

# MEDICAL AND PSYCHOLOGICAL EFFECTS OF THE THREAT OF COMPULSORY RELOCATION FOR AN AMERICAN INDIAN TRIBE

MICHAEL J. O'SULLIVAN, PhD, AND PAUL J. HANDAL, PhD

**ABSTRACT.** The psychological and medical impact of the threat of compulsory relocation on an American Indian reservation community due to the proposed construction of a dam were assessed using the Langner 22-Item Screening Scale, Rotter Internal-External Control Scale, and aggregate medical facility utilization statistics. Participants' feelings about compulsory relocation as well as their estimation of its potential effects were assessed through a number of specific questions employing a Likert-type rating scale. The same data were collected from another culturally similar reservation community. An ancillary study calibrated the Langner scale for the population under study. As opposed to the comparison group, the people threatened with relocation experienced significantly more severe psychological distress and made significantly more use of medical services. The community perceived the effects of the dam to be as distressing as the death of loved ones. Certain variables significantly discriminated successful adjustment in the face of this distress.

Much of the research on relocation has occurred within the past 20 years and has generally demonstrated that relocation, whether voluntary or compulsory, functions as a significant stressor and disrupts social support networks (Bodley, 1982; Coelho & Ahmed, 1980; Finsterbusch, 1980; Kantor, 1969; Kiste, 1974; Scudder, 1973, 1979). Compared to voluntary relocation, effects of compulsory relocation have been reported as significantly more negative in terms of the subsequent social support disruption and psychological distress (Butler, McAllister, & Kaiser, 1973; Scudder, 1973; Steinglass, De-Nour, & Shye, 1985). The poor, elderly, long-time residents, minority groups, and community-oriented cultural groups have been defined as high-risk populations in which the psychological effects of compulsory relocation are particularly negative in terms of psychological adjustment and social networks (Finsterbusch, 1980; Scudder, 1973, 1979; Watson, 1980).

Additional effects of compulsory relocation include increased morbidity and mortality rates (Finsterbusch, 1980; Fried, 1963; Kowalski, 1978; Scudder, 1973, 1979; Thomas, 1979; Watson, 1980) and increased utilization of medical facilities (Scudder, 1979; Topper & Johnson, 1980). Following involuntary relocation, rural tribal communities have experienced cultural identity crises, resistance to innovation, and increased dependency upon the national government responsible for the relocation (Colson, 1971; Kiste, 1972; Scudder, 1973, 1979).

---

AMERICAN INDIAN AND ALASKA NATIVE MENTAL HEALTH RESEARCH  
VOLUME 2(1), pp. 3-19

Instead of presenting a consistently bleak picture, previous studies of psychological distress following involuntary relocation have differed in their conclusions regarding the level of distress populations experience (Heller, 1982; Steinglass et al., 1985). Relocations having more profound and enduring effects seem to be those that affect entire communities and are human-made rather than natural occurrences (Steinglass et al., 1985). Even the threat of such relocations has been associated with severe levels of psychological distress and dysfunction (Steinglass et al., 1985; Topper & Johnson, 1980).

Since 1968, the American Indian Yavapai community at Fort McDowell, near Phoenix, Arizona, had been threatened with compulsory relocation due to the proposed construction of the Orme Dam. This threat intensified in September of 1968 when the United States Congress passed, and President Johnson signed into law, authorization for the proposed dam and for the relocation of the Yavapai community from the Fort McDowell Reservation.

The members of a culturally similar American Indian community (hereafter referred to as the Comparison Reservation) had experienced no such threat of relocation.

Most studies investigating the psychological impact of compulsory relocation both for communities and individuals have by necessity examined the parameters of coping and adjustment after the relocation has occurred (Steinglass et al., 1985). The present study was designed to assess the psychological and medical impact of the threat of relocation upon the Fort McDowell community as a function of the source of that threat: the dam. The psychological effects were estimated by the Langner 22-Item Screening Scale (Langner, 1962), and aggregate community medical data were used to estimate the medical effects. An ancillary study calibrated the Langner scale for the populations under study. In addition, the community's feelings about the dam, their estimation of its potential effects if it were constructed, and their locus of control orientation were assessed.

It was hypothesized that both the Langner scale and the aggregate medical statistics would reveal more psychological distress at Fort McDowell than in the other culturally similar reservation community. It was further hypothesized that the Fort McDowell community would estimate the effects of the dam's construction as more severe and would have a more external locus of control orientation than would the comparison group.

## Method

### Subjects

Calibration study. A sample of convenience consisting of 32 full-blooded American Indian adults with known psychiatric diagnoses (ranging from transient situational disorder to schizophrenia) served as the calibration sample. The sample was drawn from the Indian Health Service (IHS) mental health facilities in the metropolitan Phoenix area and surrounding reservations. Eight were males who ranged in age from 18 to 61 years ( $M = 28.65$ ), and 24 were females from 18 to 71 years of age ( $M = 35.46$ ). Fourteen subjects lived on a reservation, while 18 recently had moved from a reservation to the city.

Reservation comparison study. Serving as a comparison or nonequivalent control to the Fort McDowell community was another culturally similar American Indian reservation located in Arizona. The populations on these two reservations share a very similar cultural identity and heritage; they have experienced the same history in their contact with Anglo-American society—including the experience of past major relocations; their degree of acculturation seems parallel; and the number of adults residing on each reservation was nearly identical (Fort McDowell, 174, and Comparison Reservation, 162) as were their age and gender distributions (O'Sullivan, 1984). However, the residents of the Comparison Reservation would experience no direct detrimental effects from the proposed dam.

Lists of adults aged 18 years and older actually residing on each reservation at the time of the study were obtained from the respective tribal offices. For each reservation, a stratified random sample with full probability sampling within each stratification (age and gender) was drawn from those lists. One-third of each sample fell into each of three age groups (18 to 29 years, 30 to 50 years, over 50 years), and within each age group there generally was the same number of males and females.

At Fort McDowell 45% ( $n = 79$ ), and at the Comparison Reservation 46% ( $n = 75$ ) of the total adult population living on the respective reservations were interviewed. The ages of the Fort McDowell male participants ranged from 18 to 99 years ( $M = 43.46$ ), and females ranged from 18 to 81 years ( $M = 41.48$ ). The Comparison male participants ranged in age from 18 to 76 ( $M = 38.60$ ), and the female range was from 18 to 78 ( $M = 42.05$ ). More than 90% of the participants from both reservations fell into Hollingshead and Redlich's (1958) Classes IV and V (the two lowest social classes as determined by current occupation and education levels).

### Instrumentation

Langner 22-Item Screening Scale. Examining the effects on the mental health of a population is one way of assessing the psychological and/or behavioral effects of an event or situation experienced by that population (e.g., Dohrenwend, Dohrenwend, Fabrikant, Kasl, & Warheit, 1980). Consequently the Langner scale (Langner, 1962) was employed as a direct measure of the relative level of psychological distress in the two communities. This scale has been widely used as an epidemiological measure of psychological disorder in community surveys and has good reliability and validity as a measure of psychological distress, especially as a rough index of the social phenomenon of group mental health (Dohrenwend, Dohrenwend, Gould, et al., 1980; Dooley & Catalano, 1979; Langner, 1962; Manis, Brawer, Hunt, & Kercher, 1963).

Dohrenwend and his associates maintain that the Langner scale measures a construct that Frank (1973) calls demoralization (Dohrenwend, Oskenberg, Shrout, Dohrenwend, & Cook, 1979). Evans and associates (Evans, Jacobs, Dooley, & Catalano, 1987) reported the Langner to correlate well ( $r = .76$ ) with the demoralization scale of the Psychiatric Epidemiological Research Inventory. Demoralization seems to be a function of factors both in the environment and in the person which interact such that the person feels unable to adapt. This construct has proven useful in assessing the impact of relocation (Steinglass et al., 1985).

In consultation with the Yavapai interviewers, the response categories of the scale were slightly modified making them more conducive to the time-frame of the populations under investigation. For example, items with a response category of "often," "sometimes," and "never" were changed to "often" or "rarely." No changes in scoring were necessary.

Medical statistics. The well-documented concordance of physical illness and psychological disturbance justifies the assumption that a community's aggregate medical utilization rates will reflect the community's relative level of psychological well-being or distress (Cooper, 1964; Dohrenwend & Dohrenwend, 1969; Dohrenwend & Dohrenwend, 1974; Koranyi, 1972; Rahe, McKean, & Arthur, 1967; Rosen & Wiens, 1979; Tessler, Mechanic, & Dimond, 1976). Such aggregate medical statistics for both Fort McDowell and the Comparison Reservation were obtained from the IHS, and were employed as a measure of the psychological distress in the respective communities. Since 1972, these statistics had been available on an annual basis only, and were considered to be a fairly complete and accurate accounting of each reservation's medical facility utilization for any given

year. No statistical records were available for medical service utilization for either community prior to 1972. To avoid the problems of diagnostic biases and inconsistencies (Koranyi, 1972), this investigation employed the grand totals of all medical utilization rates (inpatient and outpatient) regardless of specific diagnoses and/or services rendered.

**Rotter Internal-External Control Scale.** External control expectancies could be exacerbated if people expected the unwanted dam to have a substantial negative impact. Therefore the Rotter I-E Scale (Rotter, 1966) was employed as a measure of the locus of control orientation in the two communities. An external locus of control orientation correlated with abnormal psychological functioning in general (Lefcourt, 1976) and with negative affect in particular (Melges & Weisz, 1971), both of which correlate with the demoralization construct.

This scale has been used frequently with American Indian populations (Trimble & Richardson, 1982) and has demonstrated acceptable reliability and validity (Harrow & Ferrante, 1969; Joe, 1971; Mackey, 1979; Rotter, 1966; Zerega, Tseng, & Greever, 1976). In addition to the overall I-E score, in this investigation scores also were obtained for the personal control and social systems control factors reported by Mirels (1970) and Viney (1974). Trimble and Richardson (1982), in their factor analytic study of the I-E scale with American Indians, reported similar dimensions of personal and ideological control. In each case, higher scores represented greater externality.

**Structured interviews.** The Langner and Rotter scales were included in a structured interview which also contained demographic questions. A final component consisted of 12 life-stress rating items and 12 questions. Participants were asked to rate their personal feelings about the dam issue and then to estimate the effect the dam would have on the tribe and themselves if built. The same metric scale was used for both the life-stress items and the dam questions—a 7-point Likert-type scale. The dam items had an internal consistency reliability coefficient of .91, and the life-stress items served to increase the validity of the ratings on the subsequent dam questions by providing a context for the subject's ratings (Dohrenwend, Dohrenwend, Fabrikant, et al., 1980).

For those who spoke only Yavapai or Apache, the measures used in the interview were back-translated into those languages.

### **Procedure**

Permission to conduct the study was first obtained from the tribal councils of both reservations, and all individuals participated voluntarily with the assurance of anonymity. To avoid possible biasing of responses, care was taken never to mention

relocation and/or the dam when seeking consent from either tribal councils or individual participants. Each person was interviewed privately and was paid \$10 for participating in the study.

Those structured interviews needing to be conducted in Yavapai were back-translated and done by one person on each reservation and those in Apache by another person. All interviewers in both locations were trained prior to the field work. The data for the calibration study were collected through the mental health professionals employed by either the IHS or the individual tribes. The data were collected ten to six months prior to the definitive decision regarding the construction of the dam.

## Results

### Calibration Study

The mean score on the Langner scale for the 32 American Indian psychiatric patients was 10.6. While the means for males and females were nearly the same, the 14 reservation residents' mean ( $M = 9.5$ ) was lower than that of the urban residents ( $M = 11.4$ ). Based on the mean of the reservation residents, a cutting point of 10 or more on the Langner was used in this study since only residents on the reservation were sampled at both Fort McDowell and the Comparison Reservation.

In retrospect it can be seen that it would have been best to have included within the calibration sample non-psychiatric persons as well as those with psychiatric disorders. As a result of this methodological omission, the validity of using a cutoff of 10 to differentiate between psychiatric and non-psychiatric populations was not estimated.

### Comparison Study

In order to determine if a significant amount of bias developed during the weeks of data collection at Fort McDowell, a discriminant analysis was computed with the first 40 and the final 39 people interviewed who were serving as the criterion groups. It was predicted that if the results were distorted by biased responses, then the latter half of the sample would try to look more distressed and give more negative responses to the dam items. However, there were no statistically significant differences in the responses of the two groups.

On the Langner scale, the means and standard deviations for Fort McDowell ( $M = 5.81$ ,  $SD = 4.71$ ) and the Comparison Reservation ( $M = 5.21$ ,  $SD = 4.26$ ) were quite similar; however, the proportion of the respective populations evidencing severe psychological distress as defined by a score of 10 or more on the Langner

were significantly different,  $\chi^2(1, N = 154) = 6.70$ ,  $p < .01$ . While 11% of the adults at the Comparison Reservation demonstrated psychological distress equivalent to the Indian psychiatric patients, twice as many (or 22%) of those at Fort McDowell were identified as that distressed.

The annual (1972-1980) total medical utilization data for both reservations were submitted to a  $2 \times 9$  chi-square analysis and were found to differ significantly,  $\chi^2(8, N = 24,226) = 799.64$ ,  $p < .0001$ . Fort McDowell consistently utilized medical services significantly more than did the Comparison Reservation. In the first year (1972) that computer utilization data were available, which was four years after the threatened relocation (1968), Fort McDowell utilized medical services at a 2 to 1 ratio in contrast to the Comparison Reservation. Unfortunately, computerized medical utilization data were not available prior to the threat of relocation in 1968.

However, there had been no report or history of differential medical utilization rates or differential availability of medical services between the two reservations; and as noted, the two reservations did not differ in terms of age or sex distributions. For the 1980 statistical year which ended just prior to the final decision by the federal government concerning the construction of the dam, the Fort McDowell's rate of medical utilization was 6 to 1 compared to the Comparison Reservation.

Fort McDowell had significantly more residents in severe psychological distress and, as a community, utilized medical services significantly more than their counterparts on a similar reservation. In order to determine the focus of the threat that could account for these differences, the ratings on the 12 dam items as well as the scores on the Langner scale and three scores derived from the Rotter scale were analyzed in a factorial multivariate analysis of variance (MANOVA) with reservation (two levels), gender (two levels), and age (three levels) as the factors. Scores on the Langner were included in this analysis to confirm the similarity of psychological distress apparent in the mean scores of the two groups, and the three I-E scale scores were included in order to test the hypothesis of greater externality in the Fort McDowell residents.

Unfortunately, there were substantial data on the dam items missing from the older residents of the Comparison Reservation. In order to execute the MANOVA, the responses given by older residents of the Comparison Reservation were used to determine item means. These means were then used as the item responses where missing data existed. Unfortunately, using item means as item responses reduces variability and can lead to a Type I error, particularly when comparing older male or female residents with other groups. The results of the MANOVA analysis, utilizing the Wilks Lambda Criterion, revealed a significant three-way interaction of reservation by gender by age,  $F(32, 254) = 1.861$ ,  $p < .005$ .



There were no significant main effects or interactions for either the Langner or the Rotter scales. There were ten significant interactions on the dam items which revealed that generally the Fort McDowell residents rated the effects of the dam as significantly more severe than did the people at the Comparison Reservation. This overall conclusion was supported by analyses that disregarded older male and female residents of both reservations. That is, main effects analyses of the dam responses for younger (18 to 29 years) and middle-aged (30 to 50 years) males and females revealed that the residents of Fort McDowell rated the dam as having a significantly worse effect on themselves and their tribe than their counterparts at the Comparison Reservation. These results do not indicate a Type I error for the MANOVA *F* due to use of item means. However, since no comparisons using older Comparison Reservation residents could be done validly due to the missing data and the use of mean item scores, further specific analyses between older, middle-aged, and younger male and female residents of the two reservations would yield an incomplete and distorted picture. Therefore they are not presented in detail.

Table 1  
Mean Ratings on Life-Stress and Dam Items for the Fort McDowell Community

	<u>N</u>	<u>M</u>	<u>SD</u>
<u>Stress of Life-Events:</u>			
Death of spouse	14	6.14	1.61
Death of close friend	64	5.22	2.00
Death of a close family member	63	5.17	2.13
Major personal injury or illness	45	4.33	2.08
Major change in health of family member	56	4.30	2.05
Children leaving the reservation	36	3.86	2.23
Trouble with law or jail term	46	3.83	2.45
Divorce or marital separation	36	3.67	2.52
Trouble with in-laws	53	3.43	2.25
Outstanding personal achievement	57	2.14	1.82
Getting married	57	1.86	1.53
Christmas season	79	1.85	1.40
<u>Severity of Effects of the Dam on:</u>			
Your tribe as a people and culture	79	5.67	1.93
Having a land the tribe can call home	79	5.63	2.11
Survival of the tribe	79	5.49	2.09
Tribal government	78	5.47	1.81
Upsetting to you	79	5.29	2.26
All Indian people and tribes	79	5.27	2.10
Your culture identity as a member of this tribe	78	5.14	2.17
Overall on you personally	79	4.54	2.24
Contact with friends and neighbors	79	4.18	2.23
Your employment opportunities	79	3.97	2.47
Your ability to practice your religion	79	3.65	2.57
Your educational opportunities	78	3.51	2.31

Note. Maximum rating for each item = 7.0.



In Table 1 the mean ratings given by the Fort McDowell sample to both the life-stress and dam items are rank ordered. The people rated the various life-event items in the generally seen direction, and there were no major surprises when their mean scores on such items were rank ordered (Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978; Masuda & Holmes, 1978). As is evident from Table 1, the people rated 3 of the 12 life events over 5.0 (of a possible 7.0), and all of these events involved a death. Of import is the fact that they rated 7 of the 12 dam items with a mean over 5.0.

Clearly, the vast majority of the adults at Fort McDowell perceived the construction of the dam as more upsetting to them and as having more deleterious effects on their tribe as a people and culture, their ability to have a land that the tribe can call home, the survival of the tribe, the tribal government, and on all Indian people and tribes than the most distressing life events they had ever experienced—namely, the death of a close friend and/or close family member. They rated the severity of the dam's effect on their cultural identity as members of the tribe ( $M = 5.14$ ) to be almost identical to the psychological distress of losing a close member of the family in death ( $M = 5.17$ ). Furthermore, the weakest rating they gave to any dam item (its effect on one's educational opportunities,  $M = 3.51$ ) was nevertheless very similar to their rating of the distress caused by divorce or marital separation ( $M = 3.67$ ). While the possibility of the dam was very upsetting to the people personally, the adults at Fort McDowell thought that the construction of the dam would have its most severe effects on the more tribal dimension of their lives rather than on the more personal or individual level.

Since only respondents who had experienced a particular life event rated that event, it was questionable whether the group data provided a reliable comparison between the expected strain of relocation and the perceived strain of other life events. Therefore, the data were analyzed to determine if individuals who had experienced a particular life event (e.g., death of spouse) rated the dam items differently than the group as a whole. It was found that with each life event, the respondents who had experienced that event rated the dam items according to the same general pattern as the group as a whole. In every case—including those respondents who had experienced the death of loved ones—the perceived deleterious effects of the dam to the tribe as well as the perceived degree of personal upset were rated as more severe than those life events they had experienced.

Based on their individual scores on the Langner scale, the Fort McDowell participants were separated into three groups representing three levels of psychological distress. Those with scores less than 4 comprised the least distressed group ( $n = 27$ ); those with scores of 10 or more were considered as the most

distressed ( $n = 17$ ); and persons with scores ranging from 4 to 9 formed a third group representing those who were experiencing an intermediate level of psychological distress ( $n = 35$ ).

A score of less than 4 was used to represent satisfactory psychological adjustment because Langner (1962), in a general population, found that scores of 4 or more significantly differentiated psychiatric patients from nonpatients (who scored 3 or less), and identified 84% of those who were incapacitated. Using the standard cutoff of 4, Martin, Sutker, Leon, and Hales (1968) found the scale to be effective in estimating the prevalence of emotional disturbance in a heterogeneous sample of American Indians not residing on a reservation. Engelsmann and colleagues (Engelsmann, Murphy, Prince, Leduc, & Demers, 1972) also found that Langner scores did not seem to be confounded by ethnic cultural differences.

The mean Langner score for our sample ( $M = 5.81$ ) was higher than that reported for the general population ( $M = 2.83$ ; Langner, 1962); therefore scores below Langner's cutoff of 4 appeared to be a conservative estimate of satisfactory psychological adjustment. Scores of 10 or more were thought to reflect the most distressed group because the calibration data indicated that scores of 10 or above were associated with identified American Indian psychiatric patients. With these three levels of distress serving as criterion groups, a multiple discriminant function analysis was computed using the demographic data and the three scores on the Rotter I-E scale as variables. The resulting discriminant function yielded a significant Wilks lambda of .4586,  $\chi^2(22, N = 154) = 54.57, p < .001$ . There were six significant predictors: the total number of years of formal education,  $F(2, 75) = 6.316, p < .01$ ; personal locus of control,  $F(2, 75) = 4.303, p < .05$ ; type of job one possessed,  $F(2, 75) = 4.545, p < .05$ ; gender,  $F(2, 75) = 4.188, p < .05$ ; and the number of children under 18 years of age living at home,  $F(2, 75) = 3.473, p < .05$ .

Predicting the least amount of psychological distress as measured by the Langner scale were being male and employed, having a higher status job, more education, a more internal locus of personal control, and having more children living in the home. On these variables the direction of the prediction was consistent; for example, the least distressed group had a more internal locus of personal control, while the most distressed group was more external and the intermediary group was "in between" in terms of personal locus of control. The only exception to this rule was employment, with the intermediary group having a slightly greater tendency to be employed than did those showing the least distress.

### Discussion

The data from both the psychiatric screening scale and the aggregate medical statistics indicated a rather high level of psychological distress at Fort McDowell. Since there are significantly higher rates of both severe demoralization and medical service utilization at Fort McDowell than at the Comparison Reservation, it was possible that some specific environmental stressor(s) was accounting for the higher distress at Fort McDowell. The dam responses appeared to define the construction of this dam as a powerful stressor in the lives of this community. They experienced it to be as distressing as the death of a loved one, and they perceived the proposed dam as causing the death of the tribe and culture. The association of this socio-political stressor with the death of such an essential dimension of their lives most likely generated exacerbated levels of demoralization and medical utilization.

As compared with national norms, both the Fort McDowell and the Comparison Reservation Indian communities had high levels of normative psychological distress, but an internal locus of control orientation. Fort McDowell's mean score on the Langner ( $M = 5.81$ ) surpassed the means of seven other studies reviewed by Lasry (1975) in his multicultural comparison of the Langner scale. Additionally, the Langner means reported in the present study were nearly twice as large as those found in three studies establishing mean Langner scores for the U.S. population:  $M = 2.18$  (Dohrenwend & Dohrenwend, 1969);  $M = 2.83$  (Langner, 1962);  $M = 3.25$  (Manis et al., 1963).

Psychiatric epidemiological studies among American Indians and Alaska Natives demonstrate that the prevalence rates of these groups consistently far exceed those of the general American populace (Dohrenwend, Dohrenwend, Gould, et al., 1980; Manson & Shore, 1981; Martin et al., 1968; Roy, Choudhuri, & Irvine, 1970; Sampath, 1974; Shore, Kinzie, Hampson, & Pattison, 1973). The Langner scores reported here support the exacerbated level of psychological distress reported in American Indian communities.

While American Indians show elevated levels of psychological disorders, this does not seem to be a function primarily of poor self-concept and feelings of no control over their personal lives (Mackey, 1979; McClary, 1979; Peterson, 1980). Nor is it principally a function of an Indian tendency to express psychological distress somatically (Roy et al., 1970; Sampath, 1974; Shore et al., 1973). The psychiatric prevalence rates of American Indians currently residing on reservations most likely reflect the pathogenic impact of the dominant political and socioeconomic structures under which these people live (Report of the Special Population Subpanel on Mental Health of American Indians & Alaskan Natives, 1978).

The significantly higher medical utilization at Fort McDowell, coupled with their significantly higher rate of severe psychological distress, indicated a relationship between psychological distress and medical utilization which previously has been reported (Tessler et al., 1976). It appears that at Fort McDowell the psychological distress produced more physical illness, leading the community to initiate physician utilization. American Indians in general underutilize available mental health services (Dinges, Trimble, Manson, & Pasquale, 1981; Sue, Allen, & Conaway, 1978). Like the majority of the American population, it seems that Indians experiencing psychological dysfunction turned for assistance not to mental health professionals, but to general medical practitioners (Regier, Goldberg, & Taube, 1978).

Their mean score on the Langner identified the Fort McDowell community as a population at high risk for psychological dysfunction (Dohrenwend & Dohrenwend, 1969; Dohrenwend, Dohrenwend, Gould et al., 1980; Manson & Shore, 1981). This would make the severe distress of compulsory relocation even more deleterious (Lasry, 1975). Such psychological hazards have been observed to begin with the initial rumors of the possible resettlement. Expectations of impending hardship and loss cause the proposed relocation to be perceived as psychologically very threatening (Finsterbusch, 1980; Scudder, 1973).

The Fort McDowell responses to the dam items suggested that the threat of compulsory relocation had a negative impact on the community. The adults there rated the possibility of the dam's construction as the most upsetting event they had experienced. At stake was the survival of their tribe as a people and a culture. Collectively the people at Fort McDowell rated the effects of the dam on the tribe more severely than its effects on themselves individually. The rank ordering presented in Table 1 reveals that except for the item regarding the personal upset over the dam, all the items dealing with effects of the dam on the tribal dimensions of their lives received higher mean scores ( $\geq 5.14$ ) than did the items concerned with the dam's impact on their personal lives ( $\leq 4.54$ ). The same was true for the people at the Comparison Reservation. When the items involving the tribal dimension of their lives were considered collectively, the mean score at Fort McDowell ( $M = 5.45$ ) was very similar to that at the Comparison Reservation ( $M = 5.29$ ). However, the effects of the dam on the individual personally had a collective mean score at Fort McDowell ( $M = 4.20$ ) higher than that at the Comparison Reservation ( $M = 3.06$ ).

For nearly all American Indian and Alaska Native tribes, their homeland is of immense significance psychologically—touching many dimensions of their lives as well as their cultural identity as a people (Report of the Special Populations

Subpanel on Mental Health of American Indians and Alaskan Natives, 1978; Sutton, 1975). The Fort McDowell community's ratings on the dam items confirmed the profound psychological significance of this land for their cultural and tribal identity. For the Yavapai, the land at Fort McDowell is quite sacred as well as being their homeland (O'Sullivan, 1984). The loss of their land certainly would qualify as a "fateful loss event" leading directly to severe demoralization, and contributing to the development of psychopathology where it previously did not exist (Dohrenwend, 1979). The profound meaning and importance of the land for the Navajo greatly compounded the difficulties and negative impacts of their compulsory relocation (Scudder, 1979).

Compulsory relocation most often disrupts social support networks (Butler et al., 1973; Colson, 1971; Finsterbusch, 1980; Kiste, 1974; Scudder, 1973). Such disruptions correlate highly with increases in psychological dysfunction (Beels, 1981; Dean & Lin, 1977; Slater & Depue, 1981). The people at Fort McDowell expected the construction of the dam to interfere seriously with their contact with friends and neighbors. While social networks on the reservation had not yet been disrupted, the strength and negativity of that outcome expectancy most likely contributed to the heightened level of demoralization found among the people on the reservation (Bandura, 1977; Beck, Rush, Shaw, & Emery, 1979; Frank, 1973).

So too, with the people's negative expectancy regarding employment opportunities should the dam be built. The high rate of unemployment on the reservation undoubtedly contributed to the community's high normative level of distress. For the males especially, the expectation that employment opportunities would further deteriorate if the threatened relocation occurred probably exacerbated that distress.

What highlights the Fort McDowell data was its consistency across all ages and both sexes. Except for the one significant difference between sexes regarding the effects of the dam on employment opportunities, there were no significant differences between males and females nor among the various age groups on their scores on the Langner or Rotter nor on their ratings for the dam items. Since the ratings of the stressfulness of the various life events reflected the ratings rendered by most people across ages and ethnic groups, their mean scores on the dam items would seem to be an accurate representation of just how psychologically distressing the possibility of the dam and relocation were, and how severe their effects would be.

Stress researchers disagree about whether the level of psychosocial distress preceding a stressful event as forced relocation predicts the extent of negative sequelae after the event (Steinglass et al., 1985). Some argue that early distress helps develop adaptive coping strategies which may facilitate one's adjustment to crisis (Antonovsky, 1980). Others maintain that prior distress predisposes to and

predicts long-term psychological dysfunction (Warheit, 1979). The data presented in this study cannot facilitate the resolution of this debate.

However, bolstering social support networks, enhancing self-image, and promoting active coping can facilitate the prevention of long-term psychopathology in a community threatened with human-made involuntary relocations (Steinglass et al., 1985). The data presented above regarding the positive impact of personal locus of control, employment, and education also have preventive implications. Prevention as well as treatment efforts will profit from research identifying the specific coping styles and skills that help people deal effectively with compulsory relocation. Empowerment facilitates the efforts of people to gain control over their own lives and collective destiny. It may be the most effective intervention for a community faced with an unwanted move.

Loyola Marymount University  
Department of Psychology  
Loyola Boulevard at West 80th Street  
Los Angeles, California 90045

#### Note

This article is based on a doctoral dissertation submitted by the first author to Saint Louis University.

#### References

- Antonovsky, A. (1980). *Health, stress and coping*. San Francisco, CA: Jossey-Bass.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York, NY: Guilford Press.
- Beels, C. C. (1981). Social support and schizophrenia. *Schizophrenia Bulletin*, 7, 58-72.
- Bodley, J. H. (1982). *Victims of progress* (2nd ed.). Palo Alto, CA: Mayfield Publishing.
- Butler, E. W., McAllister, R. J., & Kaiser, E. J. (1973). The effects of voluntary and involuntary residential mobility on females and males. *Journal of Marriage and the Family*, 35, 219-227.
- Coelho, G. V., & Ahmed, P. I. (Eds.). (1980). *Uprooting and development: Dilemmas of coping with modernization*. New York, NY: Plenum Press.
- Colson, E. (1971). *The social consequences of resettlement: The impact of the Kariba resettlement upon the Gwembe Tonga*. Manchester: University of Manchester Press.
- Cooper, B. (1964). The epidemiological approach to psychosomatic medicine. *Journal of Psychosomatic Research*, 8, 9-15.



- Dean, A., & Lin, N. (1977). The stress-buffering role of social support. *The Journal of Nervous and Mental Disease*, 165, 403-417.
- Dinges, N. G., Trimble, J. E., Manson, S. M., & Pasquale, F. L. (1981). Counseling and psychotherapy with American Indians and Alaskan Natives. In A. J. Marsella & P. B. Pedersen (Eds.), *Cross-cultural counseling and psychotherapy*. New York, NY: Pergamon Press.
- Dohrenwend, B. P. (1979). Stressful life events and psychopathology: Some issues of theory and method. In J. E. Barrett (Ed.), *Stress and mental disorder*. New York, NY: Raven Press.
- Dohrenwend, B. P., & Dohrenwend, B. S. (1969). *Social status and psychological disorder: A causal inquiry*. New York, NY: Wiley.
- Dohrenwend, B. P., Dohrenwend, B. S., Fabrikant, J. I., Kasl, S. V., & Warheit, G. J. (1980). Report of the Public Health and Safety Task Force on Behavioral Effects. In *Staff reports to the President's Commission on the accident at Three Mile Island* (Superintendent of Documents Stock No. 052-003-00732-1). Washington, DC: U.S. Government Printing Office.
- Dohrenwend, B. P., Dohrenwend, B. S., Gould, M. S., Link, B., Neugeberger, R., & Wunsch-Hitzig, R. (1980). *Mental illness in the United States: Epidemiological estimates*. New York, NY: Praeger Publishers.
- Dohrenwend, B. P., Oskenberg, L., Shrout, P. E., Dohrenwend, B. S., & Cook, D. (1979, May). What brief psychiatric screening scales measure. Part I: Jerome Frank's concept of demoralization. In S. Sudman (Ed.), *Proceedings of the Third Biennial Conference on Health Survey Research Methods*. Washington, DC: National Center for Health Statistics and National Center for Health Services Statistics.
- Dohrenwend, B. S., & Dohrenwend, B. P. (Eds.) (1974). *Stressful life events: Their nature and effects*. New York, NY: Wiley.
- Dohrenwend, B. S., Krasnoff, L., Askenasy, A. R., & Dohrenwend, B. P. (1978). Exemplification of a method for scaling life events: The PERI Life Events Scale. *Journal of Health and Social Behavior*, 19, 205-229.
- Dooley, D., & Catalano, R. (1979). Economic, life, and disorder changes: Time-series analyses. *American Journal of Community Psychology*, 7, 381-396.
- Engelsmann, F., Murphy, H. B. M., Prince, R., Leduc, M., & Demers, H. (1972). Variations in responses to a symptom checklist by age, sex, income, residence and ethnicity. *Social Psychiatry*, 7, 150-156.
- Evans, G. W., Jacobs, S. V., Dooley, D., & Catalano, R. (1987). The interaction of stressful life events and chronic strains on community mental health. *American Journal of Community Psychology*, 15, 23-34.
- Finsterbusch, K. (1980). *Understanding social impacts: Assessing the effects of public projects*. Beverly Hills, CA: Sage Publications.
- Frank, J. D. (1973). *Persuasion and healing*. Baltimore, MD: John Hopkins University Press.
- Fried, M. (1963). Grieving for a lost home. In L. J. Duhl (Ed.), *The urban condition*. New York, NY: Basic Books.
- Harrow, M., & Ferrante, A. (1969). Locus of control in psychiatric patients. *Journal of Consulting and Clinical Psychology*, 33, 582-589.
- Heller, T. (1982). The effects of involuntary residential relocation: A review. *American Journal of Community Psychology*, 10, 471-492.
- Hollingshead, A. B., & Redlich, F. C. (1958). *Social class and mental illness*. New York, NY: Wiley.
- Joe, V. C. (1971). Review of the internal-external control construct as a personality variable. *Psychological Reports*, 28, 619-640.
- Kantor, M. (1969). Internal migration and mental illness. In S. G. Plog & R. B. Edgerton (Eds.), *Changing perspectives in mental illness*. New York, NY: Holt, Rinehart and Winston.
- Kiste, R. (1972). Relocation and technological change in Micronesia. In H. R. Bernard & P. Pelto (Eds.), *Technology and social change*. New York, NY: Macmillan.



- Kiste, R. (1974). *The Bikinians: A study in forced migration*. Menlo Park, CA: Cummings Publishing.
- Koranyi, E. K. (1972). Physical health and illness in a psychiatric outpatient department population. *Canadian Psychiatric Association Journal*, 17, 109-116.
- Kowalski, N. C. (1978). Fire at a home for the aged: A study of short-term mortality following dislocation of elderly residents. *Journal of Gerontology*, 33, 601-602.
- Langner, T. S. (1962). A twenty-two item screening score of psychiatric symptoms indicating impairment. *Journal of Health and Human Behavior*, 3, 269-276.
- Lasry, J. C. (1975). Multi-cultural comparisons of a mental health scale. In J. W. Berry & W. J. Lonner (Eds.), *Applied cross-cultural psychology: Selected papers from the Second International Conference of the International Association for Cross-Cultural Psychology*. Amsterdam, Holland: Swets and Zeitlinger.
- Lefcourt, H. M. (1976). *Locus of control: Current trends in theory and research*. Hillsdale, NJ: Lawrence Erlbaum.
- Mackey, D. H. (1979). A study of the locus of control construct with implications for counseling American Indian college students. *Dissertation Abstracts International*, 40, 1284A (University Microfilms No. 7919040).
- Manis, J. G., Brawer, M. J., Hunt, C. L., & Kercher, L. C. (1963). Validating a mental health scale. *American Sociological Review*, 28, 108-116.
- Manson, S. M., & Shore, J. H. (1981). Psychiatric epidemiological research among American Indians and Alaskan Natives: Methodological issues. *White Cloud Journal*, 2, 48-56.
- Martin, H. W., Sutker, S. S., Leon, R. L., & Hales, W. M. (1968). Mental health of eastern Oklahoma Indians: An exploration. *Human Organization*, 27, 308-315.
- Masuda, M., & Holmes, T. H. (1978). Life events: Perceptions and frequencies. *Psychosomatic Medicine*, 40, 236-261.
- McClary, G. D. (1979). The association of self concept and academic achievement in urban Native American secondary school students. *Dissertation Abstracts International*, 39, 5820A (University Microfilms No. 7907008).
- Melges, F. T., & Weisz, A. E. (1971). The personal future and suicidal ideation. *Journal of Nervous and Mental Disease*, 153, 244-250.
- Mirels, H. L. (1970). Dimensions of internal versus external control. *Journal of Consulting and Clinical Psychology*, 34, 226-228.
- O'Sullivan, M. J. (1984). The psychological impact of the threat of relocation on the Fort McDowell Indian community. (Doctoral dissertation, Saint Louis University, 1983). *Dissertation Abstracts International*, 44, 2255B.
- Peterson, J. C. (1980). Native culturization: Its typical influence on attitudes and behaviors of urban American Indians. *Dissertation Abstracts International*, 40, 4255A (University Microfilms No. 8000086).
- Rahe, R. H., McKean, J. D., & Arthur, R. J. (1967). Longitudinal study of life-change and illness patterns. *Journal of Psychosomatic Research*, 10, 355-366.
- Regier, D. A., Goldberg, I. D., & Taube, C. A. (1978). The de facto U.S. mental health services system. *Archives of General Psychiatry*, 35, 685-693.
- Report of the Special Populations Subpanel on Mental Health of American Indians and Alaska Natives. (1978). In *Task Panel reports submitted to the President's commission on Mental health, Volume III: Appendix* (Superintendent of Documents Stock No. 040-000-00392-4). Washington, DC: U.S. Government Printing Office.
- Rosen, J. C., & Wiengs, A. N. (1979). Changes in medical problems and use of medical services following psychological intervention. *American Psychologist*, 34, 420-431.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80 (1, Whole No. 609).
- Roy, C., Choudhuri, A., & Irvine, D. (1970). The prevalence of mental disorders among Saskatchewan Indians. *Journal of Cross-Cultural Psychology*, 1, 383-392.

- Sampath, H. M. (1974). Prevalence of psychiatric disorders in a Southern Buffin Island Eskimo settlement. *Canadian Psychiatric Association Journal*, 19, 363-367.
- Scudder, T. (1973). The human ecology of big projects: River basin development and resettlement. *Annual Review of Anthropology*, 2, 45-61.
- Scudder, T. (1979). *Expected impact of compulsory relocation on Navajos with special emphasis on relocation from the Former Joint Use Area required by Public Law 93-531*. Report submitted to the Navajo Nation by the Institute for Development Anthropology.
- Shore, J. H., Kinzie, J. D., Hampson, J. L., & Pattison, E. M. (1973). Psychiatric epidemiology of an Indian village. *Psychiatry*, 36, 70-81.
- Slater, J., & Depue, R. A. (1981). The contribution of environmental events and social support to serious suicide attempts in primary depressive disorder. *Journal of Abnormal Psychology*, 90, 275-285.
- Steinglass, P., De-Nour, A. K., & Shye, S. (1985). Factors influencing psychological adjustment to forced geographical relocation: The Israeli withdrawal from the Sinai. *American Journal of Orthopsychiatry*, 55, 513-529.
- Sue, S., Allen, D. G., & Conaway, L. (1978). The responsiveness and equality of mental health care to chicanos and Native Americans. *American Journal of Community Psychology*, 6, 137-146.
- Sutton, I. (1975). *Indian land tenure: An annotated bibliography*. New York, NY: Clearwater Press.
- Tessler, R., Mechanic, D., & Dimond, M. (1976). The effect of psychological distress on physician utilization: A prospective study. *Journal of Health and Social Behavior*, 17, 353-364.
- Thomas, E. G. (1979). Morbidity patterns among recently relocated elderly. In American Nurses Association, *Clinical and scientific sessions, 1979*. Kansas City, MO: American Nurses Association.
- Topper, M. D., & Johnson, L. (1980). Effects of forced relocation on Navajo mental patients from the Former Navajo-Hopi Joint Use Area. *White Cloud Journal*, 2, 3-7.
- Trimble, J. E., & Richardson, S. S. (1982). Locus of control measures among American Indians: Cluster structure analytic characteristics. *Journal of Cross-Cultural Psychology*, 13, 228-238.
- Viney, L. L. (1974). Multidimensionality of perceived locus of control: Two replications. *Journal of Consulting and Clinical Psychology*, 42, 463-464.
- Warheit, G. (1979). Life events, coping, stress and depressive symptomatology. *American Journal of Psychiatry*, 136, 502-507.
- Watson, W. H. (1980). *Stress and old age: A case study of Black aging and transplantation shock*. New Brunswick: Transaction Books.
- Zerega, W. D., Jr., Tseng, M. S., & Greever, K. B. (1976). Stability and concurrent validity of the Rotter Internal-External Locus of Control Scale. *Educational Psychological Measurement*, 36, 473-475.