

Acute and Post Traumatic Stress Disorders in Parents of Children Admitted to the Intensive Care Units

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ABSTRACT

Background: The admission to ICU is frightening and can realistically prompt fear that their child could die or become severely disabled. When combined with worry about ongoing procedures and medical treatment, parental distress is common. **Objective:** to measure the prevalence of parental acute stress disorder (ASD) and post traumatic stress disorder (PTSD) after admission of their children to Intensive Care Units and its correlation with severity of child illness. **Subjects and methods:** The recruited sample includes 153 parents of 153 children admitted into intensive care units of Zagazig University Hospital at least for three days. Clinical diagnosis for ASD and PTSD was done according to DSM IV TR criteria. ASD symptoms were assessed using the Acute Stress Disorder Scale during the child's admission. PTSD symptoms were assessed using the PTSD Checklist at least 3 months after child trauma for children; severity of illness was measured using the Pediatric Risk of Mortality (PRISM) score. **Results:** The prevalence of ASD and PTSD in parents was 77% and 56% respectively. There was a positive correlation between ASD scale scores, PTSD checklist scores and risk of mortality scores. Traumatic stress symptoms are common among parents whose children admitted in ICU and may persist long after discharge. **Conclusion:** There is strong support from these data for continued attention for supporting parents during and after a child's ICU admission.

Key words: Acute traumatic stress disorders, Post traumatic stress disorders, Parents, Children, Egypt.

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INTRODUCTION

The first documented case of psychological distress was reported in 1900 BCE, Egypt by an Egyptian physician who described a "hysterical" reaction to trauma¹. The parents of an injured or ill child must challenge with the possibility of their child's death as well as with the serious impact of the medical event on the child's future. Further, parents must help their child cope with the stress of

hospitalization, which often includes painful medical procedures². These experiences can overcome even the most rigid parents. Having one's child admitted to intensive care unit (ICU) is difficult for parents³. The admission to ICU is frightening and can realistically prompt fear that their child could die or become severely disabled⁴. When combined with worry about ongoing procedures and

medical treatment, parental distress is common and understandable⁵. Studies conducted in specialty care settings have shown that emotional trauma associated with medical illness is prevalent and are associated with poor medical outcome⁶, nevertheless treatment of PTSD related to medical illness may improve outcome⁷.

Traumatic stress symptoms have been identified in children recovering from injuries⁸⁻⁹, surviving burns¹⁰, diagnosed with cancer¹¹⁻¹², and undergoing transplant surgery¹³. There are few studies addressing the impact of illnesses and injuries on the parents of these children. A severe injury or a life-threatening medical diagnosis in a child can be extremely stressful for a parent^{6, 9, 12, 14}. An individual must have experienced a potentially traumatic event in which there was actual or threatened injury, or a threat to the physical integrity of oneself or another person¹⁵⁻¹⁶. Parents of children with illness or injury severe enough to warrant ICU admission meet this criterion. Post traumatic stress disorder (PTSD) has been identified in children and adults as a collection of symptoms that include reexperiencing (upsetting thoughts or feelings about the trauma), avoidance (of activities or other reminders of the traumatic event), and hyperarousal (sleep or concentration difficulties, hypervigilance) that persist and impair functioning¹⁷. Recent evidence has pointed to the role that untreated stress symptomatology plays in poor health and functional outcomes in adults after trauma and highlights the importance of addressing the psychological as well as the physical consequences of injury¹⁷⁻¹⁸. Not every individual exposed to a potentially traumatic

event will develop a traumatic stress disorder. Thus, it is particularly important to identify associated risk factors at the time of a potentially traumatic experience (i.e., during or soon after ICU admission)¹⁸. In other populations exposed to potentially traumatic experiences, ASD symptoms have been identified as predictors of more PTSD responses¹⁹. Parental traumatic stress has also been shown to be a strong predictor of children's post traumatic psychological distress²⁰. Thus, understanding parental traumatic stress during a child's ICU admission would be helpful not only for addressing the parent's own immediate distress, but also to promote optimal child and parent emotional adaptation after hospitalization.

SUBJECTS AND METHODS

All participants gave a written consent. This study was done between January 2009 and September 2009. 153 parents (mothers or fathers) whose children were admitted in intensive care unit of neurosurgery, surgery and orthopedic departments of Zagazig University Hospital suffering from head trauma 76 (49%), burns 54 (35%), fractures 23 (16%) were randomly selected and interviewed in ICU three days after their children admission for assessment of ASD. Another interview was done three months after their child traumatic event, for assessment of PTSD. Clinical diagnosis to ASD, PTSD was done according to DSM-IV TR criteria. Parents were subjected to the following measures:

1. The Acute Stress Disorder Scale is a self-report inventory designed to assess the

presence and severity of ASD symptoms. It is based on the *DSM-IV* criteria and takes approximately 5 minutes to complete. The 19 questions ask respondents to indicate the extent to which they have experienced each symptom on a 5 point scale from "not at all" to "very much". It is the only empirically validated self-report scale for assessing ASD and shows promise as a screening instrument to identify acutely traumatized individuals. The ASDS is scored by summing the scores (1-5) for all items. It is provided sensitivity of .95, and specificity of .83. The ASDS should be supplemented by clinician interviews for formal diagnosis and for more accurate identification of at-risk individuals. Shalev et al. suggest that a cutoff score was 56²⁰⁻²¹.

2. The civilian version of the PTSD Checklist is a 17-item self-report questionnaire designed to assess the 17 PTSD symptoms described in the *DSM-IV*. Each column has points associated with it. Not at all=1, A little bit=2, Moderately=3, Quite a bit=4, Extremely=5. Cutoff Score is 50 provided that optimally discriminates PTSD-positive from PTSD-negative cases the most efficient cut score in a sample of male veterans²². It has been cross-validated with the Clinician Administered PTSD Scale²³.

3. All children were subjected to the Risk of Mortality score: At first Clinical and physiological progression of the case were assessed by pediatrician, then he applied a Pediatric Risk of Mortality (PRISM) score calculated at 24 hours from admission according to PRISM guidelines. The PRISM score is a validated pediatric physiology-based score for mortality risk. In general, a PRISM score >21 corresponds to a high rate of mortality (>50% predicted mortality). It

was originally composed of 14 physiologic variables obtained on admission to the PICU and two general diagnostic/demographic variables²⁴.

Exclusion criteria:

1. Parents with history of psychiatric disorders, parents with sever general medical diseases.
2. Children with mental retardation and history of psychiatric disorder, comorbid sever general medical diseases.

Statistical Analyses:

Descriptive statistics using SPSS (version 14) statistical program were computed to summarize demographic characteristics, the prevalence of parents meeting criteria for ASD and PTSD by chi- square (χ^2) test and correlation between ASD scale scores, PTSD checklist scores and the Risk of Mortality scale scores by Pearson's correlation.

Chi- square(χ^2) test

$$\alpha = \sum \frac{(O - E)^2}{E} \text{ where } \sum = \text{summation}$$

O=observed value, E= Expected value

RESULTS

Table (1) represents that prevalence rate of parental ASD was 77% and PTSD was 56%.

Table (1):

Variables	Negative		Positive		Total	
	No	%	No	%	No	%
ASD	35	23%	118	77%	153	100%
PTSD	67	44%	86	56%	153	100%

Table (2 and 3) represent statistically highly significant increase in number of female, employed, highly educated parents in the group with ASD and PTSD compared with the group without ASD and PTSD and also there is increase in number of parents whose children stay in ICU more than one week, and had bad prognosis. In the group with

ASD and PTSD compared with group without ASD and PTSD.

Table (4) represents a significant positive correlation between ASD scale scores, PTSD checklist scores and pediatric risk of mortality scores and a significant positive correlation between ASD scale scores and PTSD checklist scores.

Table (2): Socio-demographic comparison between parents with and without ASD.

Variables		Negative		Positive		Chi - square	
		No (35)	% 23%	No (118)	% 77%	χ^2	P
Parent Sex	Males	29	19	63	41	9.78	**0.001
	Females	6	4	55	36		
Residence	Rural	29	19	91	59.5	0.525	0.469
	Urban	6	3.9	27	17.6		
Education	Highly education	28	18.4	50	33.5	15.29	**0.00
	Lower education	7	4.6	68	43.5		
Occupation	Unemployed	29	19.1	5	3.3	96.53	0.00**
	Employed	6	3.9	113	73.7		
Special habits (smoking)	Negative	25	16.3	72	47.1	1.261	0.261
	Positive	10	6.5	46	30.1		
Duration of hospitalization	<week	15	10.0	23	15.1	7.89	*0.004
	>week	20	13.0	95	61.9		
Order of hospitalization	Admitted before	12	8	39	25.5	0.02	0.891
	First admission	23	15	79	51.5		
Prognosis	Bad	24	14.1	14	9.7	51.7	**0.00
	Good	11	8.9	114	67.3		
Covered by health insurance	Negative	25	16.3	72	46.9	1.261	0.261
	Positive	10	6.7	46	30.1		

*statically significant <0.05

**statically highly significant<0.001

Table (3) Comparison between parents with and without PTSD according to socio-demographic.

Variables		Negative		Positive		Chi - square	
		No (67)	% 44%	No (86)	% 56%	x ²	P
Parent Sex	Males	55	35.9	37	24	23.97	**0.00
	Females	12	8.1	49	32		
Residence	Rural	49	32	71	46.4	1.977	0.160
	Urban	18	11.8	15	9.8		
Education	High education	20	23.5	58	39.9	21.30	**0.00
	Low education	47	20.3	28	16.3		
occupation	Unemployed	22	13.9	12	12.4	7.772	*0.005
	Employed	45	30.1	74	43.6		
Special habits (smoking)	Negative	37	24	60	39.1	3.43	0.0683
	Positive	30	20	26	16.9		
Duration of hospitalization	<week	24	15.7	14	9.2	7.704	*0.006
	>week	43	28.1	72	47.0		
Order of hospitalization	Admitted before	27	17.6	24	15.7	2.602	0.107
	First admission	40	26.1	62	40.5		
Prognosis	Bad	23	15.0	5	3.3	20.48	0.00**
	Good	44	28.8	81	52.9		
Covered health insurance by	Negative	39	25.5	58	25.5	1.38	0.239
	Positive	28	18.3	28	30.7		

*statically significant <0.05 **statically highly significant<0.001

Table (4): Pearson's Correlation between ASD and PTSD scores of parents and pediatric risk of mortality score and correlation between ASD and PTSD scores

Variable	ASD	P.Risk of mortality
ASD :		
Pearson correlation	1	+0.735*
Significant(2-tailed)		0.016
Number	118	118
P.Risk of mortality:		
Pearson correlation	+0.735*	1
Significant(2-tailed)	0.016	
Number	118	118

Table (4): continue:

Variable	PTSD	P. Risk of mortality
PTSD :		
Pearson correlation	1	+0.695*
Significant(2-tailed)		0.017
Number	86	86
P.Risk of mortality:		
Pearson correlation	+0.695*	1
Significant(2-tailed)	0.017	
Number	86	86
Variable	ASD	PTSD
ASD :		
Pearson correlation	1	+0.627*
Significant(2-tailed)		0.018
Number	86	86
PTSD :		
Pearson correlation	+0.627*	1
Significant(2-tailed)	0.018	
Number	86	86

DISCUSSION:

Although the first documented case of psychological distress was reported in 1900 BCE, Egypt by an Egyptian physician who described a "hysterical" reaction to trauma¹, but surveys of mental disorders in Egypt have been carried out at the end of World War II. The main obstacle facing the services, however, is that they are hospital-based rather than community-based²⁵. Earlier studies of psychiatric morbidity among university students in Egypt showed that anxiety states were diagnosed in 36% of the study sample²⁶. In 1981 Okasha and Ashour undertook the first attempt to study the socio-demographic aspects of anxiety disorders in Egypt²⁷.

The current study found that the prevalence rate of ASD in parents was 77%. These rates are somewhat higher than those found in the other published study that directly assessed specific ASD symptoms in parents of ill or

injured children. Winston et al. found significant ASD symptoms in 22% of parents whose children had been admitted to the hospital after injury in a traffic crash (about one third of that sample had children admitted to the ICU)⁹. The current study may have found more parents with ASD symptoms because participants were assessed closer to the time of the child's medical crisis (3 days post admission). Also all children of our sample were admitted in ICU. Another study shows the frequency of acute stress symptoms among parents whose children admitted in ICU after a traumatic event, they found that 83% of parents reported acute stress symptoms and this is matched with our results²⁸. The current study found that the prevalence rate of PTSD in parents was 56% and all of them from the group that had ASD and there was a positive correlation between ASD scale scores and PTSD checklist scores.

ASD symptoms have been identified as predictors of more chronic traumatic stress responses (PTSD). The prevalence of PTSD in our study is higher than that of other studies²⁹. Regarding parent PTSD symptoms after a child's medical crisis, 20% of parents have significant PTSD symptoms an average of 5 years after their child completes cancer treatment³⁰, and PTSD in 15% of parents up to 1 year after a child was injured in a traffic crash²⁹. This high prevalence in our study is due to increased severity of our traumatic cases, and the assessment after short duration of trauma (3 months).

The current study show that there is highly significant increase in acute and post stress disorder in employed parents, as the admission of their children needs holidays to take care of them and this is another stress on the parents, working mothers, regardless of whether they are married or single, face higher stress levels and possibly adverse health effects, most likely because they bear a greater and more diffuse work load than men³¹.

There is highly significant increase in acute and posttraumatic stress disorder in female parent in general and working mothers specifically mothers who had a higher fear appraisal (perceived threat to the child's life, potential for the child's suffering, and fears for the child's future)³². Also there is statistically significant increase in acute and posttraumatic stress disorders in highly educated parents, as they oriented by the squeal and complications of the traumatic event than lower educated parents³³. In addition there is a significant increase in the number of parents whose children stay in ICU for more than one week, had bad

prognosis in ASD and PTSD groups compared with parents without ASD and PTSD, as these factors add more stress to the parents³⁴. In the current study there was a significant positive correlation between ASD scale scores, PTSD checklist scores and pediatric risk of mortality scores. This was explained by fear of death of their lovely child³⁵.

CONCLUSION

Traumatic stress symptoms are common among parents in the ICU and may persist long after discharge. There is strong support from these data for continued attention to supporting parents both during and after a child's ICU admission.

RECOMMENDATION

Future research and test models should develop targeting parents at highest risk and providing them with psychiatric interventions designed to prevent or decrease posttraumatic distress. Such interventions are likely to include cognitive behavioral interventions that address parental perceptions and teach skills for effective coping with the anxiety produced by a child's serious illness or injury.

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دراسة اضطرابات الكرب الحادة و الكرب ما بعد الصدمة

عند ابناء الاطفال المنومين بوحدات العناية المركزة

الدراسة تمت علي 153 من الاباء بعد دخول 153 من ابنائهم في العناية المركزة بمستشفيات جامعة الزقازيق لدراسة اضطراب الصدمة الحادة وما بعد الصدمة ومدى ارتباطه بشدة مرض الاطفال. و قد تم التشخيص الاكلينيكي للمرضي ، حيث استخدم مقياس اضطراب الصدمة الحاد للاباء خلال وجود الطفل بالمستشفى. كما تم استخدام قائمة اضطراب ما بعد الصدمة للاباء خلال ثلاثة اشهر علي الاقل منذ بداية مرض الطفل . وبالنسبة للاطفال, فقد تم استخدام مقياس خطوره الموت للاطفال لقياس شدة المرض عند هم. و كانت نسبة انتشار اضطراب الصدمة الحادة 77%, بينما نسبة انتشار اضطراب ما بعد الصدمة للاباء 56%, و وجد ان هناك ارتباط ايجابي بين درجة مقياس خطورة الموت مع درجة اضطراب الصدمة الحادة و درجة اضطراب ما بعد الصدمة للاباء . وخلصت الدراسة الي ان اعراض الصدمة شائعة بين الاباء, و ذلك بعد دخول ابنائهم الي العناية المركزة, وقد تستمر هذه الاعراض بعد خروج الاطفال من العناية المركزة, كما كان هناك دعم قوي من هذه النتائج لاستمرار الانتباه و الدعم للاباء بعد دخول ابنائهم في العناية المركزة.