

FEATURE ARTICLE

Detainment and health: The case of the Lebanese hostages of war

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ABSTRACT: *The purpose of the current research was to compare former detainees of Khiam prison to a comparison group regarding depression, anxiety, presence of chronic diseases, smoking, and alcohol drinking. The sample consisted of 118 ex-detainees and 90 community controls. The Beck Depression Inventory, the Hamilton Anxiety Scale, the Clinician-Administered Post-Traumatic Stress Disorder Scale, and the Harvard Trauma Questionnaire were used. The ex-detainees suffered from an increased level of depression, high anxiety scores, increased chronic diseases, smoked more, and consumed more alcohol than their comparison group. Regression analyses showed that detainment independently predicted depression and anxiety.*

KEY WORDS: *anxiety, depression, hostage, Lebanon, post-traumatic stress disorder, trauma.*

INTRODUCTION

This study was conducted after the withdrawal of Israeli troops from South Lebanon in May 2000, with the release of 195 prisoners detained in Khiam prison. According to the United Nations Interim Force in Lebanon (2005), the prison was controlled by Lebanese de facto forces, the South Lebanese Army (SLA), until the 2000 Israeli withdrawal. While under detainment in the SLA-controlled Khiam prison, individuals were subjected to ill-treatment. Based on interviews with ex-detainees, Amnesty International (1997) reports that while being detained, individuals endured repeated ill-treatment, including inadequate food rations, periodical solitary confinement in a cell measuring 90 cm × 90 cm, and overcrowded living conditions.

This study compares the mental and physical health of the released detainees to a comparison group with regards to depression, post-traumatic stress disorder (PTSD), and

the presence of chronic diseases. Since several of the areas within South Lebanon were under occupation for nearly two decades, people not held as hostages of war were subjected to several war-related traumatic events. This raises the question of whether the special experience of being a hostage of war sets the former detainees apart from comparable members of the same community who were not held hostage.

A previously published article reports that in a sample of prisoners, 42.1% were psychologically distressed, compared to 27.8% in the comparison group, according to the General Health Questionnaire-12 (GHQ-12) (Saab *et al.* 2003). This study concludes that detainment causes negative effects on mental and physical health outcomes. Because of the somewhat unclear official status of the detainees in Khiam, the term 'hostages of war' will be used also be used for the detainees in the present article.

Although this study deals with Lebanese ex-detainees, the problem is universal and timely, with many hostage crises taking place without regard to nationality. The prevalence of hostage taking in the region began during Lebanon's civil war (1975–1990) killing approximately 200 000 and displacing one million people. Conflicts between various political, religious, and ethnic groups perpetuated more than 15 years of violence and

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uncertainty within the Lebanese populations, of which thousands were taken hostage by various armed groups (Amnesty International 1997). The psychological impact of detainment could result in prolonged psychological distress and negative health outcomes.

The Universal Declaration of Human Rights of 1948 (United Nations Universal Declaration of Human Rights 1948) states that 'no one shall be subjected to torture or to cruel, inhuman or degrading treatment or punishment'. However, prisoners around the world do succumb to such harmful acts as physical abuse, prolonged sleep, sensory deprivation, and other forms of torture (Amnesty International 2005; International Human Rights Watch 2004).

The present study compares former detainees of Khiam prison to a comparison group with respect to depression, anxiety, the presence of chronic diseases, smoking, and alcohol consumption.

LITERATURE REVIEW

The literature most closely pertaining to hostages of war discusses the prisoners of war (POW) of World War II (WWII), the Vietnam War, and Korean War, and to some extent, political detainees. Research on modern-day POW is scarce. The experience individuals have as POW varies depending on where, when, and for how long a person is imprisoned. This makes generalizing from one population to another difficult (Ursano *et al.* 1996). What prisoners of war and political prisoners have in common is that they are often subjected to severe hardships, more so than comparable civilian and combatant populations (Mollica *et al.* 1998). Most studies agree that POW experience is associated with several adverse long- and short-term psychological and physical health outcomes. Further, the severity of captivity has been found to predict psychiatric distress, with some arguing that the perception of the experience is a better predictor of the mental health of POW than the experience itself (Neria *et al.* 2000; Ursano *et al.* 1996; Zakin *et al.* 2003).

However, Solomon *et al.* (1994) found in a study conducted on 164 Israeli POW and a control group of 184 veterans of the 1973 Yom Kippur War, that hardiness can have positive outcomes, as well as negative outcomes. A major feature of the positive effectiveness of hardiness is the ability to psychologically adjust following certain traumatic episodes. Other outcome predictors include the likelihood of a consistently highly-active lifestyle, as well as a positive coping response. In a related article, Waysman *et al.* (2001) addresses the protective role of hardiness and how this factor positively influences POW and others exposed to an increase in disturbances and

personal suffering. Furthermore, psychological adjustment is a key component to the overall adjustment of an individual following their release as a POW. During captivity, POW have emotional and psychological breakdowns, including feelings of loneliness, fear, shame, and anger (Neria *et al.* 2000).

Coping with the trauma of imprisonment can be correlated with the presence of psychological disorders and substance use upon release. Elevated levels of depression, anxiety, and substance abuse disorders among former POW have been documented in several studies, often co-occurring with PTSD, an anxiety disorder resulting from exposure to traumatic events. These disorders tend to persist over time, despite a decrease in symptoms. (Engdahl *et al.* 1998; Maercker & Schutzwohl 1997; Mollica *et al.* 1998; Myers *et al.* 2005; O'Toole *et al.* 1998).

Studies conducted with POW from WWII conclude that the severity of psychological distress is expressed in the high prevalence rates of current PTSD and other psychiatric disorders 40 years after captivity. Port *et al.* (2001) found a 27% rate of current PTSD in former WWII and Korean War POW. Life-time prevalence rates for WWII POW vary among studies from 17% to 88% (Kang *et al.* 2006; Myers *et al.* 2005; Sutker & Allain 1996).

With respect to control groups used in studies conducted on political detainees and hostages of war, only a few have included comparison groups assessing mental and physical health. Neria *et al.* (1998) found in an 18-year, follow-up study with Israeli POW and a comparable group of combat veterans that the population with POW experience had elevated trauma-related psychopathology and general psychiatric symptoms compared to their matched controls. Mollica *et al.* (1998) found a depression prevalence rate of 49% in former Vietnam War prisoners, and a prevalence of 15% for the control group. In a community sample of 262 former US POW who were imprisoned in Japan, Germany and North Korea, Engdahl *et al.* (1998) found a 29.4% prevalence of current PTSD, and a lifetime prevalence of 53.4%. Of those with a lifetime diagnosis of PTSD, 26.4% were also diagnosed with major depression, 11.4% with panic disorder, and 65% with alcohol abuse or dependence. For those with no lifetime history of PTSD, the corresponding prevalence figures were 8.2% for major depression, 0.8% for panic disorder, and 25.4% for alcohol abuse or dependence.

Several studies over different populations have shown a connection between the experience of traumatic events, with or without the presence of PTSD, and nicotine,

alcohol, and drug dependence (Breslau *et al.* 2003; Hapke *et al.* 2005; Koenen *et al.* 2002). Some studies report decreased physical health among prisoners of war (Gale *et al.* 1999). A study assessing the physical health of POW found an increase risk for several physical diseases, such as cardiovascular diseases, gastrointestinal diseases, and musculoskeletal disorders (Kang *et al.* 2006; Ursano & Benedek 2003). Additionally, a Croatian study of 182 randomly-selected ex-POW revealed that the POW were more likely to have abnormal electrocardiograms than the comparison group (Corovic *et al.* 2000). Another study on Australian POW found that former POW were at higher risk for accelerated age-related illnesses, such as gastrointestinal disorders and musculoskeletal disorders than non-POW (Creasey *et al.* 1999). Furthermore, tortured prisoners report different kinds of physical ailments after release, including injuries, aches, and pains (Moisander & Edston 2003).

The present study investigates a population of former hostages of war, not from the Western, cultural sphere, and who were not refugees outside their country.

METHODS

Study participants

The population in the present study consisted of a sample of Lebanese detainees released from the Khiam prison, with a mean of 5.7 years since their release, and a comparison group from the same geographical area. The number of detainees was 118, coming from a sampling frame of 195 released detainees provided by the non-governmental organization, the Follow-Up Committee for the Support of Lebanese Detainees in Israeli Prisons. The comparison group consisted of 90 people who had never experienced detention and were matched to the hostages in age (± 5 years), place of residence, and other variables.

Data collection was conducted by a family medicine practitioner, a registered nurse, as well as a trained research assistant. Given the potential sensitive nature of the interviews, follow up was provided to participants if needed. The study received approval from the ethics and research committee at the researchers' university. For more details on the sampling procedure and method, please refer to Saab *et al.* (2003).

Measurements

The main outcome variables included three on mental health, one on physical health, and two on behavioural risk factors. Mental health included depression, anxiety, and PTSD.

Depression

Depression was assessed by the Beck Depression Inventory (BDI). The scale includes 21 questions assessing the symptoms of depression on a Likert-type scale (Beck *et al.* 1988). A total score for each participant was computed. Those who scored 0–9 were considered to have minimal depression, 10–16 mild depression, 17–29 moderate depression, and 30–64 severe depression. The BDI has been widely used and found to be a valid instrument for assessing depression in an Arabic-speaking population (West 1985).

Anxiety

Anxiety was assessed with the Hamilton Anxiety Scale (Hamilton 1976) consisting of 14 items, each defined by a series of symptoms. Each item is rated on a five-point scale, ranging from 0 (not present) to 4 (severe). The scores for each question were added to obtain a total anxiety score. (Healthcare Technology Systems 2005).

PTSD

Current PTSD was assessed with the frequency, but not intensity, of the symptom part of the Clinician-Administered PTSD Scale (CAPS). The questions in CAPS follow the DSM-IV criteria of PTSD (American Psychiatric Association 2004). Test–retest reliabilities for the three-symptom cluster have been found to range from 0.77–0.96; for the 17-item core symptom scale, they ranged from 0.90–0.98 (Blake *et al.* 1995). PTSD was considered to be present if at least one symptom related to re-experiencing the traumatic event, three or more avoidance symptoms, and two or more symptoms of over-arousal were experienced. The same scale from the CAPS has been used on Arabic-speaking populations (Farhood & Nouredine 2003).

Trauma experience was assessed using section I of the (HTQ-12) (Mollica *et al.* 1992). Part I of the HTQ-12 asks about different war-related traumatic events and the degree of exposure (i.e. whether the victim has experienced, witnessed, or heard about the event). The answers were calculated into a cumulative score quantifying the exposure to traumatic events. The HTQ-12 has been used in war-exposed areas, such as Kosovo (Lopes Cardozo *et al.* 2000). This instrument has been also used on Arabic populations. (Söndergaard *et al.* 2003).

Physical health was assessed by the presence and type of chronic disease reported by the respondent, and smoking and alcohol use were assessed by asking about daily consumption.

Sociodemographic variables included age, sex, education, occupational status, annual family income, marital

status, and political commitment. Education was measured as the highest level attained and grouped into illiterate/primary, intermediate, secondary, and university or above. Employment status referred to whether the individual was working at the time of the interview. Marital status was coded as single/ever married, since the sample contained few divorced and widowed individuals.

All instruments have been used before either in clinical or in research settings in Lebanon and Arabic-speaking populations.

Analysis

Bivariate analyses were performed to check significant differences in the sociodemographic characteristics between hostages and non-hostages. The χ^2 - and Student tests were used to check for statistical associations. To test the independent effect of detainment on depression, a multiple logistic regression analysis was conducted, and the adjusted odds ratios (OR) with 95% confidence intervals (CI) were calculated. Depression was dichotomized as 1 for moderate and severe depression, and 0 for minimal or mild depression. The covariates included in

the regression were those that showed statistical significance in the bivariate analyses in addition to age. A multiple linear regression was performed to investigate the independent effect of detainment on anxiety and was considered a continuous scale. The Statistical Package for Social Sciences (SPSS version 14.0; Chicago, IL, USA) was used.

RESULTS

Table 1 shows the sociodemographic characteristics of the group of former hostages and the comparison group. There was no statistically significant difference between the groups with regard to sex, age, educational level, occupational status, or marital status. The mean age of the hostages was 32.8 years, compared to 31.2 for the comparison group. The majority in both groups were male. Among the hostages, 5.9% were illiterate or had only primary education, compared to 10% in the comparison group. The remaining participants had intermediate, secondary, or university education. The majority, 77.1% of

TABLE 1: *Distribution of hostages and the comparison group by selected sociodemographic variables*

	Hostages		Comparison	
	<i>n</i> (118)	%	<i>n</i> (90)	%
Sex				
Male	106	90.6	81	90.3
Female	11	9.4	9	10.0
Education				
Illiterate/primary	7	5.9	9	10.0
Intermediate	42	35.6	30	33.3
Secondary	36	30.5	20	22.2
University/other	33	28.0	31	34.4
Occupation				
Working	91	77.1	78	86.7
Not working	27	22.9	12	13.3
Marital status				
Ever married	54	46.2	35	38.9
Single	63	53.8	55	61.1
Political commitment*†				
Committed & active	13	12.6	17	19.1
Committed, sometimes active	16	15.5	3	3.4
Committed, not active	41	40.0	1	1.1
Not committed	33	32.0	68	76.4
	M	SD	M	SD
Age	32.8	±6.7	31.2	±6.8
Income per 1000 LBP/year	688.72	±845.68	778.66	±325.28

* $P \leq 0.000$ for difference between hostages and comparison group. †Answer alternatives were: 'I am committed to a political belief and take part in the majority the party's activities', 'I am committed to a political belief and sometimes take part in the party's activities', 'I am committed to a political belief, but I don't take part in the party's activities', and 'I don't have any political commitment'. LBP, Lebanese Pound.

TABLE 2: Frequency distribution of hostages and non-hostages according to selected health indicators and behavioural risk factors

	Hostages (118)		Comparison (90)		P-value
	n	%	n	%	
Health indicators					
Current PTSD	36	30.6	0	0	
BDI depression					
Minimal	70	63.6	71	78.9	
Mild	13	11.8	14	15.6	
Moderate/severe	27	24.5	5	5.6	0.001
At least one chronic disease					
Yes	82	70.1	7	7.8	
No	35	29.9	83	92.8	0.000
Behavioural risk					
Smoking					
Yes	69	58.5	30	33.3	
No	49	41.5	60	66.7	0.000
Drinking					
Yes	11	9.3	1	1.1	
No	107	90.7	89	98.9	0.014

BDI, Beck Depression Inventory; PTSD, post-traumatic stress disorder.

TABLE 3: Means and standard deviations of scores for depression, anxiety, and trauma exposure

	Hostages (118)		Comparison (90)		P-value
	Mean	SD	Mean	SD	
Scores					
Beck Depression Inventory	9.29	9.16	6.83	4.67	0.015
Hamilton Anxiety Scale	11.70	9.85	3.07	4.38	0.000
Exposure to trauma	11.24	3.82	9.66	5.72	0.027
Experiencing trauma	7.26	3.36	0.98	1.44	0.000

the hostages and 86.7% of the comparison group, reported to be working. There was, however, a statistically significant difference between the groups regarding political commitment. A significantly higher proportion of hostages were politically committed (including active and non-active).

Table 2 shows the distribution of both the former hostages and the comparison group according to health and risk behaviour indicators. None of the participants within the comparison group had current PTSD, while the prevalence of captivity-related current PTSD was found to be 30.6% among the former hostages. According to the BDI, 24.5% of the former hostages suffered from moderate/severe depression, compared to 5.5% in the comparison group. The difference between the hostages and the comparison group was statistically significant ($P \leq 0.001$). The mean BDI score was 9.2 for the hostages and 6.7 for the comparison group ($P \leq 0.022$) (Table 3). The hostages had a significantly higher mean score on the Hamilton Anxiety Scale than the non-hostages (11.7 vs

3.1, $P \leq 0.000$). The mean trauma exposure score for hostages was 11.2, compared to 9.7 for the comparison group ($P \leq 0.001$). Considering only traumatic events experienced, the mean score was 7.26 for the hostages and 0.98 for the comparison group ($P \leq 0.000$). The correlation between the trauma exposure score and anxiety score was 0.45 ($P \leq 0.000$) for hostages and 0.41 ($P \leq 0.000$) for the comparison group. The correlation between the exposure score and depression score for the hostages was 0.49 ($P \leq 0.000$), and -0.14 (not significant) for the comparison group.

Among the hostages, 70.1% reported to be suffering from at least one chronic disease, compared to only 7.8% among non-hostages (OR 27.78, 95% CI = 11.67–66.03, $P \leq 0.000$). Considering each type of chronic disease, former detainees reported a higher prevalence than the comparison group. The most prevalent chronic condition among hostages was prolapsed discs (27.4%), followed by rheumatologic problems and ulcers (17.9%). Another 17% of hostages reported migraines, compared to none in

TABLE 4: Prevalence of selected chronic diseases for hostages and non-hostages

Chronic diseases	Hostages (118)		Comparison (90)	
	<i>n</i>	%	<i>n</i>	%
Prolapsed discs	32	27.4	0	0
Rheumatologic problems	21	17.9	3	3.3
Ulcers	21	17.9	0	0
Migraines	20	17.1	0	0
Pulmonary diseases	17	14.5	0	0
Anaemia	13	11.1	0	0
Asthma	13	11.1	0	0
Psychological problems	10	8.5	1	1.1
Kidney problems	10	8.5	0	0
Hypertension	8	6.8	1	1.1
Cataracts	7	6.0	0	0
Cholesterolaemia	7	6.0	0	0
Diabetes	3	2.6	1	1.1

the comparison group. Ten of 117 ex-detainees reported having psychological problems (Table 4).

Regarding behavioural risk factors, 58.5% of the hostages were smokers, whereas among the comparison group, only 33.3% reported to be smokers (OR = 2.86, 95% CI = 1.59–4.99, $P < 0.001$). More of the hostages reported drinking alcohol (9.3%), compared to 1.1% of the comparison group (OR = 9.15, 95% CI = 1.16–72.24, $P \leq 0.036$).

When performing a multiple logistic regression for depression with the variables political commitment, education, marital status, occupational status, and detainment, being a hostage was the only significant predictor of depression, increasing the odds of depression by 5.7 times compared to the comparison group. Similarly, a multiple linear regression for the anxiety score showed that being a former detainee was associated with a significantly higher anxiety score, controlling for the presence of chronic diseases, political commitment, and all sociodemographic variables (regression coefficient, $b = 3.4 \pm 1.26$, $P = 0.007$) (Table 5).

DISCUSSION

In this study, almost one-quarter (24.5%) of the former hostages were moderately/severely depressed compared to 5.6% in the comparison group. The prevalence of depression in similar populations in previous studies varies. Engdahl *et al.* (1998) found that former US POW with a lifetime prevalence of PTSD also had a 26.4% prevalence of depression, compared to 8.2% for those without a lifetime diagnosis of PTSD. On all measures, the former hostages of war were worse off than the com-

parison group. These differences correspond with other results, where the GHQ-12 indicated that among the former prisoners, 42.1% were psychologically distressed, compared to 27.8% in the comparison group (Saab *et al.* 2003).

Additionally, victims scored significantly higher than the comparison group both on the Hamilton Anxiety Scale and the BDI. PTSD has high comorbidity with other anxiety disorders and with depression. A study conducted with former political detainees and a control group in Romania found a PTSD prevalence of 31% among the former detainees, compared to 2.6% in the controls. Significantly more symptoms of anxiety and depression among the former detainees than among the controls were also present (Bichescu *et al.* 2005).

The prevalence of captivity-related PTSD among the former hostages was 30.6%. This is lower or equal to what has been found in earlier studies on POW and detainees (Bichescu *et al.* 2005; Engdahl *et al.* 1998; Mollica *et al.* 1998). However, it is equal to the prevalence in the general population (29.3%), as reported by Farhood *et al.* (2006) in their recent study of traumatized populations in South Lebanon.

The exposure score, or rather, the cumulative score of hearing of, witnessing, or experiencing traumatic events, was somewhat higher for victims than for the comparison group. Since the exposure score is based on a list of traumatic events related to war, but not specific to the experience as a hostage of war, it is unclear whether this difference in exposure is due to the fact that one group was imprisoned and the other one was not, or whether the difference in exposure resulted from the whole population experiencing trauma during the Israeli occupation of South Lebanon. Yet these findings correspond with earlier research that concluded that POW are more exposed to traumatic events than their veteran counterparts who did not experience imprisonment (Mollica *et al.* 1998). In the present study, the difference in scores for the number of personally-experienced traumatic events between hostages and comparisons was much larger than the difference in overall exposure to traumatic events. On average, the hostages experienced 7.26 traumatic events, compared to 0.98 for the controls. Since personally experiencing a traumatic event would in most cases be considered more distressing than witnessing or hearing about such an event, the impact of the personally-experienced events would probably be greater.

Additionally, there was a strong correlation between depression and the exposure scores in the hostage group. This is because of the high comorbidity between PTSD and depression. However, there was a weak negative

TABLE 5: Adjusted odds ratios (OR) and 95% confidence intervals (CI) for presence of definite depression by selected variables

Variable (reference category)	OR	CI 95% lower	CI 95% higher	P-value
Political commitment (Not committed)				
Politically committed	1.11	0.417	2.942	0.837
Detainment (Comparison)				
Detainee	5.71	1.795	18.166	0.003
Education (University)				
Illiterate	1.62	0.225	11.610	0.633
Intermediate	2.20	0.721	6.740	0.166
Secondary	0.86	0.241	3.068	0.816
Working status (Working)				
Not working	1.33	0.407	4.371	0.634
Marital status (Married)				
Not married	0.56	0.231	1.441	0.239

correlation that was not statistically significant in the comparison group; perhaps the relationship between PTSD and depression remains undetected by instruments in groups with only few participants who had both personally experienced traumatic events and scored high on the depression scale. These results could also reflect an overall unstable situation in South Lebanon and subsequent long-term effects on the population. This has also been reported in another study where depression was high among victim, family, and neighbour comparison groups (Farhood & Nouredine 2003). In addition, being a former hostage increases the level of psychological morbidity by 5.7 times, which is indicative of an increased risk of depression, anxiety, and chronic diseases.

Health indicators were in accordance with earlier studies that found higher rates of smoking correlates with greater exposure to traumatic events in former hostages than the comparison group (Breslau *et al.* 2003; Koenen *et al.* 2005). Although the hostages in this study had an increase in alcohol consumption than the comparison group, a relationship between trauma exposure and alcohol consumption was difficult to detect. This is because of the low overall rate of alcohol consumption, which is most likely reflective of strict religious and cultural norms in the communities where the participants reside. Furthermore, a significantly higher number of chronic diseases were present in the hostages than in the comparison group. Both results are in accordance with earlier studies where POW have been found to have more problematic physical health than their veteran counterparts or community controls (Ursano *et al.* 1996). Simi-

larly, studies conducted in Lebanon found that the victims of a church explosion were more likely to have chronic diseases and utilize health services than their comparison groups (Farhood & Nouredine 2003).

LIMITATIONS

Limitations include the self-report and recall bias, which is a perception by the participants on the measured variables. Also, a controlled matched group could have added to the strength of the study.

CONCLUSIONS AND IMPLICATIONS

The present study suggests that the experience of being a hostage of war has negative implications on psychological and physical health, and asserts that long-term health effects, depression, and anxiety could result from detainment.

Armed conflicts and political instability is an international concern impacting various geographic areas, including Lebanon. The results of this study indicate an increase in psychological and physical distress in the hostages than in the comparison group, which correspond to a higher amount of trauma exposure. It is important for international and local committees to address such concerns and provide proper interventions to victims.

To our knowledge, we are not aware of any published studies evaluating the rehabilitation of former POW in developing countries. Studies on interventions and long-term follow up would be especially important, since

post-conflict situations with often scarce resources pose special challenges to the implementation of adequate programs.

There is evidence indicating the efficacy of interventions in reducing risk factors, increasing protective factors, and preventing psychiatric symptoms for those at risk. The early detection of psychological problems by health-care professionals, mainly primary care physicians, has an impact on prognosis. Mental health professionals, specifically psychiatrists, psychologists and psychiatric nurses, are urged to play an important role in the prevention of mental and psychological disorders. Advanced practice and general nurses are frontline professionals who can detect and intervene in community settings with regards to issues related to detainment and war in politically-unstable areas. Additionally, governments, with the help of international communities, are encouraged to initiate and develop sustainable projects and policies for integrated preventive strategies for mental health promotion. Those at risk will benefit from public policies in primary and secondary care, along with increased resources and the training of nursing and medical professionals. In view of the high and increasing burden of the psychological toll on the hostages of war and the limitations of resources, we urge those in key positions to work on reducing such burdens by implementing evidence-based policies and intervention strategies.

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