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The present research examined stress and health amoung service members deployed on a medical humanitarian assistance mission to Kazakstan. Team members were surveyed prior to and during their deployment. Team members underestimated how much stress they would experience in terms of isolation and inability to help the local population. Team members also used less adaptive coping mechanisms than anticipated, and showed elevations in alcohol and cigarette consumption. Despite these negative experiences, reports of depression and physical symptoms did not increase during the deployment. This may have been a function of team members being personally involved in important and relevant work during the humanitarian operation.

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Stress and Health during Medical Humanitarian Assistance Missions

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The present research examined stress and health among service members deployed on a medical humanitarian assistance mission to Kazakstan. Team members were surveyed before and during their deployment. Team members underestimated how much stress they would experience in terms of isolation and inability to help the local population. Team members also used less adaptive coping mechanisms than anticipated and showed elevations in alcohol and cigarette consumption. Despite these negative experiences, reports of depression and physical symptoms did not increase during the deployment. This may have been a function of team members being personally involved in important and relevant work during the humanitarian operation.

Introduction

Service members in the U.S. military undergo unique stressors as a function of their frequent deployment to all parts of the world. Most previous work on the psychological issues facing service members has emphasized the study of stressors associated with the rigors of combat operations.[1] Humanitarian and peacekeeping operations, however, present a potentially different set of psychological issues and challenges. Examples of humanitarian operations in which U.S. forces have been involved include Operation Provide Hope to Rwanda, Operation Restore Hope to Somalia, assistance to victims of Hurricane Andrew, assistance to Kurdish refugees, helping to fight forest fires in the northwest United States, and the provision of medical humanitarian aid to republics of the former Soviet Union. These missions differ along many dimensions, including the number of troops involved, duration, potential military threat, geographical location, and degree of media visibility. However, most humanitarian operations do share a need for a soldier "mind set" that is not typically a part of the mental readiness appropriate for classic combat missions.[2-4] That is, service members are required to aid a local population rather than conquer the enemy by use of force.

Humanitarian operations involve a potentially unique set of psychological issues. For example, these operations often take place in remote areas of the world where communication is difficult and isolation is severe.[5] King et al.[6] have argued that such stressors as personal discomfort and isolation reflect a "malevolent" operational environment. Furthermore, when the objective of the mission is to provide some sort of assistance or relief, service members may experience concerns about their ability to meet the needs of the local population and relieve the suffering, as well as wonder about the long-term effect of the operation. Another concern can derive from how service members view their work on humanitarian operations.[2,7] Service members may question the relevance of humanitarian operations to their role as soldiers sworn to defend the United States. Service members may also have concerns about their ability to "switch" from a humanitarian form of work to more traditional combat. However, humanitarian operations also create an opportunity for service members to help other people and nations, which may provide rewards not present in traditional combat operations.[8,9] The ability to "make a difference" in the lives of others may offset many of the stressors or concerns service members have about humanitarian operations.[10,11]

The purpose of the present research was to study the experiences of service members participating in one specific type of humanitarian operation, a medical assistance mission. Operation Provide Hope is a series of medical humanitarian assistance missions in which medical equipment, supplies, education, and training are provided to former republics of the Soviet Union. Service members participating in such missions are deployed to isolated sites where communication is severely restricted and the environment is austere. Service members are tasked with providing needed aid to the local population. Within the context of this particular mission, we examined how service members viewed their work, the sources of stress service members experienced, and their levels of psychological and physical health. Given the dearth of information regarding the psychological issues faced by soldiers during these types of missions, we surveyed service members both before they deployed and during the actual deployment and conducted interviews as part of a multimethod approach to understand soldiers' experiences on such a mission.

Method

Participants

The present research examined Operation Provide Hope to Kazakstan. A team of 35 personnel (27 men, 8 women) from the Army and Air Force deployed on a 6-week mission from October to November, 1996, to provide medical humanitarian assistance to 14 medical facilities in Semipalatinsk, Ust-Kamenogorsk, and Kurchatov, Kazakstan. Three members of the team were officers and 32 were enlisted personnel; 59% of the participants were married. During the mission, team members assembled large amounts of diverse medical equipment and supplies, stored excess equipment in a warehouse, calibrated medical machinery, set up electrical and plumbing connections, established a database of equipment delivered, translated equipment manuals into Russian, and trained local medical personnel on how to

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use the equipment. The team members comprised five major sections: operations (responsible for the coordination of the different components of the mission), logistics (responsible for the storage, tracking, and movement of material), biomedical (responsible for calibration of the medical equipment and accessories), engineering (responsible for establishing electricity and plumbing connections), and clinical (responsible for teaching the local health care professionals how to use the equipment).

Measures and Procedure

Predeployment Survey

Before the deployment, team members were briefed on the general purpose of the research, which was to understand the experiences of service personnel on these types of missions. The predeployment survey was completed by all team members and was designed to establish baseline measures of psychological and physical health, alcohol and cigarette consumption, and anticipated stressors and coping mechanisms. The predeployment survey contained items assessing the following areas. (1) Depression was assessed by a 7-item scale adapted from Radloff's Center for Epidemiologic Studies' Depression (CES-D) Scale.[12,13] The modified version of the scale correlates 0.92 with the full CES-D Scale.[14] (2) Physical symptoms (e.g., general aches and pains, sinus troubles) were measured by a 25-item checklist.[15] (3) Alcohol and cigarette consumption were assessed by items assessing number of alcoholic drinks consumed in a week and number of cigarettes consumed during a typical day. (4) Anticipated stressors were developed based on a pilot study of a humanitarian mission to Ukraine. Team members were asked to think about how much they would experience such stressors as "isolation," "boredom," and "concerns about disease" during the deployment.[5] Anticipated coping mechanisms were generated that covered the different types of approach and avoidant responses typical of such scales.[16] Team members were asked to think about how much they would use such strategies as "spend time around other people," "try to avoid thinking about the problem," and "exercise more" to deal with stressors during the operation.

Mid-Deployment Survey

The mid-deployment survey was administered to team members during a site visit (by the first author) during the fourth week of the mission. During the mid-deployment site visit, unit discussions were also conducted within each of the work sections (operations, logistics, biomedical, engineering, and clinical). The same scales administered during the predeployment assessment were also administered during the deployment (depression, physical symptoms, alcohol/cigarette consumption, stressors, coping mechanisms). However, for the mid-deployment survey, team members were asked how much they actually experienced the stressors and how much they were actually using the coping mechanisms. In addition, team members also completed measures assessing how they viewed their work.[17,18] These areas included job clarity (three items: "The guidelines for my job are clear," "The rules for my job on this mission are easy to understand," "I know what is required to do well in my job"; $\alpha = 0.80$); job relevance (three items: "I am doing what I was trained to do," "I feel adequately trained to do my job," "I have the necessary abilities to do my job"; $\alpha = 0.65$); job importance (three items: "I make a contribution to accomplishing the unit's mission," "I play an important role on this mission," "What my unit is doing is important"; $\alpha = 0.52$); and job engagement (five items: "I feel responsible for my job performance," "I am committed to my job," "How I do in my job influences how I feel," "How I do in my job matters a great deal to me," "I consider my job on this mission part of who I am"; $\alpha = 0.79$). Team members also responded to open-ended questions on the relevance of the mission and the ease of switching from a humanitarian role to a combat role.

Results

We divide the results into the following sections: differences between anticipated and experienced stressors; differences between anticipated and experienced coping mechanisms; pre- to mid-deployment changes in alcohol and cigarette consumption, depression, and physical symptoms; and an analysis of questions assessing the importance of the work in which team members were involved.

Anticipated Versus Actual Stressors

Did team members have realistic expectations for how much they would experience different sources of stress during the deployment? This issue was addressed by asking team members to predict the stressfulness of different experiences before deploying, and then comparing these responses with reports of the same stressors during the deployment. Paired-sample t tests were used to test for differences between pre- and mid-deployment reports of the stressors. Figure 1 presents those stressors for which predeployment expectations significantly differed from what team members reported actually experiencing during the deployment. When a difference was found between anticipated and experienced stressors, the stressor was always experienced at a greater level than anticipated.

The stressors underestimated by team members tended to refer to feelings of isolation and remoteness as well as the concern of how much they really would be able to help the local population. Team members experienced the following stressors more than they expected to: trouble communicating [$t(28) = 4.55$, $p < 0.001$]; feeling far away from things that are familiar [$t(28) = 2.82$, $p < 0.01$]; travel restrictions [$t(27) = 4.30$, $p < 0.001$]; isolation [$t(28) = 2.98$, $p < 0.01$]; feeling limited in helping the local population [$t(27) = 2.94$, $p < 0.01$]; and to a lesser extent, boredom when off duty [$t(27) = 2.12$, $p < 0.05$]; and boring and repetitive work [$t(28) = 2.31$, $p < 0.05$].

Coping Mechanisms

How did team members cope with stress on this mission? As seen in Figure 2, team members anticipated using different coping strategies from those they actually did use, and none of these strategies was used to a strong degree. When a significant difference did emerge between the anticipated and the actual use of a coping strategy, team members were less likely to use "adaptive" strategies. Specifically, team members were less likely to actually use such adaptive coping strategies as "taking action to solve a problem" [$t(27) = -2.47$, $p < 0.05$]; "thinking about the problem from a different perspective" [$t(27) = -2.43$,

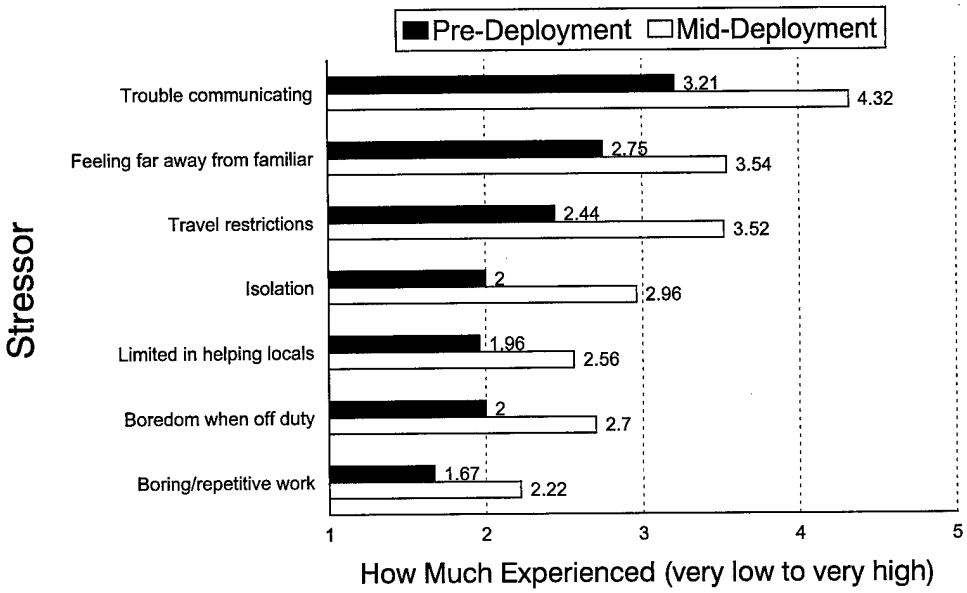

Fig. 1. Differences in anticipated versus experienced stressors. All differences are significant at $p < 0.05$.

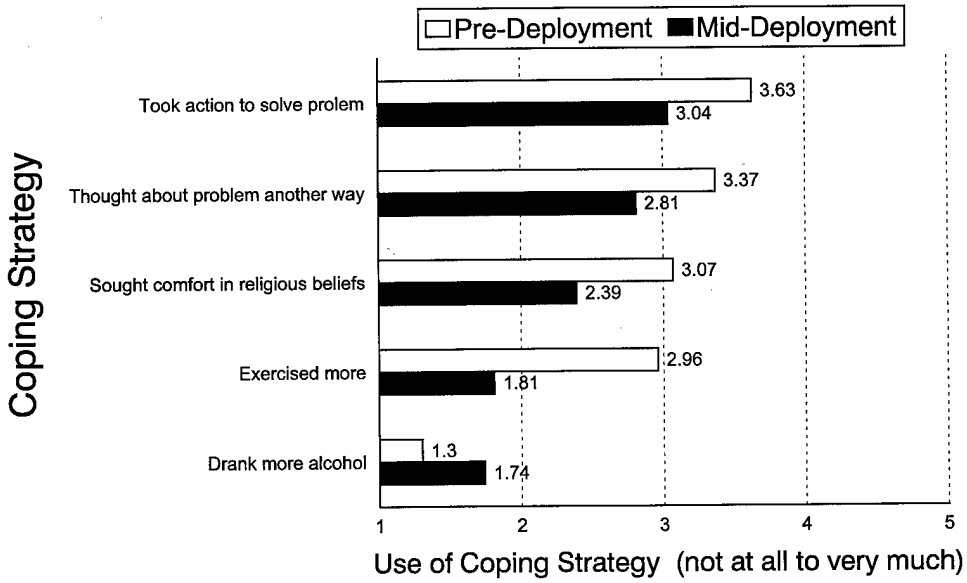

Fig. 2. Differences between anticipated and used coping strategies. All differences are significant at $p < 0.05$.

$p < 0.05$]; "seek strength and comfort through religious beliefs" [$t(28) = -3.29$, $p < 0.01$]; or "exercise more" [$t(26) = -4.57$, $p < 0.001$]. In addition, team members reported drinking more alcohol to deal with problems to a greater extent than they originally anticipated [$t(27) = 3.31$, $p < 0.01$].

Alcohol and Cigarette Consumption

Reports of alcohol consumption ratings increased from a median of 4 drinks per week before deployment (among the 79% who reported drinking at least one drink of alcohol) to 6.5 drinks during the deployment. Regarding cigarette consumption, before the deployment 31% of the team members reported smoking cigarettes, with a median of 10 cigarettes per day. The median number of cigarettes smoked per day doubled to 20 during the deployment. These results indicate an increase in health-risk behaviors during the deployment.

Depression and Physical Symptoms

Team members showed low levels of depression before deploying (reporting depressive symptoms on an average of less than 1 day [mean = 0.76] per week). Furthermore, depression actually decreased slightly, but not significantly, when assessed during the deployment (mean = 0.52 days per week). Team members also reported relatively low levels of physical symptoms before deploying, with an average symptom severity rating of only 1.2 on a scale from 1 (none) to 4 (very often). During mid-deployment, team members reported a similarly low severity rating (1.3). The only significant increases in physical symptoms from pre-deployment to during deployment were for head cold [$t(28) = 2.09$, $p < 0.05$] and sinus troubles [$t(28) = 3.03$, $p < 0.01$]. These increased symptom reports may be a function of the pollution levels in the local environment. Given the very low levels of

depression, it is not surprising that neither the extent to which team members underestimated the stressors nor work perceptions were related to depression during the deployment. The only work perception related to physical symptoms was job engagement ($r = -0.44$, $p < 0.05$). Team members who were personally engaged in their work reported fewer physical symptoms than team members who felt disengaged from their job. Not surprisingly, the stressor of being concerned about disease was also related to greater physical symptom reports ($r = 0.49$, $p < 0.05$).

Team Member Perceptions of Their Work

Why did team members show low levels of depression and physical symptoms despite underestimating stress and exhibiting maladaptive coping mechanisms and increased alcohol and cigarette consumption? One possible explanation may be how the team members viewed their work and the mission. Our analysis of how team members viewed their work is based on the survey responses, interviews, and unit discussions. In response to the open-ended question of whether the mission was relevant to their role as a service member, all of the 19 team members who responded said that it was relevant. Most indicated that they performed the same job on this mission as they would during combat, and therefore they were gaining valuable professional experience. In addition, when asked if it would be easy to "switch" from this kind of mission to a combat mission, 77% of the team members responded "yes." Team members also reported high levels of responsibility and commitment to their job, reflecting a high degree of engagement in the mission. Ninety-seven percent reported high to very high agreement with the statement, "I feel responsible for my job performance." In addition, 81% had at least high agreement that what their unit was doing was important.

Discussion

Our discussion of the present results first addresses the underestimation of stress and the use of adaptive coping mechanisms, and then addresses potential reasons why increased stress and maladaptive coping were not related to depression or physical symptom reports. The results showed that team members underestimated to a fairly significant extent how much they would experience stressors such as trouble communicating, feeling far away from familiar things, and isolation. The stressors that were underestimated mainly captured feelings of being in an austere and isolating environment and not being able to effect enough change in the local conditions. Regarding the underestimation of stressors resulting from feelings of isolation and difficulty communicating, the unavailability of quality phone lines out of Semipalatinsk meant that phone calls home were severely restricted. Team members reported often waiting up to 6 hours to receive a call back from the operator, and even then the connection was of poor quality. It took more than a month for mail to reach Kazakstan, so in effect there was no mail service for most of the deployment. Unit interviews and discussions also revealed that team members felt isolated and "thirsty" for news from America.

Regarding the underestimation of stress attributable to not being able to fully help the local population, interviews revealed that although team members appreciated the immediate effect they were having, many were worried that the effort would not be enough to change the conditions that existed on a more permanent basis. Team members had questions about follow-up visits, how long supplies would last, and whether the medical personnel would actually "change their ways" and use the new equipment. One team member wrote that if we do not provide appropriate follow-up, all we are doing is supplying "expensive paperweights."

Team members also did not engage in adaptive coping mechanisms, such as exercise and dealing with problems directly, to the extent they thought they would before deploying, and they were more likely to drink alcohol to deal with stress than they thought before deploying. As would be expected, given the coping style responses, both alcohol and cigarette consumption increased during the deployment compared with before deploying. When faced with unexpected stress levels, team members may have been caught relatively unprepared and used these maladaptive coping strategies in lieu of adaptive strategies. The reasons for the underestimation of the use of religion and exercise to deal with stress were most likely a function of the operational environment in which team members were placed. There were no organized religious services for team members during the mission, so team members who were used to attending services did not have that support available. There was also no organized physical training during the deployment, which may have contributed to the team members not using exercise to deal with stress. However, the strenuous work schedule faced by team members also may have decreased the use of exercise to deal with stress.

Even though stressors were experienced to a greater extent than anticipated and coping mechanisms were less than optimal, team members' depression and physical symptoms did not show a significant increase during the deployment. This finding is surprising given the common belief that military deployments result in increased stress and therefore poorer psychological health.[1] We believe that the low levels of depression and physical symptom reports may be a function of the nature and meaning of the work in which team members were involved. It could be that active use of professional skills on a low-threat, real-world mission may support feelings of well-being. During the interviews, many team members expressed satisfaction with the belief that what they were doing was worthwhile and would help the local population. The team members saw the poor quality of the local medical facilities and felt that they were making an immediate contribution. Many team members described "helping other people in need" as the best part of the mission. Consistent with the survey data, the perceived importance of the mission kept many team members motivated during times of uncertainty or confusion. Many team members remarked that they dealt with stress by "throwing themselves into their work" and "concentrating on the importance of the mission."

These results reflect the importance of considering the nature of service members' work on different types of military operations before arguing that the requirements of different types of operations (combat versus humanitarian) are inherently conflicting.[19,20] Medical unit members in the present study did not view their humanitarian work as conflicting with their wartime mission. It may be that it is primarily the combat arms units

(e.g., infantry "foot" soldiers) that experience a conflict between the requirements of humanitarian and combat missions.

The medical mission that served as the focal point for this study exemplifies the growing trend of U.S. involvement in humanitarian and peacekeeping operations. It is important that we attempt to understand both the stressors and the potentially self-protective factors involved in these diverse operations to develop interventions designed to decrease the negative effects of participating in such operations while increasing the benefits.

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