**Original Research**

**Stress of Siege of Gaza and Locus of Control in Palestinian Children in the Gaza Strip**

Abdelaziz Mousa Thabet, MBChB, DPM, DCAC, PhD\(^1\); Sanaa S. Thabet, BA, MPH\(^2\); Panos Vostanis, MB, MD, FRCPsych\(^3\)

\(^1\)Emeritus Professor, Child and Adolescent Psychiatry, School of Public Health-Child, Institute-Gaza-Al Quds University, P.O.Box 5314, Palestine
\(^2\)Director of Child and Family Training and Counseling Center-NGO, Palestine
\(^3\)Professor of Child and Adolescent Mental Health, University of Leicester, Department of Neuroscience, Psychology and Behaviour, Centre for Medicine, University Road, Leicester LE1 7RH, UK

*Corresponding author
Abdelaziz Mousa Thabet, MBChB, DPM, DCAC, PhD
Emeritus Professor, Child and Adolescent Psychiatry, School of Public Health-Child, Institute-Gaza-Al Quds, University, P.O.Box 5314, Palestine
E-mail: abdelazizt@hotmail.com

**Article information**

Received: January 31st, 2018; Revised: March 12th, 2018; Accepted: March 14th, 2018; Published: March 19th, 2018

Cite this article
Thabet AM, Thabet SS, Vostanis P. Stress of siege of Gaza and locus of control in Palestinian children in the Gaza Strip. Psychol Cogn Sci Open J. 2018; 4(1): 1-7. doi: 10.17140/PCSOJ-4-137

**ABSTRACT**

**Aim**
The aim of the study was to investigate the effect of the siege on Palestinian children and adolescents locus of control.

**Method**
The sample consisted of 184 Palestinian children and adolescents. They were 92 boys (50%) and 92 girls (50%). The sample was followed from previously randomly selected sample from the entire Gaza Strip as a part of the previous cohort II study. The age of children ranged from 8-18 years with mean age 14.69 years.

**Instruments**
Child and adolescents were interviewed by the following: Socio-demographic scale, Gaza Siege checklist-children-form, and locus of control scale.

**Results**
The results showed that the most common items of siege of Gaza items were: learning problems due to shortage of electricity and teachers unable to come to schools (82.6%), I feel I am in a big prison (79.9%), I stopped buying daily needs because prices are very high (79.3%), I was not able to go to school due to shortage of fuel and absence of transportation (75%), I cannot find some of the necessary things for studies such as books and stationary (68.5%). The children reported from 1-20 siege items with mean=9.07. The result showed higher locus of control which means children endorse an external locus of control. Mean total scores of locus of control of boys was 17.56 and mean was 17.58 for girls. Stressors due to the siege of Gaza were positively correlated with locus of control score.

**Clinical implications**
This study is one of few studies performed to evaluate the impact of siege on Palestinian children locus of control. The findings that children endorse an external locus of control and stressors of siege, highlight the need for more support of children to increase their coping and using their internal locus of control. Such activities could be by introducing extracurricular activities include music, theatre, sport, peer discussion, and reading.

**Keywords**
Siege; Stressors; Children; Locus of control; Gaza Strip.
INTRODUCTION

Escalation of the crisis in the Gaza Strip was obvious after the capture of an Israeli soldier by Palestinian militant groups in the early morning hours of 28 June 2006. As a response to this action, the Israeli government started the incursion of the Gaza Strip in a military operation called “Summer Rains Campaign”, and during this military campaign strict closure by sealing off the entire Gaza Strip was imposed. This included closing all the crossings for a prolonged period of time, and resulted in suffering for the whole Palestinian population. In this operation, more than 400 people were killed and thousands were injured. Gaza also suffered from the resumption of sonic booms, the shortage of food, fuel and medical supplies, and the destruction of electricity generating station. On September 19, 2007, Israel’s Security Cabinet voted to declare the militant Hamas-controlled Gaza Strip an “enemy entity” and enacted a number of sanctions. Among the sanctions approved by the Cabinet was reducing the fuel supply to a bare minimum. Only essential food and medical supplies would be permitted to enter the Strip and electricity would also be reduced.

Previous studies in the Gaza Strip in the last 11 years showed that the most common stressors due to siege were: feeling being in big prison, unable to finish the construction of the houses, unable to travel, finding jobs, and treatment outside the Gaza Strip.

Locus of Control

Locus of control has been defined as one of the important ways in which people perceive whether they have influence over the outcome of a situation. People who believe they have control over their successes and failures are described as possessing an internal locus of control, whereas people who believe that their lives are controlled by forces outside themselves are described as possessing an external locus of control. Briefly, internal versus external control refers to the degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable. Such expectancies may generalize along a gradient based on the degree of semantic similarity of the situational cues. Locus of control has sustained itself as a concept for psychological study for a half century. Others had suggested that early experiences of adverse and uncontrollable events, including persistent exposure to socio-economic disadvantage, may foster persistent exposure to socio-economic disadvantage, may foster the external locus of control orientation characterized by diminished the sense of perceived control over one’s life and environment. Children and adolescents who develop an external locus of control and experience uncertainty about the extent of control they have over life, events have also been hypothesized to be at increased risk of developing depression. A previous study found that there was a high, positive correlation between children’s locus of control and state anxiety scores in a stressful situation (preacademic examination period). Results indicated that children with a more externally focused locus of control have higher-levels of anxiety when exposed to a stressful situation. This concept has important implications for school health educators. Since locus of control is a relatively stable personality disposition, understanding the locus of control (internal versus external) of children in advance is essential to designing appropriate interventions to reduce their stress and anticipatory anxiety. For instance, heightened feelings of personal control for children is an example of adaptive outcomes that school educator scan help. Others found that there was evidence that greater early socio-economic adversity was associated with an increased risk of depression at 18 years. There was also evidence that more external locus of control at 16 years was associated with increased risk of diagnosed depression at 18 years.

The aim of the study was to investigate the effect of siege on locus of control of Palestinian children.

METHOD

Participants

The sample consisted of 184 Palestinian children and adolescents selected randomly from the Gaza Strip in November to December 2008. The sample was randomly selected from the entire Gaza Strip as a part of the previous cohort II study from a list of names of the Palestinian families in the Gaza Strip listed in the previous study. The children were interviewed by self-reported questionnaire in their homes. The sample consisted of 92 boys (50%) and 92 were girls (50%). The age of children ranged from 8-18 years with mean age 14.69 years (SD=2.41).

Instruments

The data was collected the children by using the following questionnaires:

Demographic Questionnaire

Demographic information about the participants was obtained using a survey developed by the authors. This questionnaire includes sex, age, and citizenship.

Gaza Siege Checklist-children form

This checklist consisted of 20 items covering a wide range of daily life situation affected by Gaza Siege including the family, education, social life, and economic issues. In this study, the split-half reliability of the scale was moderate (r=0.58). The internal consistency of the scale was calculated using Cronbach’s alpha and was also moderate (α=0.54). Some items were changed to fulfill the needs of new changes in the siege of Gaza Strip. The internal consistency of the scale was calculated using Cronbach’s alpha and was also moderate (α=0.54).

The Child Nowicki-Strickland Internal-External Scale (CNS-IE)

The child nowicki-strickland internal-external scale (CNS-IE) was developed in 1969 which measures the generalized expectancies for internal versus external control of reinforcement among children. The CNS-IE scale is a 40-item paper-pencil test using a “Yes/No”
response format. Scores range from 0 (internal) to 40 (external) with the higher score indicating greater external orientation. The tool measures children's efficacy in schoolwork to winning games, feeling healthy, and being able to influence parents and friends. The tool also consists of two subsets to enable assessment of children below grade 6 (19 items) and for older children (21 items).

**Scoring of the CNS-IE**

Each item contributes to the total score. For the following items a 'yes' contribute 1 to the total score: 1, 3, 5, 7, 8, 9, 10, 11, 12, 14, 16, 17, 18, 19, 21, 23, 24, 27, 29, 31, 33, 35, 36, 37, 38, 39. For the remaining items a 'no' contributes 1 to the total score: 2, 4, 6, 13, 15, 20, 22, 25, 26, 28, 30, 32, 34, 40. Sum the total scores to calculate the total score.

The CNS-IE has established reliability and validity for a generalized expectancy for control in a sample of over thousand elementary and high school students. Estimates of internal consistency via the split-half method corrected by the Spearman-Brown Prophesy Formula were: r=0.63 (grade 3 to 5); r=0.68 (grade 6 to 8); r=0.74 (grade 9 to 11); and r=0.81 (grade 12). The internal consistency of the scale was calculated using Cronbach's alpha and was also moderate (α=0.62).

**Translation Process**

The instrument was translated and back-translated following the technique described by Bracken and Barona (1991). The 40 items of the Nowicki-Strick and Locus of Control Scale for Children were first translated from English to Arabic by the researcher. Another translator was asked to blindly complete the back translation. The retranslated English version and the original English version were compared to see if the meaning of each item was maintained. Discrepancies were discussed and agreed upon by both the researcher and the back-translator. An expert committee reevaluated the translated scale and assessed the content validity. The expert committee included five Professors from the 4 universities in the Gaza Strip, one clinical psychologist. All of them are bilingual and have translation experience, which ensured linguistic and cultural equivalence. The Arabic version of the Nowicki-Strickland Locus of Control Scale for Children was referred to in this study as adult nowicki-strickland internal-external scale (ANS-IE). While the Gaza Siege Checklist-children form was developed in Arabic and have translation experience, which ensured linguistic and standard deviations were reported. For differences between means of two groups parametric tests were used such as an independent t-test was conducted to compare gender of children and mean of siege stressors and locus of control. One Way ANOVA test was used for measuring differences between more than two groups of continuous variables total siege stressors, locus of control and other socio-demographic variables. Pearson's correlation coefficient was used to test the association between numbers of siege stressors and locus of control. Linear regression analysis was conducted in which mean locus of control was the dependent variable and each siege stressor as independent variables. The alpha level was set at 0.05.

**RESULTS**

**Socio-demographic Characteristic of the Study**

The sample responded to the interview were 184 participants with response rate of 99%, it consisted of 92 males (50%) and 92 girls (50%). The age ranged from 6-18 years with mean age was 12.4 years (SD=7.84). According to place of residence 26.1% of children were from North Gaza, 37.5% were from Gaza, 14.7% were from Middle area, 3.8% were from Khan Younis, and 17.9% were from Rafah (south of Gaza). According to type of residence, 43.5% of children live in cities, 12.5% live in villages, and 44% live in camps. According to number of siblings, 13.6% of families had less than 4 children, 61.4% had 5-7 children, and 25% had 8 and more siblings. Looking at the family monthly income, 60.9% of the families’ monthly income was less than $350 US per month, 30.4% earned $351-700 US, and only 8.7% earned more than $701 US (Table 1).

**Frequency of Impact of Siege of Gaza**

The results showed that the most common items of siege of Gaza items were: learning problems due to the shortage of electricity and teachers unable to come to schools (82.6%), I feel I am in a big prison (79.9%), I quit purchased daily needs because prices are very high (79.3%), I was not able to go to school due to the shortage of fuel and absence of transportation (75%), cannot find some of the necessary things for the study such as books and stationary (68.8%). While the least common siege items reported by children were: I started doing the papers for immigration (18.5%), begging in streets and go to organizations for help (17.9%), stealing from neighbors and shops (10.3%) (Table 2).
Table 1. Socio-demographic Characteristic of the Study Sample

|                          | N  | %    |
|--------------------------|----|------|
| **Sex**                  |    |      |
| Boys                     | 92 | 50   |
| Girls                    | 92 | 50   |
| **Address**              |    |      |
| North Gaza               | 48 | 26.1 |
| Gaza                     | 69 | 37.5 |
| Middle area              | 27 | 14.7 |
| Khan Younis              | 7  | 3.8  |
| Rafah area               | 33 | 17.9 |
| **Place of residence**   |    |      |
| City                     | 80 | 43.5 |
| Village                  | 23 | 12.5 |
| Camp                     | 81 | 44.0 |
| **Number of siblings**   |    |      |
| Less than 4              | 25 | 13.6 |
| 5-7 children             | 113| 61.4 |
| 8 and above              | 46 | 25.0 |
| **Monthly family income**|    |      |
| Less than $350 US        | 112| 60.9 |
| $351-700 US              | 56 | 30.4 |
| More than $701 US        | 16 | 8.7  |
| **Paternal education**   |    |      |
| Uneducated               | 11 | 6.0  |
| Preparatory              | 25 | 13.6 |
| Primary                  | 40 | 21.7 |
| Secondary                | 53 | 28.8 |
| University               | 20 | 10.9 |
| Master degree            | 27 | 14.7 |
| PhD                      | 8  | 4.3  |
| **Father work**          |    |      |
| Unemployed               | 90 | 48.9 |
| Skilled worker           | 18 | 9.8  |
| Employee                 | 59 | 32.1 |
| Others                   | 17 | 9.2  |
| **Maternal education**   |    |      |
| Uneducated               | 9  | 4.9  |
| Preparatory              | 19 | 10.3 |
| Primary                  | 63 | 34.2 |
| Secondary                | 74 | 40.2 |
| Diploma                  | 13 | 7.1  |
| University               | 6  | 3.3  |
| **Mother work**          |    |      |
| Housewives               | 177| 96.2 |
| Employee                 | 7  | 3.8  |

The children reported from 1-20 siege items with mean=9.07 (SD=2.8).

**Differences in Siege Stressors and Socio-economic Variables**

Independent *t*-test was done, mean siege stressors in males was 9.40 (SD=2.71), mean for females was 8.75 (SD=2.86) *t*(182)=1.85, *p*<0.11. One-way ANOVA was performed to find differences in siege stressors and other socio-economic variables. Post hoc test using Tukey showed that no significant differences in siege stressors and number of siblings. However, children from families with monthly income less $300 had more siege stressors than those with higher income F(2, 181)=5.94, *p*<0.003, partial η²=0.06
Children with father education level of university and more had fewer siege stressors than those children from fathers with less education $F(2, 181)=3.02, p=0.007$, partial $\eta^2_p=0.094$. Also, children with mother’s education higher than university degree had less siege stressors $F(2, 181)=5.94, p=0.003$, partial $\eta^2_p=0.06$.

### Means and Standard Deviations of the Arabic Version of the Nowicki-Strickland Locus of Control Scale for Children

As shown in Table 3, the subjects of this study were found significantly more externally oriented when their mean I-E scores were compared against the normative data supplied by Nowicki and Strickland (1973).

### Relationship between Stressors due to the Siege of Gaza and Locus of Control

To assess the relationship between locus of control and stressors due to the siege of Gaza scores, Pearson correlation was computed. Stressors due to the siege of Gaza was positively correlated with locus of control scores ($r=0.20, p<0.001$) (Table 4).

### Prediction of Locus of Control by Types of Siege Stressors

In a univariate linear regression analysis, each siege stressor was entered as an independent variable in a multiple regression model, with total locus of control scores as the dependent variable, three traumatic events were significantly associated with posttraumatic stress disorder (PTSD): I was not able to fulfill my needs due to my parents stopped working because of siege ($\beta=0.24, t(180)=3.40, p<0.001$), lost the main source of income ($\beta=0.19, t(180)=2.67, p<0.01$), and forced to leave home and stayed in the superdome/convention centre ($\beta=0.17, t(180)=3.43, p<0.01$) $F(1, 225)=19.23$, $p<0.001$, $R^2=0.17$ (Table 5).

### DISCUSSION

This is the first study to evaluate the relationship between stressors of siege and locus of control of Palestinian children in the...
Gaza Strip. In the last 6 decades, Palestinian children are victims of continuous trauma and war. Such experiences may lead to an increase of mental health problems and deteriorate the children's and adolescents' physical and mental well-being. Previous studies in the area showed that the adults are suffering from psychological problems due to the siege which continued for the last years. In this study children reported having learning problems due to the shortage of electricity and teachers were unable to come to schools due to the shortage of fuel. They noted that they felt as if they were in a big prison (79.9%), children quitted purchasing things to meet daily needs because prices are very high (79.3%), they were not able to go to school due to shortage of fuel and transportation (75%), and they cannot find some of the necessary things for continuing study such as books and stationary (68.5%). Such shortages have an adverse impact on the entire life of Palestinian families and increase risk factors for children and adolescents that lead to physical and mental health problems. Such problems may increase state of anger and frustration and may increase children's tendency toward community and family violent acts against other people in the community and siblings. Studies of similar situations are very few and the recent history showed no similar type of collective punishment of one and half million persons in very tiny area. Similarly, in a study comprised of 399 randomly selected university students from the four main universities in Gaza Strip, the most frequently reported stressors due to the siege were: sharply increased prices due to closure (92% of students), studies being affected so much due to the cut-off of electricity (83.5%), and shortage of gas. Results showed that mean stressors in boys were 12.38 and 10.33-

| Unstandardized Coefficients | Standardized Coefficients | t | p | 95.0% Confidence Interval for B |
|-----------------------------|---------------------------|---|---|-------------------------------|
| (Constant)                  | 15.480                    | 0.56| 27.56 | 0.001 | 14.37 | 16.59 |
| I was not able to get my pocket money due to my parents stopped working because of siege | 2.243                   | 0.66| 0.24 | 3.41 | 0.001 | 0.94 | 3.54 |
| Thinking of leaving the school and went to work in streets to help the family | 1.900                   | 0.71| 0.19 | 2.68 | 0.01 | 0.50 | 3.30 |
| Stealing from neighbors and shops | 2.675                   | 1.10| 0.17 | 2.43 | 0.02 | 0.50 | 4.85 |

Our study showed no gender differences in locus of control. However, there is also some longitudinal evidence to suggest that girls move toward more external locus of control disposition during middle adolescence, while boys become more internal.

**CONCLUSIONS**

This study is one of few studies done to evaluate the impact of siege on Palestinian children locus of control. The findings of the present study have important implications for stress-related mental health prevention programs. The findings that children depend on parent relations and home life, psychological well-being, and school environment to overcome the adversities effect of siege. This highlight the need to involve parents in education programs to increase their awareness of children psychological needs in time of war and siege which may increase children internal locus of control and increase their self-esteem.

Also, involving the teachers in well-organized courses in the field of child mental health, psychological well-being, coping with stress and siege. Also improving the school environment atmosphere and relationship between students in schools may improve psychological and physical well-being of children. Additional studies which test complex meditational models are warranted to provide further insights into multiple pathways among early socio-economic adversity, locus of control and mental health problems including PTSD, depression, and anxiety. Evidence indicates that programs focusing on restructuring cognitive coping strategies and control-related beliefs result in shifts in locus of control from less external to more internal orientation.

**CONSENT**

All authors declare that ‘written informed consent was obtained
from the patient (or other approved parties) for publication of this report.

ETHICAL APPROVAL

All authors hereby declare that all the research proposal and scales had been examined and approved by the appropriate Palestinian ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

ACKNOWLEDGEMENT

We are grateful to all the Palestinian families and children and adolescents in the Gaza Strip for their involvement. Also, to the data collectors for their valuable input.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

1. B’Tselem. Human Rights in the Occupied Territories. Web site. https://www.btselem.org/sites/default/files/sites/default/files2/publication/200712_annual_report_eng.pdf. Retrieved January 15, 2018.

2. Thabet AA, Abu Tawahina A, El Sarraj E, Vostanis P. Siege and quality of life of Palestinians in the Gaza Strip. Arabpysnet E Journal. 2008; 20: 157-164.

3. Thabet AA, Abu Tawahina A, El Sarraj E, Vostanis P. The relationship between siege of Gaza Strip, anger, and psychological symptoms. Arabpysnet E Journal. 2008; 20: 174-184.

4. Lubad I, Thabet AA. The impact of siege on prevalence of depression and anxiety disorder among university students. Arabpysnet et E Journal. 2009; 24: 56-66.

5. Juma A, Thabet AA. Relationship between stressors due to siege of Gaza Strip on anxiety, depression and coping strategies among university students. Arab Journal of Psychiatry. 2015; 25: 39-48. doi: 10.12816/0010504

6. Thabet AA, Thabet S. Stress, trauma, psychological problems, quality of life, and resilience of Palestinian families in the Gaza Strip. Journal Clinical Psychiatry. 2015; 1(1): 11.

7. Rotter J. Generalized expectancies for internal versus external control of reinforcement. Psychol Monogr. 1966; 80: 1-28. doi: 10.1037/h0092976

8. Nowicki S, Duke MP. Foundations of locus of control research,"in Perceived Control: Theory, Research, and Practice in the First 50 Years. In: Infurna F, Reich JW, eds. New York, NY, USA: Oxford University Press; 2016: 147-170.

9. Gilman SE, Kawachi I, Fitzmaurice GM, Buka SL. Socio-economic status, family disruption and residential stability in childhood: Relation to onset, recurrence and remission of major depression. Psychol Med. 2003; 33: 1341-1355. doi: 10.1017/S0033291703008377

10. Chorpita BF. Control and development of negative emotion. In: Vasey MW, Dadds MR, eds. The Developmental Psychopathology of Anxiety. New York, USA: Oxford University Press; 2001.

11. Ostrander R, Herman KC. Potential cognitive, parenting, and developmental mediators of the relationship between ADHD and depression. J Consult Clin Psychol. 2006; 74: 89-98. doi: 10.1037/0022-006X.74.1.89

12. Li HC, Lopez V. Chinese translation and validation of the Nowicki-Strickland locus of control scale for children. Int J Nurs Stud. 2004; 41: 463-469. doi: 10.1016/j.ijnurstu.2003.12.001

13. Culpin I, Stapinski I, Miles OB, Araya R, Joinson C. Exposure to socioeconomic adversity in early life and risk of depression at 18 years: The mediating role of locus of control. J Affect Disord. 2015; 183: 269-278. doi: 10.1016/j.jad.2015.05.030

14. Nowicki S, Strickland BR. A locus of control scale for children. J Consult Clin Psychol. 1973; 40: 148-154. doi: 10.1037/h0033978

15. Whiffen VE, MacIntosh HB. Mediators of the link between childhood sexual abuse and emotional distress a critical review: Trauma Violence Abuse. 2005; 6: 24-39. doi: 10.1177/1524838004272543

16. Ahlin EM. Locus of control redux: Adolescents’ choice to refrain from violence. J Interpers Violence. 2014; 29(14): 2695-2717. doi: 10.1177/0886260513520505

17. Fisher HL, Schreier A, Zammit S, et al. Pathways between childhood victimization and psychosis-like symptoms in the ALSPAC birth cohort. Schizophr Bull. 2013; 39: 1045-1055. doi: 10.1093/schbul/sbs088

18. Kulas H. Locus of control in adolescence: A longitudinal study. Adolescence. 1996; 31: 721-729. doi: 10.1093/schbul/sbs088

19. Ross CE, Mirowsky J. Age and the gender gap in the sense of personal control. Soc Psychol Q. 2002; 65: 125-145. doi: 10.2307/3090097

20. Figuerelli GA, Hartman BW, Kowalski FX, Jr. Assessment of change in scores on personal control orientation and use of drugs and alcohol of adolescents who participate in a cognitively orientated pretreatment intervention. Psychol Rep. 1994; 75(2): 939-944. doi: 10.2466/pr0.1994.75.2.939