

Relationship of Locus of Control, Psychological Distress, and Trauma Exposure in Groups Impacted by Intense Political Conflict in Egypt

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Abbreviations:

ANOVA: analysis of variance
BLOCS: Brown Locus of Control Scale
GSI: Global Severity Index
LOC: Locus of Control
PSDI: Positive Symptom Distress Index
PST: Positive Symptom Total
SCL-90-R: Symptom Checklist-90-Revised

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Abstract

Introduction: Social and political instability have become common situations in many parts of the world. Exposure to different types of traumatic circumstances may differentially affect psychological status.

Objective: The aim of this study was to compare the relationship between personal perceptions of control over the events happening in one's life and psychological distress in two groups who experienced physical trauma but differed as to whether the trauma was a result of political upheaval and violence. Views on the extent to which the state was interested in the individual were also assessed.

Methods: The sample consisted of 120 patients who were injured in the Cairo epicenter and 120 matched controls from the greater Cairo area whose injuries were from other causes. The Brown Locus of Control Scale and the Symptom Checklist-90-Revised (SCL 90-R) were administered approximately three months after the January 2011 start of the demonstrations and subsequent overthrow of the government.

Results: The groups did not differ on locus of control. For both groups, externality was associated with greater distress, suggesting a relationship between perceived helplessness in controlling one's life and distress. The Cairo group scored significantly higher than the control group on the SCL 90-R Global Severity Index (GSI) and Positive Symptom Total (PST). Perceptions of state interest in the population were low; overall, 78% viewed the state as having little or no interest in them.

Discussion: The relationship between exposure intensity and psychological distress is examined. In addition, differences in findings in populations experiencing political chaos compared with other types of disasters are considered.

Conclusion: Beliefs regarding personal control over one's life circumstances are more closely associated with psychological distress than the circumstances in which the trauma occurred.

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Introduction

At the present time, social and political instability have become common situations in many parts of the world. Continued exposure to such stressful and potentially traumatic circumstances can result in psychological distress and psychopathological disorders. A large number of studies have focused on the deleterious short- and long-term impact of different types of disasters on psychological functioning—for example, natural disasters;¹⁻⁵ technological disasters;^{6,7} terrorist attacks;⁸⁻¹⁰ and refugee status.^{11,12} However, to the authors' knowledge, there are no studies in the scientific literature that have examined the psychological effects of internal political and social chaos resulting in a rapid overthrow of the government. In addition, the relationship between certain personal beliefs and psychological distress in these particular chaotic conditions has not been evaluated.

A new dimension in the study of traumatic stress was added with the publication of Rotter's 1966 seminal study dealing with the concept of locus of control, that is, personal

beliefs whether the events that happen to one are a result of one's own behavior or other influences.¹³ The interrelationship of locus of control and psychopathological symptoms has been investigated in studies on a wide range of conditions, indicating that a person's perceived locus of control is highly correlated with the ability to deal with stress and adjust to stressful situations.¹⁴⁻¹⁸ Those with an external locus of control orientation—ie, a belief that external factors, such as powerful others or fate rather than their own behavior, control the events they experience and their general well-being—tend to demonstrate increased levels of anxiety, depression, hostility, somatization, and other psychological dysfunction. On the other hand, an internal locus of control orientation has been found to be associated with greater capability to deal effectively with adverse conditions.

Further examination has shown a relationship between external locus of control beliefs and taking fewer precautions to limit damage and engage in other efforts to cope with the adversities of natural disasters.^{19,20} As a consequence, there is an increase in the duration and the intensity of the affected population's exposure to adverse circumstances, which could in turn influence mental health status. In addition, the relationship between intensity of exposure to traumatic events and locus of control beliefs has indicated that higher levels of trauma and loss were associated with higher levels of external locus of control belief and greater psychopathology in response to a toxic exposure event,²¹ wildfires,²² and a cyclone.²³

On January 25, 2011, an uprising consisting of demonstrations, marches, acts of civil disobedience, and labor strikes took place in Egypt. The primary demand of the protestors was the overthrow of the regime. Violent clashes with security forces were reported; at least 846 people died, and 6,000 were injured.²⁴ Cairo was described as a war zone.²⁵ On February 11, 2011, President Mubarak resigned from his office; however, the protestors continued demonstrating for months thereafter, demanding satisfaction of all their demands and the normal changeover to a non-military regime.

The aim of the current study was to examine the relationship between locus of control beliefs and psychopathology in two groups who experienced physical trauma but differed in whether the cause of the trauma was the continuation of the political turmoil that began with the 2011 Arab Spring revolution in Egypt. The relationship of these factors to perceptions of state interest was also a topic of interest. Participants in both groups had no prior experience in dealing with such adverse political conditions nor had they been able to take precautions to minimize the impact of these stressful and often traumatic experiences.

Method

This survey-based study compared groups of patients who experienced physical trauma but differed in the cause of the trauma. The inclusion criteria were a minimum age of 15 and clinical status following initial treatment judged by the on-site lead researcher to be adequate to provide informed consent to participate. The control group participants were chosen from a larger pool of patients to match the Cairo group as closely as possible on gender, age, education, and marital status. Potential bias in subject selection was minimized by including in the Cairo group all participants able and agreeing to participate, and then matching the control group on demographic characteristics.

Further, the psychological assessment instruments used were all standardized measures. The outcome variables of interest were the relationship between personal perceptions of control over the events happening in one's life and psychological distress, and possible differences in this relationship depending on the cause of the physical trauma.

Participants

There were 240 participants in the study. The Cairo group ($n = 120$) was recruited from patients treated in a Cairo hospital emergency department who were suffering from trauma primarily as a result of injuries incurred during political demonstrations/violence. The control group ($n = 120$) was recruited from hospital emergency departments in the greater Cairo area from patients who were seen because of physical trauma from other causes.

The study was approved by the Ain Shams University Faculty of Medicine, Cairo, Egypt, administration.

Procedure

The psychological measures were completed during interviews carried out between April 2 and May 20, 2011, approximately three months after the outbreak of the political demonstrations. Potential respondents were asked whether they would be willing to participate anonymously in a study on the psychological and social impact of the revolution of 2011. Those agreeing to participate were given cards upon which the list of items on each psychological inventory were printed. All measures were completed during the same interview. For those participants who were illiterate or of primary educational levels, the questions were read out loud and the responses were recorded by the interviewer. The demographic statistics were self-reported.

Measures

The Brown Locus of Control Scale (BLOCS),²⁶ a modified version of Levenson's Locus of Control Scale (LOC)¹⁸ was used in this investigation. The BLOCS consists of an internal LOC scale and two external scales: the influence that other important persons have on an individual's life, and the effect on one's life of external factors such as fate, chance, abstract authorities, or supernatural forces. There are 25 items on the BLOCS, rated on a 6-point Likert scale ranging from "strongly agree" to "strongly disagree." The BLOCS has been used in a number of different cultural contexts.²²

The Symptom Checklist 90-Revised²⁷ (SCL-90-R) was used to assess psychopathological symptoms. The SCL-90-R is a widely used survey instrument assessing specific types of psychopathology; it also provides global indices of psychological distress and has been translated into more than 24 languages. The SCL-90-R consists of 90 items that measure the degree of distress the individual experienced during the past seven days, using a 5-point scale ranging from 0 "not at all" to 4 "extremely." The SCL-90-R is scored and interpreted in terms of nine primary symptom dimensions and three global indices of distress, the Global Severity Index (GSI) which is the sum of the nine symptom dimensions divided by the total number of responses; Positive Symptom Total (PST), the number of items endorsed with a positive response; and Positive Symptom Distress Index (PSDI), computed by dividing the sum of all items by the PST. Test-retest reliability of the original English-language version

Item	Factor Loading
20. Hard work will take me where I want to go. (R)	0.80
5. Religious faith will help me to cope with difficult times.	0.78
10. Being in the right place at the right time is important for my success.	0.77
21. In general I can take care of my personal interests.	0.77
19. My actions determine my life. (R)	0.73
16. My close relations with people do not happen accidentally, they require effort. (R)	0.72
25. I can usually materialize my plans. (R)	0.70
18. My life is often influenced by fate.	0.68
2. Accidental events have a great impact in my life.	0.60
23. If I do not please the people who are in power, my abilities do not have a big effect on my life.	-0.46
13. Most of the time it is I who controls what's going on in my life. (R)	0.44
1. My friendships depend on how well I relate myself to others.	0.43
22. I need to collaborate with others in order to complete a risk. (R)	0.41
11. My friends often determine my actions.	-0.41
17. A certain powerful force or powerful person predetermined what would happen in my life.	-0.39
24. My life is often influenced by luck.	-0.34
7. Individual progress is associated with pleasing people who are in power. (R)	-0.32

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Table 1. Retained Items From the Brown Locus of Control Scale (BLOCS) and Factor Loadings on the Unidimensional Solution

Abbreviation: R, reversed scoring

ranged from 0.68 to 0.90 across individual scales; convergent-discriminant validity has also been demonstrated.²²

An item assessing perceived support by the current government was included: "How much interest, in your opinion, has the official State shown to you?", rated on a 4-point scale from "none" to "sufficient."

Data Analysis

Missing data were handled through the two-step expectation maximization (EM) algorithm,²⁸ based on two steps: in the E step, the conditional expectation of the missing data, given the observed values and current estimates of the parameters, are computed and then the missing data are substituted by these estimates; in the M step, maximum likelihood estimates of the parameters are computed as though the missing data had been filled in.

A principal component analysis (PCA), with varimax rotation of the 25 items of the BLOC scale was performed in SPSS predictive analytics software, Version 18 (IBM Corporation, Armonk, New York, USA) to assess the replicability of the two external LOC scales in the current sample. The items loaded on the extracted factors in uninterpretable combinations; therefore, a 17-item single dimension of external locus of control was used for the analyses (Table 1).

The nine clinical scales of the SCL-90-R were significantly correlated with each other ($P < .01$); therefore, the analyses

focused on the three global indices. Group comparison analyses were conducted using analysis of variance (ANOVA) procedures.

Results

Participant ages ranged from 16 to 70 years. The demographic characteristics of each group are presented in Table 2.

Separate one-way ANOVAs assessed group differences on the BLOCS and the SCL-90-R global indices. There were no significant differences in external locus of control scores on the BLOCS, $F(1,238) = 0.24$, ns.

The Cairo group scored significantly higher than the control group on the Global Severity Index (GSI), $F(1,238) = 22.75$, $P < .001$, and the Positive Symptom Total (PST), $F(1,238) = 29.94$, $P < .001$. There were no group differences on the Positive Symptom Distress Index (PSDI), $F(1,238) = 1.31$, ns. Group means and standard deviations on these measures are presented in Table 3.

Correlation analysis assessed the association between external locus of control and the SCL-90-R global indices of psychological distress. For the Cairo group, both the relationship between external locus of control and the GSI ($r = 0.47$) and the PSDI ($r = 0.63$) were significant ($P < .01$). For the control group, external locus of control was positively correlated with the PSDI ($r = 0.28$; $P < .05$).

The responses on the perceived state interest item were grouped into two categories: those who perceived little or no

Group		Cairo (N = 120) n (%)	Control (N = 120) n (%)
Gender	Male	66 (55.0)	67 (55.8)
	Female	54 (45.0)	53 (44.2)
Age	15-25	21 (17.5)	20 (16.7)
	26-35	40 (33.3)	35 (29.2)
	36-45	28 (23.3)	42 (35.0)
	46-55	26 (21.7)	15 (12.5)
	56-65	5 (4.2)	8 (6.7)
Education	Illiterate/primary school	36 (30)	17 (14.2)
	High school/lyceum	48 (40.0)	41 (34.2)
	Higher/tertiary	36 (30.0)	62 (51.7)
Marital Status	Married	56 (46.7)	76 (63.3)
	Single	53 (44.2)	40 (33.3)
	Divorced	5 (4.2)	3 (2.5)
	Widow/er	6 (5.0)	1 (0.8)
Occupation	Businessman/tradesman	5 (4.2)	14 (11.7)
	Freelance/scientist	18 (15.0)	19 (15.8)
	Freelance/craftsman	12 (10.0)	3 (2.5)
	Clerk	16 (13.3)	16 (13.3)
	Craftsman/worker	11 (9.2)	10 (8.4)
	Pensioner/unemployed	17 (14.2)	16 (13.3)
	Domestic occupation	24 (20.0)	24 (20.0)
	School/university student	11 (9.2)	12 (10.0)
	Farmer	6 (5.0)	6 (5.0)

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Table 2. Demographic Characteristics of Each Group

support from the state and those who viewed state support as moderate or sufficient. Overall, the majority in both groups viewed the state as showing low support; this view was significantly greater in the Cairo group: $\chi^2(1) = 10.679$, $P < .01$. The group breakdown was as follows: Cairo—little/none, 86.6%; moderate/sufficient, 13.3%; control—little/none, 69.1%; moderate/sufficient, 30.8%.

Discussion

The findings of this study showed no difference between groups in beliefs about personal control of life events. For both groups, external locus of control was associated with some indices demonstrating greater psychological distress. In addition, the Cairo group, with a greater intensity of exposure to a traumatic situation in terms of personal injury,²⁵ reported higher levels of psychological distress. This finding is comparable in some ways to

the relationship between exposure intensity and psychological distress demonstrated in other types of conflict situations.²⁹ On the other hand, for both groups, externality was associated with greater psychological distress, suggesting an orientation of helplessness in changing life situations.

The lack of difference between groups on external orientation is in contrast with findings on victims of accidental toxic exposure,²¹ cyclones,²³ wildfires,²² and combat²⁹ in which participants who experienced greater intensity of trauma indicated higher levels of external control beliefs. The differing externality results in the current study may be related to the fact that the traumatic event concerned a political revolution with ramifications for the population of the entire country. Further, it is possible that the perception of locus of control is a more stable trait-like belief system and is not influenced as much by environmental events.

Measure	Cairo (N = 120)	Control (N = 120)
BLOCS	52.5 (9.9)	53.1 (10.1)
GSI	1.2 (0.5)	0.9 (0.5) ^a
PST	61.2 (16.5)	48.2 (20.2) ^a
PSDI	1.8 (0.5)	1.7 (0.4)

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Table 3. Means and Standard Deviations of External Locus of Control and Psychopathology Measures According to Group

Abbreviations: BLOCS, Brown Locus of Control Scale; GSI, Global Severity Index; PST, Positive Symptom Total; PSDI: Positive Symptom Distress Index

^a*P* < .01.

Limitations

A limitation in the interpretation of this study is that the participants in both groups were recruited from patients seen at a

hospital emergency department. Therefore, generalizations to other populations need to be made cautiously. In addition, while statistically significant, the overlap in the standard deviations comparing groups on the locus of control and psychopathology measures further suggests caution in generalizing the findings of this study.

Conclusion

The study of traumatic stress is complex, and that different influences affect the variables of interest. In the current study, beliefs about personal control over one's life circumstances were more closely associated with psychological distress than the circumstances in which the trauma occurred. However, the cultural context in which a disaster occurs, the chaos and instability associated with political revolutions, intensity of exposure, and differences in psychological reactions between natural and human-made disasters³⁰ are factors that may differentially affect the persons involved. It is therefore important to continue to evaluate aspects of the setting in which a disaster occurs and its physical effects.

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