

## D. THE PHYSICAL AND MENTAL STATUS OF IRAQI REFUGEES AND ITS ETIOLOGY

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### INTRODUCTION

Iraqi refugees who present as mental health clients provide an educational challenge due to the severity of their problems. In a previous study,<sup>1</sup> we found elevated levels of poor health and mental health in Iraqi refugees. The objectives of the present study were to replicate and to explore potential root causes of such elevation.

### METHODS

Participants included a quota sample of 501 (274 males), with age ranges between 12 and 79 years and a mean age of  $35.7 \pm 13.95$  years. The sample represented Iraqi refugees who came from different channels of refuge. Sixty percent were married, 31% single, 4% separated, and 4% divorced. Of the sample, 5.4% were illiterate, 56% had educational levels ranging from second grade to high school, and 34% were college students or graduates. Ten percent had resided in the United States for up to two years, 32% for 3–5 years, 36% for 6–10 years, and 21% for more than 10 years. Ninety percent were Shiite Muslims, 5.8% were Sunni Muslims and 3.2% were Christians.

#### Measures: Independent variable measures

##### *Cumulative Trauma Measure (CT).*

This measure contains 22 kinds of traumatic experiences, (eg, torture, war, rape, sexual and physical abuse, car accidents, abandonment by parents and natural disasters). Each participant was asked to report the frequency of each kind of trauma experienced. The measure includes 6 sub-scales: 1) collective

identity trauma, (eg, “discriminated against or threatened due to race or ethnicity or religion”); 2) family trauma, (ie, divorce and family history of violence); 3) secondary traumatization or interdependence trauma; 4) personal identity/autonomy trauma, (ie, sexual abuse); 5) survival trauma; and 6) abandonment trauma. The measure was found to have reliability, construct validity and good predictive validity, as it correlated significantly with PTSD and CTD (cumulative trauma disorders) scales.

##### *Media Exposure to War in Iraq Scale (MEWS).*

Media exposure was measured by one question that asked the respondent to report how many hours a day on average the respondent watched/listened to the news about the war in Iraq.

##### *Family/Friends Hurt in the War Scale (FFPWS).*

This scale measured the degree of the individual’s family involvement in the war and how they were affected by the war. Two items ask respondents if they have a family member or friend who has been killed, wounded or lost property due to the war. The scale has alpha reliability of .81. Additional measures for perceived backlash after September 11 and multi-ethnic perceived discrimination were also used.

#### Measures: Dependent variable measures

##### *PTSD Measure (CAPS-2).*

This measure was developed by Blacke<sup>2</sup> and is widely used to assess PTSD. It assesses 17 symptoms, with each symptom rated on frequency and severity on a 5-point scale. CAPS

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**Table 1. Logistic regression for cumulative trauma prediction of diseases**

| Independent Variable                              | Cumulative trauma   |     |       |                   |                      |
|---|---------------------|-----|-------|-------------------|----------------------|
|   | Dependent variables | B   | SE    | Odds ratio Exp(B) | Confidence intervals |
| Lower   |                     |     |       |                   | Upper                |
| Neurological disorders                            | .11                 | .03 | 1.12‡ | 1.06              | 1.18                 |
| Blood pressure and other cardiovascular disorders | .10                 | .03 | 1.11† |                   |                      |
| Respiratory disorders                             | .05                 | .02 | 1.06* | 1.01              | 1.11                 |
| Digestive disorders                               | .04                 | .02 | 1.04* | 1.00              | 1.09                 |
| Urinary disorders                                 | .03                 | .02 | 1.03  | .99               | 1.07                 |
| Musculoskeletal disorders                         | .07                 | .02 | 1.07† | 1.03              | 1.11                 |
| Endocrine disorders                               | .05                 | .02 | 1.05* | 1.00              | 1.10                 |

Findings are obtained after the effects of sex, age, marital status, education and income were controlled statistically.

\*  $P < .05$ .

\*\*  $P < .01$ .

†  $P < .001$ .

‡  $P = .06 - .10 +$  (close to significance).

demonstrated high reliability with a range from 0.92–0.99 and proved to have good convergent and discriminate validity.<sup>3</sup> In this study, we used the frequency sub-scale of CAPS-2 that is currently widely reported in psychiatric literature. The scale in this study had a high reliability with an alpha of 0.97.

*Cumulative Trauma Disorders Measure CTD (15 items).*

This measure has been developed in two studies on Iraqi refugees and on clinic mental health clients.<sup>1</sup> The measure was found to have four factors and four sub-scales: executive function deficits, suicidality, dissociation and depression/ anxiety interface.

*Health Scale (12 items).*

Kira and associates<sup>1</sup> developed this measure in a previous study on Iraqi refugees. It includes questions about self-reported health and the kinds of health problems the participant has, (eg, neurological, circulatory, digestive system and endocrine). It has an alpha index value of 0.751.

**Data Analysis**

To explore the effects of potential factors associated with poor health and mental health, we conducted multiple regression and path analysis with cumulative trauma, trauma types, torture, and

media exposure to Iraqi wars as independent variables. We also considered various health and mental health variables as dependent variables controlling for gender, income, education, marital status and age. We conducted a sequence of binary logistic regressions with cumulative trauma and trauma types and “exposure to media news about the war in Iraq” as independent variables and different types of health problems as dependent variables, controlling for the effects demographics. We used structural equation modeling (AMOS 6), with cumulative trauma, trauma types, discrimination, war in Iraq media exposure as independent variables that have direct and indirect effects on health and mental health variables.

**RESULTS**

The results depict an even poorer picture of health than what was found in the study we conducted with Iraqi refugees in 2001.<sup>1</sup> More than 14% in this study met the full clinical criteria for PTSD. Adolescents have higher PTSD prevalence (19.6%) than adults. The high rate of PTSD is accompanied by other serious disorders in their psychiatric profile and complex PTSD symptoms are more severe. The downward social, economic and occupational

mobility and lack of acculturation are some of the factors that may contribute to the high level of symptoms. While torture predicted poor health, it did not predict PTSD or CTD. Cumulative trauma, collective identity trauma/discrimination and exposure to media news of the war in Iraq were the strongest predictors of poor health and mental health (See Tables 1, 2 and 3). Their effects on health are direct effects, independent of the effects of mental health variables, such as PTSD. Cumulative trauma is found to be a significant predictor of neurological, blood pressure and other circulatory, respiratory, digestive, musculoskeletal and endocrine disorders.

We experimented with different path models that are fit to explain the relationships between cumulative trauma and health problems. The model that was found to have a good fit (CFI=.932, RMSEA=.053) describes the central mediating effects of endocrine disorders and neurological disorders. We also experimented with different path models that fit the data to explain the relationships between perceived discrimination as a latent variable explained by backlash, collective identity trauma and multi-ethnic discrimination on health and PTSD. The model that has a good fit (CFI .96, RMSEA .06) found significant positive effects of

**Table 2. Logistic regression for exposure to war news prediction of diseases**

| Independent Variable                   | Exposure to war news |     |        |                   |                      |
|--|----------------------|-----|--------|-------------------|----------------------|
|  | Dependent variables  | B   | SE     | Odds ratio Exp(B) | Confidence intervals |
| Lower                                  |                      |     |        |                   | Upper                |
| Neurological disorders                 | .25                  | .06 | 1.28†  | 1.14              | 1.44                 |
| Cardiovascular & Circulatory disorders | .24                  | .07 | 1.27†  | 1.12              | 1.45                 |
| Respiratory disorders                  | .05                  | .06 | 1.05   | .94               | 1.17                 |
| Digestive disorders                    | .13                  | .04 | 1.14** | 1.04              | 1.24                 |
| Urinary disorders                      | .03                  | .05 | 1.03   | .94               | 1.12                 |
| Musculoskeletal disorders              | .20                  | .05 | 1.22†  | 1.11              | 1.34                 |
| Endocrine disorders                    | -.03                 | .07 | .97    | .85               | 1.11                 |

Findings are obtained after the effects of sex, age, marital status, education, income and previous cumulative trauma were controlled statistically.

\*  $P < .05$ .

\*\*  $P < .01$ .

†  $P < .001$ .

$P = .06 - .10+$  (close to significance).

perceived discrimination (.36) on poor health. We conducted further analysis using the Structural Equation Modeling with the six types of traumas as predictor variables and PTSD, CTD and health as dependent variables. The model has an excellent fit (CFI= 1.000, RMSEA=.000). Illustrations of these models are available from the lead author at [ikira@accesscommunity.org](mailto:ikira@accesscommunity.org).

Collective identity trauma, secondary traumatization/interdependence trauma and family trauma are the strongest predictors of both PTSD and poor health. Collective identity trauma, personal identity trauma and interde-

pendence trauma are the strongest predictors of CTD. Personal identity trauma is uniquely predictive of PTSD, survival trauma is uniquely predictive of poor health and collective identity trauma is a unique predictor of CTD. The scales accounted for 46% of the variance in PTSD, 20% of the variance in CTD and 15% of the variance in health.

Exposure to war on Iraq for Iraqi refugees predicted increasing PTSD, CTD and poor health, after teasing out the effects of previous lifetime traumas and the differences in demographic variables. Path analysis indicated that media exposure to the war news,

compared to other previous traumas, has equal or stronger effects on health and PTSD, after controlling for age, education and income, as this exposure is ongoing.

## DISCUSSION

One of the mechanisms that has been suggested to explain the direct effects of trauma on health and mental health is the effects of stress generated by the traumatic events on the human immune system and on brain structures.<sup>4,5</sup> Besides the direct effects of chronic stress on the initiation

**Table 3. Logistic regression for collective identity trauma prediction of diseases**

| Independent Variable                              | Collective identity trauma / discrimination |     |        |                  |                      |
|---|---|-----|--------|------------------|----------------------|
|   | Dependent variables                         | B   | SE     | Odd ratio Exp(B) | Confidence intervals |
| Lower   |   |     |        |                  | Upper                |
| Neurological disorders                            | .68   | .16 | 1.97†  | 1.43             | 2.70                 |
| Blood pressure and other cardiovascular disorders | .50   | .21 | 1.65** | 1.10             | 2.48                 |
| Respiratory disorders                             | .50   | .15 | 1.65†  | 1.24             | 2.19                 |
| Digestive disorders                               | .32   | .13 | 1.37** | 1.07             | 1.76                 |
| Urinary disorders                                 | .22   | .12 | 1.25+  | .98              | 1.58                 |
| Musculoskeletal disorders                         | .48   | .13 | 1.61†  | 1.25             | 2.80                 |
| Endocrine disorders                               | -.40  | .28 | .67    | .39              | 1.15                 |

Findings are obtained after the effects of sex, age, marital status, education and income were controlled statistically.

\*  $P < .05$ .

\*\*  $P < .01$ .

†  $P < .001$ .

$P = .06 - .10+$  (close to significance).

and continuation of diseases, mental health conditions, such as PTSD, have direct effects on diseases. The effects of trauma on mental health mediate further its effects on diseases. These results highlight the urgent need to address the health and mental health need of Iraqi refugees in the United States.

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