

# Psychiatric Disorders in Children at One Year after the Tsunami Disaster in Thailand

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**Background:** The tsunami that struck Thailand on 26<sup>th</sup> December 2004 was the greatest natural disaster in the country's history. It left in its wake unprecedented damage and destruction. Children suffered the loss of parents or guardians, and survivors were left to cope with psychological trauma of the disaster.

**Objective:** To assess the psychiatric disorders in tsunami victim children at one year after the event.

**Material and Method:** A cross sectional study was done. One thousand three hundred and sixty-four students from 2 schools were enrolled. Three tests were used according to the students' grades, pediatric symptoms checklist, Childhood Depressive Inventory and the Revised Child Impact of Events scale (CRIES). Psychiatric disorders were diagnosed by child and adolescent psychiatrists, using criteria from the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM IV). Analysis data by using SPSS version 10.0 and Chi-square test. The results were presented as percentage and p-value.

**Results:** Psychiatric disorders were found in 142 students or 10.4 percents of all students at one year after the tsunami disaster. Not all the students who had psychiatric disorders developed them as the result of the tsunami disaster. However, ninety students or 6.3 percent of all the students did have psychiatric disorders resulting from the tsunami disaster. The most common psychiatric problem was post traumatic stress disorder.

Ten percent of grade 4-6 students and 11 percent of grade 7-9 students had psychiatric disorders. The prevalence was lower in kindergarten and grade 1-3 students of which the percentage was 2.3 and 3.8 respectively.

**Conclusion:** The prevalence of psychiatric disorders at 1 year after the tsunami disaster was 10.4 percent of all the students or 33.1 percent of victims. The prevalence of psychiatric disorders in grade 4-6 and 7-9 students was higher than in kindergarten and grade 1-3 students. The most common psychiatric problem is post traumatic stress disorder.

**Keywords:** Tsunami in Thailand, Psychiatric disorders, Post-traumatic stress disorder (PTSD)

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The December 2004 tsunami disaster in South and South-East Asia was the most catastrophic in Thailand's history. Enormous destruction to physical

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structures, social structure (family and community), as well as the economic structure, transcends to both short-term and long-term devastation. In this case, the lives of the people in these affected regions have been changed forever.

Psychiatric impact after this catastrophic event was found among the affected populations at a rate ranging from 40 to 84%. This included symptoms such as sadness, depression, worries, panic attacks and problems adapting to new living arrangements, physical complications due to elevated stress and post traumatic stress disorder (PTSD). An increase in drug addiction use and usage has been observed among children, adolescents and adults<sup>(1,2)</sup>.

### Objectives

Psychiatric disorders caused by the tsunami disaster of December 26, 2004 were investigated. The study period was started 10 days and completed 1 year after the event. Psychiatric diagnosis and management were performed.

### Material and Method

After the tsunami in 2004, an emergency team was dispatched to tally and report the personal losses among children in each school. As a result, among the six most devastated districts, Phang-Nga was identified to have suffered the most loss of lives. In Phang-Nga: Bang Muang and Suthin Anusorn Schools at Takuapa (1,364 students) were selected as two of psychiatric monitoring sites.

A school is the best center for the psychiatric team to support the victims<sup>(8)</sup>. In this study, the psychiatric team initiated the assistance program starting 10 days post-tsunami, providing initial psychological first aid as well as conducting some support groups for the school children and their parents. Teacher orientation, education and training sessions were provided to the teachers in order to facilitate their awareness and understanding of PTSD and depression. Our team also provided medical and psychotherapeutic support throughout the period which the schools served as the administrative center for the care and monitoring of the children.

Support was given to affected school teachers as well. Parents were also invited to meet with the team in order to gain more awareness of PTSD and insight about treatment and intervention. In cases where the parents themselves also suffered from PTSD themselves, treatment and intervention according to their mental conditions were also provided. Financial support, including scholarships, was also available to the children of families who were directly affected by the tsunami disaster. The team visited the schools 8 times to monitor, counsel and provide medical treatments during the first year after the disaster, and 3 times in the second year.

A cross sectional study was done at 1 year after the tsunami disaster. Three tests were used according to the students' grade. Kindergarten students were tested using pediatric symptoms checklist for evaluating children's problems, a developmental screening test and an evaluation of mental status. Grade 1-3 students were tested using pediatric symptoms checklist for evaluating children's problems, Childhood Depressive Inventory and an evaluation of mental status. Grade 4-6 and 7-9 students did the tests themselves. The tests used were the Revised Child Impact of Events scale (CRIES), Post traumatic stress disorder checklist, Childhood Depressive Inventory and an evaluation of mental status. Psychiatric disorders were performed by child and adolescent psychiatrists according to the criteria from Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM IV).

### Results

At one year after the tsunami disaster, there were 272 victims from a total of 1,364 students. Psychiatric disorders were found in 142 students or 10.4 percent of all the students. However, not all of these students developed them as a result of the tsunami disaster. Sixty-six percent (n = 90) of the total number of students or 33.1 percents of the tsunami victims had psychiatric disorders (Table 1, 2).

There were 86 students who met the diagnosis of post traumatic stress disorder or 6.3 percent of the total number of students or 31.6 percents of the tsunami victims (Table 2).

There were 11 cases of psychiatric disorder in the kindergarten group or 2.3 percent of a total of 471 students, 12 cases in grade 1-3 or 3.8 percent of a total of 316 students, 48 cases in grade 4-6 or 10.9 percent of a total of 439 students and 19 cases in grade 7-9 or 11 percent of from a total of 118 students. Female: Male ratio was 1.7:1 (Fig. 1, 2).

### Discussion

Catastrophic events caused by either nature or man can result in substantial loss of property, lives, community, family, economic and social systems and even immeasurable personal or emotional loss. The tsunami disaster in South and South-East Asia on December 26, 2004 is the most catastrophic in Thailand's history. The death toll and number of people missing were 5,309 and 3,810 respectively. As a result, among the six most devastated districts, Phang-Nga was identified as suffering the most lives loss.

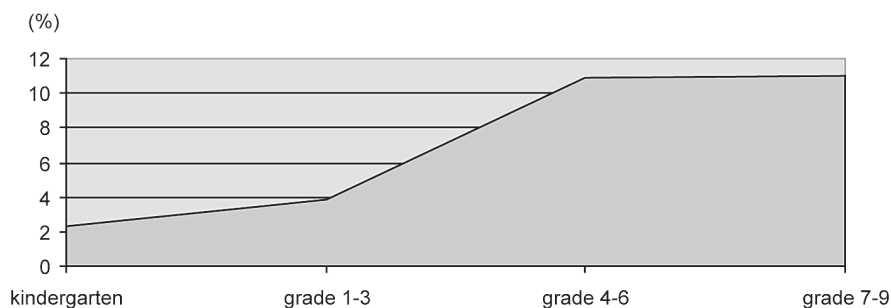
Life threatening confrontations with severe natural disasters such as a tsunami can be a horrific

**Table 1.** Psychiatric disorder at 1 year after the tsunami (more than 1 diagnosis for one child)

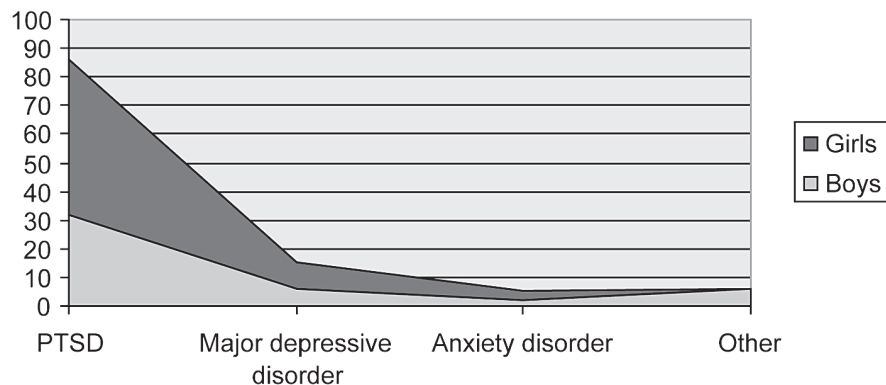
Psychiatric disorders	Kindergarten n = 471 Case (%)	Grade 1-3 n = 316 Case (%)	Grade 4-6 n = 439 Case (%)	Grade 7-9 n = 118 Case (%)	Total n = 1,364 Case (%)	p-value
PTSD (%)	7	12	48	19	86 (6.3)	<0.001
Major depressive disorder (%)	1	3	6	5	15 (1.1)	0.4
Anxiety disorder(%)	4	1	-	-	5 (0.4)	<0.001
Others (%)	2	1	3	-	6 (0.4)	0.29
Total	11 (2.3)	12 (3.8)	48 (10.9)	19 (16.1)	90 (6.6)	

**Table 2.** Percentage of psychiatric disorder in tsunami victims

Psychiatric disorders	Cases (percent of total students) n = 1,364 students	Cases (percent of tsunami victims) n = 272 tsunami victims
Post traumatic stress disorder	86 (6.3)	86 (31.6)
Major depressive disorder	15 (1.1)	15 (5.5)
Anxiety disorder	5 (0.4)	5 (1.9)
Others	6 (0.4)	6 (2.2)
Total	90 (6.6)	90 (33.1)



**Fig. 1** Percentage of psychiatric disorder in tsunami victims



**Fig. 2** Psychiatric disorders in boys and girls among tsunami victims

and traumatic experience. Reaction to physical and emotional trauma varied according to age and ability to accept the new life-changing situations. The biochemical change in the body was at first a survival response to trauma or threats. Over a period of time, it gradually changed in most cases depending on one's sense of personal stress and how to cope with the mental shock that had occurred. At the point where the most immediate mental shock resulted in a reaction (*e.g.*, denial, blurring cognition, being easily started, etc.) lasting beyond 4 weeks, it would then be categorized as PTSD<sup>(3-7)</sup>.

The prevalence of PTSD among children has been reported at a rate between 6-51%<sup>(4-7)</sup>. Reports of children with PTSD of < 10 years of age is very rare. However, there was a report of a group of 200 children who survived the Jupiter ship wreck, with 51% of them being diagnosed as PTSD. Most cases were more noticeable during the few weeks, post-ship wreck and a far less number of cases were reported after a long period. A 5-7 years follow-up found that 15 percents of the children still had PTSD<sup>(6)</sup>. In addition, in another calamitous event involving a landslide at Aberfan, it was found that as much as 29% of the survivors still suffered from PTSD even after 33 years had passed<sup>(5)</sup>. All of the evidence mentioned here demonstrates that PTSD is found frequently among children who had unfortunately experienced a natural disaster or a catastrophic event. It also indicates that PTSD cases although having declined over an extended period of time still remain at a significant rate among the children as they grow up<sup>(2,4,6,7)</sup>. There are extremely few reports on the epidemiology of PTSD in Thailand.

The prevalence of pediatric psychiatric disorders in Thailand was 10.4 percents at one year after the event. The prevalence of PTSD was 6.3% of the total number of students or 31.6% of the victims. The prevalence of PTSD varied depending on social structures and basic supports.

However, the prevalence was more common in girls than boys, which is not different from Western countries<sup>(5-9)</sup>. The youngest age was in kindergarten which was very rare in other reports. The prevalence of psychiatric disorders in older students is higher than in the younger group. This may be explained by the fact that older children the more susceptible than they are to psychological trauma<sup>(7)</sup>.

Among children and adolescents, there can be several hidden symptoms that may not be apparent to others<sup>(7-9)</sup>. Superficially, these individuals may appear normal and be able to perform activities normally, such

as playing games and catching up with classroom lessons. However, the decline in academic performance was noticeable. Some subtle signs included personality changes such as a tendency to isolate oneself away from friends and family, gazing into space or day dreaming, poorer concentration, lack of sound sleep pattern with nightmares in some of which he/she is reliving the traumatic experiences<sup>(11,12)</sup>. It was found in this study that there was a number of students with PTSD symptoms but not severe enough to meet the full criteria according to the DSM IV.

### Conclusion

The prevalence of psychiatric disorders 1 year after the tsunami disaster was 10.4 percents of all students or 33.1 percent of victims at one year after the event. The prevalence of PTSD is 6.3 percents of the total number of students or 31.6 percents of the victims. The prevalence of psychiatric disorders in older students was higher than in the younger group. The most common psychiatric problem was post traumatic stress disorder.

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## โรคทางจิตเวชในเด็กที่เวลา 1 ปีหลังภัยพิบัติสึนามิในประเทศไทย

วินัดดา ปิยะศิลป์, พนม เกตุมาน, รัตโนทัย พลบูรณ์การ, สมจิตต์ ธีรมโนภาพ, สุมิตรา อ่าวจินดา,  
วชิรพร โชติพานัส, สมทรง ต้นประเสริฐ

**ภูมิหลัง:** ภัยพิบัติเคยเกิดในประเทศไทยมาก่อนแต่ไม่มีครั้งไหนรุนแรงเท่ากับการเกิดภัยพิบัติสึนามิ ในวันที่ 26 ธันวาคม พ.ศ. 2547 ได้ทำลายครอบครัว ชุมชน ที่อยู่อาศัยของคนจำนวนมาก และส่งผลกระทบต่อจิตใจ โดยเฉพาะในเด็ก และวัยรุ่นได้สูงและยาวนาน

**จุดประสงค์:** เพื่อประเมินโรคทางจิตเวชเด็กในนักเรียนที่อยู่ในพื้นที่ที่เกิดเหตุการณ์

**วัสดุและวิธีการ:** เป็นการศึกษาแบบ cross sectional study ที่เวลา 1 ปี หลังภัยพิบัติ ศึกษาโรคทางจิตเวชเด็ก ในนักเรียนจำนวน 1,364 คน การคัดกรองในชั้นอนุบาลใช้เครื่องมือทดสอบ Pediatric symptom checklist โดยให้ผู้ปกครองเป็นผู้ประเมินปัญหาของเด็ก เจ้าหน้าที่ตรวจพัฒนาการและประเมินสภาพจิตใจ ชั้นประถมศึกษาปีที่ 1-3 ใช้เครื่องมือทดสอบ Pediatric symptom checklist โดยให้ผู้ปกครองประเมินปัญหาเด็ก และเจ้าหน้าที่อ่านแบบสอบถาม อารมณ์ซึมเศร้า (Childhood depressive Inventor) ให้นักเรียนตอบ แพทย์ประเมินสภาพจิตใจ ชั้นประถมศึกษาปีที่ 4-6 และชั้น มัธยมศึกษาปีที่ 1-3 ให้ประเมินตนเองโดยใช้ Revised Child Impact of Events Scale (CRIES), Pediatric symptom checklist ส่วนที่ 2 และ Childhood depressive Inventory จิตแพทย์เด็ก และวัยรุ่นประเมินสภาพจิตใจ และให้การวินิจฉัยตาม Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM IV) วิเคราะห์ข้อมูลโดยใช้ SPSS version 10.0 และ Chi-square test. รายงานผลในรูปของร้อยละ และ p-value

**ผลการศึกษา:** พบโรคทางจิตเวชเด็กจำนวน 142 คน คิดเป็นร้อยละ 10.4 ของนักเรียนทั้งหมด แต่เป็นปัญหาจิตใจที่เกิดตามหลังภัยพิบัติสึนามิจำนวน 90 คน คิดเป็นร้อยละ 6.3 ของนักเรียนทั้งหมด โรคทางจิตเวชที่พบบ่อย คือ Post traumatic stress disorder นักเรียนชั้นประถมศึกษาปีที่ 4-6 และชั้นมัธยมศึกษาปีที่ 1-3 มีความเสี่ยงต่อปัญหาจิตใจได้สูงในอัตราร้อยละ 10.9 และ 11.0 ตามลำดับ เมื่อเทียบกับอัตราการเกิดปัญหาจิตใจในเด็กชั้นอนุบาล และชั้นประถมศึกษาปีที่ 1-3 ซึ่งพบได้ในอัตราร้อยละ 2.3 และ 3.8 ตามลำดับ

**สรุป:** พบปัญหาจิตใจที่ตามหลังภัยพิบัติสึนามิจำนวน 90 คน คิดเป็นร้อยละ 6.3 ของนักเรียนทั้งหมด นักเรียนชั้นประถมศึกษาปีที่ 4-6 และชั้นมัธยมศึกษาปีที่ 1-3 มีปัญหาจิตใจสูงกว่าเด็กชั้นอนุบาลและชั้นประถมศึกษาปีที่ 1-3

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