The Beck Depression Inventory (BDI) is a self-report scale designed to assess symptoms of depression.[31] Participants responded to 21 sets of four statements and were asked to select which of the four statements represents how they currently feel. For example, a participant would choose one response from the following set: "I do not feel sad," "I feel sad," "I am sad all the time and I can't snap out of it," or "I am so sad and unhappy that I can't stand it." Each item is scored on a scale of 0 to 3, and items are summed. Higher scores indicate more depressive symptoms. Scores of 17 or higher are considered to be in the clinically depressed range, and 28.7% of the current sample obtained a score in this range. Cronbach's alpha for the current sample is 0.93.

Drug Abuse Screening Test SF-20

The Drug Abuse Screening Test (DAST) is a 20-item self-report scale of drug use.[32, 33] It consists of "yes" or "no" questions such as "Have you abused prescription drugs?" and "Have you lost your job because of drug abuse?" Each "yes" response receives a score of 1, and items are summed so that higher scores reflect more problems with drug use. A score of 6 or higher indicates a drug problem, and 5.6% ($N = 10$) of the current sample scored in this problem range. Cronbach's alpha for the current sample is 0.79.

Financial Life Events Scale

The Financial Life Events Scale (FLEC) is a measure of the functional impact of disaster-related financial loss, that is, the life changes, stressors, or events that occur because of disaster-related financial loss. Selection of the initial pool of items was based upon a broad review of existing scales and surveys of financial stress, hardship, or life events in response to economic shifts in a community.[34–40] In addition to drawing upon items from other measures, early post-oil spill study data were referenced.[13] After compiling a list of all possible financial life events, items were reviewed and eliminated if they were irrelevant to the disaster setting or redundant. This reduction resulted in a 37-item forced choice (yes, no) questionnaire which was field tested with 30 adult NE Gulf Coast residents. After field testing, 11 additional items were removed or combined because of redundancy. The final 26-item version was easy to read and demonstrated good face validity. See Table 2 for a list of the final 26 items and the number and percent endorsed by participants. Rasch modeling for item analysis supported the FLEC as a unidimensional measure in this sample (goodness-of-fit test: $p = 0.08$). Since the Psychiatric Epidemiology Research Interview (PERI) is an established measure of general stressful life events, the FLEC was compared to its 10-item Finances subscale.[29] Findings indicated a weak to moderate correlation between the two measures ($r = 0.42$, $p < 0.01$). Internal consistency was established for the FLEC with a Cronbach's alpha of 0.88, as most of the items showed strong correlations with the total score.

Income Stability

Participants responded to two post-oil spill income questions on the Boston Occupational and Environmental Neurology Questionnaire (BOENQ).[41] Participants were asked "Have you lost any income since the oil spill?" and "What has been the biggest impact of the oil spill?" If participants answered affirmatively to the first question, stated that the loss was related to the oil spill, and the biggest impact of the oil spill on their life was economic, they were assigned to the "income loss" group. Otherwise, they were assigned to the "income stable" group.

Table 2
Financial life events items endorsed by participants (N = 175)

FLEC item	N (% yes)
1. Eviction due to not paying rent	31 (17.7)
2. Received assistance from non-government organizations (church, community group, etc.)	101 (57.7)
3. Applied for federal government disability benefits	32 (18.3)
4. Borrowed money from friends or family to help pay bills	123 (70.3)
5. Sold possessions or property to raise money	99 (56.6)
6. Spouse/partner *began* to work outside of the home	44 (25.1)
7. Spouse/partner *stopped* working outside of the home	33 (18.9)
8. Cashed in life insurance	1 (0.6)
9. Changed residence to save money (for example, moved somewhere with lower rent, sleeping on a couch with friends or family, living on a boat, etc.)	53 (30.3)
10. Took in a housemate to increase income	20 (11.4)
11. Reduced or eliminated medical insurance	40 (22.9)
12. Changed food-shopping habits to save money	133 (76.4)
13. Changed eating habits to save money	115 (65.7)
14. Postponed paying property tax	29 (16.7)
15. Postponed paying rent	71 (40.6)
16. Received shut-off warning(s) regarding utilities (electricity, gas, water, phone, cable) due to late payment	113 (64.6)
17. Utilities were actually shut-off due to late payment or non-payment	69 (39.4)
18. Cut back on social activities and entertainment expenses	145 (82.9)
19. Postponed major household purchases	128 (73.1)
20. Postponed clothing purchases	133 (76.0)
21. Changed transportation patterns to save money	121 (69.1)
22. Cut back on charitable donations and/or tithing	103 (58.9)
23. Reduced household utility use	141 (80.6)
24. *You* took on additional employment to help meet expenses	66 (37.7)
25. *Spouse* took on additional employment to help meet expenses	47 (26.9)
26. *Child* took on additional employment to help meet expenses	15 (8.6)

Profile of Mood States

The Profile of Mood States (POMS) measures a participant's mood state.[42] Participants were asked how often they experienced each item in the past week, including the day of testing. Participants selected a response from a 5-item Likert-type scale from 0 (not at all) to 4 (extremely). Total mood disturbance (TMD) was calculated from the responses and represented a global estimate of a respondent's emotional state. Higher TMD scores indicate increased mood disturbance. Cronbach's alpha for the current sample is 0.94.

Psychiatric Epidemiology Research Interview Life Events Scale-Financial Questions

The PERI Life Events Scale measures many life events that people experience, and 11 questions are devoted to financial events.[29] Participants answer "yes" or "no" to questions about whether or not they experienced "Foreclosure of a mortgage or loan," "Began using government assistance,"

or "Got a substantial increase in wage or salary without a promotion." Higher scores indicate increased financial life events. Cronbach's alpha for this sample was 0.36, which is unacceptable. Since Cronbach's alpha was unacceptable, analyses involving this measure are used only to compare it to the FLEC.

Data Analysis

First, financial distress was examined in relation to demographic variables using independent samples *t* tests and correlation techniques. Next, linear regression, controlling for appropriate covariates, was used to determine whether financial distress 2.5 years after an oil spill could predict later behavioral health problems.

Results

Preliminary Analyses

Participants reported an average of 11.46 (SD = 5.51; range 0 to 23) on the FLEC. Those who reported income loss reported significantly higher financial distress (M = 12.23, SD = 5.10) at 2.5 years post spill compared to those who reported a stable income (M = 7.77, SD = 5.97; $t(173) = -4.23$, $p < 0.001$; 95% CI = −6.54, −2.38). Women reported significantly higher financial distress (M = 12.76, SD = 4.82) at 2.5 years post spill compared to men (M = 9.89, SD = 5.90; $t(173) = -3.55$, $p < 0.001$; 95% CI = −4.47, −1.28), and younger participants reported significantly higher financial distress compared to older participants ($r = -0.28$, $p < 0.001$).

Impact of Financial Distress on Daily Living

As Table 2 indicates, the largest disruption to life was among daily living activities. For example, individuals reported reducing money spent on social activities and entertainment expenses (82.9%), reduced utility bills to save money (80.6%), changed food-shopping habits (76.4%), borrowed money to pay bills (70.3%), changed transportation habits (69.1%), and changed eating habits (65.7%). Fewer individuals reported major financial changes such as eviction due to not paying rent (17.7%), taking on a housemate (11.4%), a child taking on additional employment to meet expenses (8.6%), or cashing in life insurance (0.6%),

Impact of Financial Distress on Behavioral Health

Participants reported a mean of 1.36 (SD = 2.41; range 0 to 16) on the drug use scale, and half of participants (N = 88; 49.7%) reported no drug use. Individuals reported a mean of 4.15 (SD = 6.60; range 0 to 37) on the alcohol use scale, and 23.7% (N = 47) reported hazardous levels of alcohol consumption (a score of 8 or higher). Participants scored a mean of 56.72 (SD = 12.62; range 36 to 80) on mood problems, and they reported an average of 12.09 (SD = 11.78; range 0 to 49) on depressive symptoms. Higher FLEC scores 2.5 years post spill, compared to lower scores, were moderately correlated with scores on higher mood problems (r = 0.32, p = 0.001), depressive symptoms (r = 0.23, p = 0.02), and drug use (r = 0.20, p = 0.04) 4.5 years post spill. Financial distress was not correlated with alcohol use (r = 0.13, p = 0.20).

Using linear regression and controlling for age and gender, higher financial distress 2.5 years post spill, compared to lower financial distress, significantly predicted substance use with higher drug use and alcohol use 4.5 years post spill (p values ≤ 0.05; Table 3). Additionally, controlling for age and gender, higher financial distress 2.5 years post spill significantly predicted higher mood problems and depressive symptoms 4.5 years post spill (p values ≤ 0.05; Table 3). Gender and

Table 3
Financial distress predicts later behavioral health

	b	*t*	*p*
Drug use			
Age	0.01	0.28	ns
Gender	−1.10	−2.19	0.03
Financial distress	0.11	2.55	0.01
Alcohol use			
Age	0.07	1.13	ns
Gender	−2.94	−1.99	0.05
Financial distress	0.26	1.97	0.05
Mood disturbance			
Age	0.15	1.66	ns
Gender	−0.47	−0.19	ns
Financial distress	0.83	3.89	<0.001
Depressive symptoms			
Age	0.03	0.28	ns
Gender	0.23	0.10	ns
Financial distress	0.51	2.43	0.02

ns = not significant

income stability did not moderate the association between financial distress 2.5 years post spill and any of the outcomes 4.5 years post spill (p values > 0.05). In comparison, the 11 financial items of the PERI did not predict drug use (b = 0.26, p > 0.05), alcohol use (b = 0.41, p > 0.05), mood disturbance (b = 0.41, p > 0.05), or depressive symptoms (b = 0.60, p > 0.05) at 4.5 years post spill.

Discussion

This study contributes two major findings to the oil spill disaster literature. First, it identified the importance of the functional impact of income loss rather than the general upheaval of income changes measured by the PERI on post-disaster outcome. Second, findings indicated that prolonged financial distress (as measured by functional impact) within the context of an oil spill disaster predicts poor behavioral health 4.5 years later.

Income has consistently emerged in the disaster literature as an important factor in psychological reactivity.[13, 21, 22, 26, 43–45] As noted in the Conservation of Resources model of stress and adaptation, the loss of resources combined with the inability to gain new resources may lead to rapid resource loss cycles.[6] After a critical resource is lost, individuals become stressed, and if that resource is not replaced quickly, the individuals become vulnerable to subsequent losses and may lead to maladaptive behaviors.[5] After a period of persistent stress, exhaustion of coping capacities, and entrenchment in maladaptive behavioral patterns, a downward spiral of behavioral health may begin, and this downward spiral is difficult to reverse.[6] Based upon this study, when the income loss impacts day-to-day functioning, such as cutting back on social activities, reducing household utility use, borrowing money from family or friends, changing food-shopping habits, or postponing household or clothing purchases, behavioral health problems such as substance abuse, depression, or mood variability may emerge or persist. Thus, prolonged financial distress may be the beginning of a downward spiral of resource loss for some individuals who have experienced a disaster.

The current study also demonstrates sensitivity of the FLEC to the changes in day-to-day living that may impact the development of behavioral health problems. The FLEC contains multiple items that assess large-scale disruptions in financial well-being such as foreclosure or obtaining government assistance, but it also includes smaller-scale items that impact day-to-day living. The small-scale items include items such as reducing the number of social activities, eating out less often, or postponing clothing purchases. In comparison, the financial items on the PERI solely represent large-scale turmoil in financial well-being, limiting its ability to assess the potential cumulative impact of multiple smaller financial adjustments on a daily basis over time. Most of the individuals impacted by the DWHOS disaster in the community sample did not experience large-scale financial upheaval. Instead, the findings indicate that they experienced multiple smaller financial losses that required ongoing changes in their daily living over time. The lack of sensitivity of the PERI to the financial distress of this sample, as reflected in its weak internal consistency score, suggests that it does not reliably measure financial distress in the Gulf Coast communities under study. Therefore, this study demonstrates that the FLEC assesses financial distress experienced in changes to daily living.

This study demonstrates a strong association between financial distress 2.5 years after the DWHOS and behavioral health problems 4.5 years after the spill. Behavioral health problems in a variety of disaster settings have been previously associated with socioeconomic vulnerability, property damage, and financial loss.[46, 47] In the coastal fishing community setting, long-term studies such as the North Atlantic fisheries crisis suggest that the link between income and employment losses and behavioral health problems reduced the self-esteem of the fishers.[48] Little is known about how the stress of income loss is associated with later behavioral health in the oil spill setting, but this study begins to examine this association and supports the notion of an oil spill as a protracted disaster, potentially resulting in long-term behavioral health problems. Future research is warranted to examine ways to mitigate the harmful effects of financial distress after a disaster.

In this study, women reported significantly more financial life events on the FLEC than men. This is contrary to most studies of gender differences in the psychological stress literature whereby men are thought to be more sensitive to financial stressors.[1, 49] The tendency for women to report more financial stressors than men in this study may be attributable to one or a combination of the following three reasons. First, gender divisions of labor in fishing households tend to be more fluid than other occupational settings. That is, when men cannot fish, wives are accustomed to managing declining household incomes.[48] Since the study has a relatively large number of fishing and seafood-harvesting families represented, the adaptation of gender roles in these households may contribute to increased reports of financial concerns by women. Second, the disaster setting may contribute to the increase in financial concerns of women. The convergence of data suggests that women are generally more vulnerable to stress and behavioral health problems post disaster, including an oil spill.[16, 21, 50] Subsequently, women may be more sensitive to all forms of post-disaster distress, including financial concerns. Finally, by including a broader range of financial life events than existing measures, the items within the FLEC itself may be more sensitive to the concerns of women. Future studies targeting the relationship between post-disaster financial distress and gender-related behavioral health problems would serve to clarify this issue.

There are several limitations to this study to note. First, given the population makeup of the communities under study, there is limited racial and ethnic diversity. Further studies are indicated with populations that are more diverse. Second, the extent to which these findings may be generalized to other disaster situations involving coastal or non-coastal communities remains unknown. The PERI may be a better predictor of behavioral health outcomes after disasters such as flood, tornado, or hurricanes that result in greater material losses of home, transportation, or property. Thus, further studies of daily impacts of financial distress and their ability to predict outcome are needed in other disaster settings. Finally, there may be specific factors in the chain of events that link financial distress and behavioral health outcomes that were not included in this

study. Baseline cognitive ability, behavioral health, or history of traumatic life events might modify the associations that were documented. Further studies of the functional impacts of financial loss and behavioral health outcome are needed in different contexts, with different populations, toward the development of stronger theoretical models of financial distress and the emergence of behavioral health problems over time.

There are several strengths to this study to note. This prospective, longitudinal cohort design allowed for the examination of prolonged financial distress and its impacts on behavioral health among individuals impacted by an oil spill disaster. It documented the direct association between financial loss and social isolation, a critical impediment to obtaining the social support needed for adaptive disaster recovery. Moreover, it identified the association between financial distress and the emergence or persistence of behavioral health problems over time. Finally, it provided evidence to help develop and focus behavioral health interventions post oil spill disaster.

Implications for Behavioral Health

Findings from this study may be used to inform several possible avenues of intervention to alleviate the negative impacts of financial distress on behavioral health after an oil spill. These behavioral interventions are independent of the necessary post-disaster financial assistance or relief provided by state and federal disaster assistance programs, responsible party restitution, or participation in cleanup operations or re-training programs that are essential to helping coastal residents regain lost material resources and financial stability. Behavioral interventions should be directed toward how an individual copes with the disaster-related material losses, fears of future uncertainty, and disruptions to family life that are the critical links between the material losses and behavioral health outcomes. Findings of this study indicate that most people manage their lost finances by reducing social activities. This has the potential to reduce social support and lead to social isolation and disengagement, the consequences of which can lead to substance abuse and depression.[13, 19, 51] The development and implementation of community-based cost-free social activities could help to increase social engagement. This could lead to enhanced social support, as residents may make new connections with the community to aid in rapid recovery and maintenance of behavioral health. Additional resources could be made available through these activities. This might include opportunities for *Psychological First Aid* by disaster responders, which among its methods addresses social isolation, linking residents and families to mobile therapy programs (where counselors could meet them in locations in which they are most comfortable), and financial counseling.[52] Findings of this study also indicated that financial distress was associated with drug and alcohol use 2 years later. This finding supports the need for the early implementation of substance abuse programs to include encouraging the development of a wide range of adaptive coping skills instead of the persistent use of disengagement as a primary coping mechanism. Finally, this study also indicates that women (compared to men) and younger people (compared to older) were more distressed by financial losses. Post-disaster support groups, specifically targeting women and younger individuals, could be helpful for these vulnerable groups.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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