



## Psychiatric Disorders and Suicide Attempts in Swedish Tsunami Survivors: A 5-Year Matched Cohort Study

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### Objective

We aimed to determine if there were increased risks of severe psychopathology among Swedish survivors during five years after the 2004 Southeast Asian tsunami.

### Methods

All survivors repatriated from Southeast Asia (8762 adults and 3742 children) were matched with 864,088 unexposed adults and 320,828 unexposed children on sex, age, and socioeconomic status. Exposure severity was ascertained in a mail survey of 3534 survivors and used in a dose-response analysis. ICD-10 codes for pre- and post-tsunami psychiatric diagnoses and suicide attempts were retrieved from the National Patient Register. Hazard ratios (HRs) and their 95% confidence intervals (CIs) were estimated, adjusted for pre-tsunami psychiatric disorders, and, for children, for parental pre-tsunami disorders.

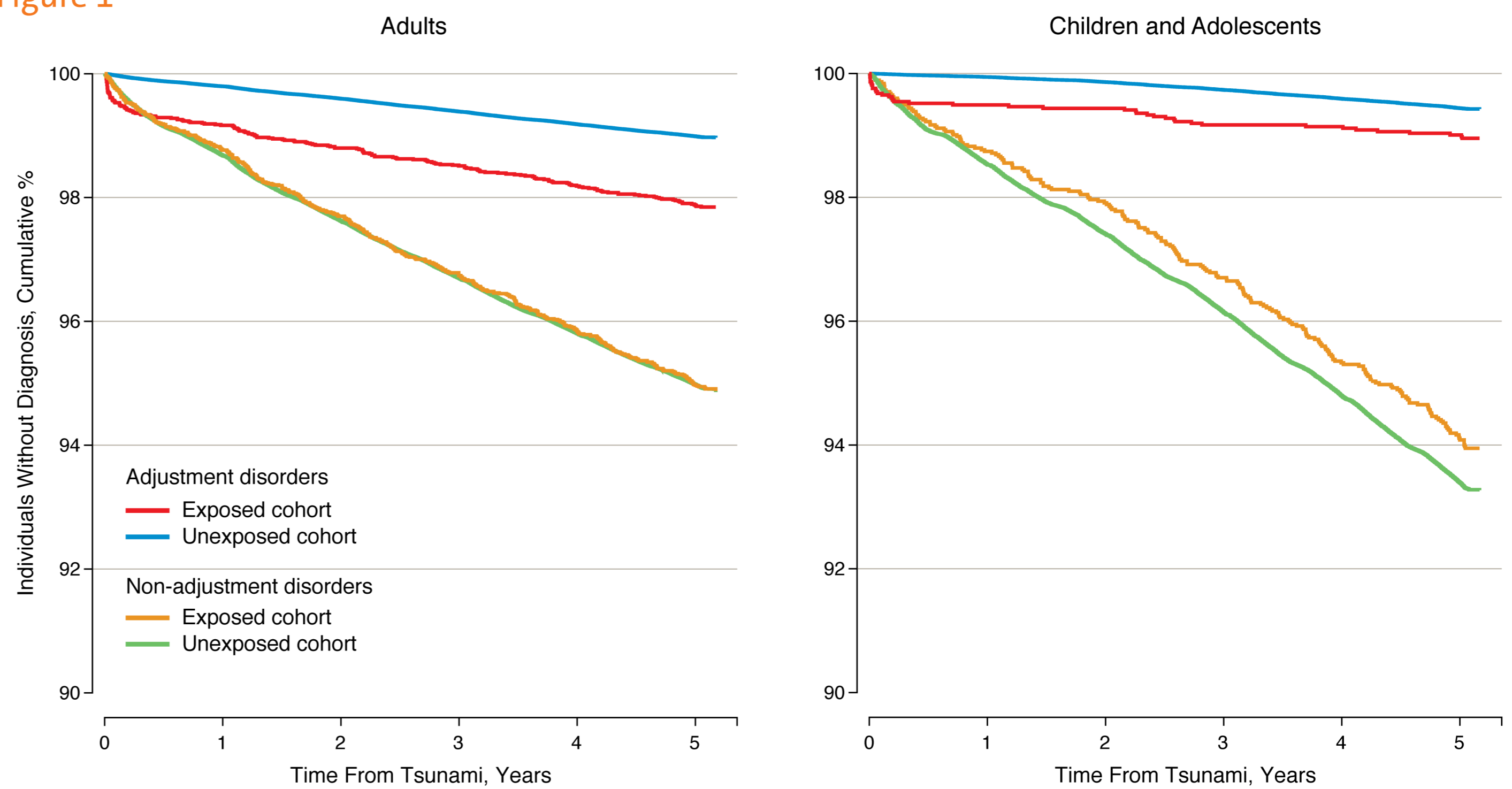
### Results

Exposed adults were more likely than unexposed adults to receive any psychiatric diagnosis (62 vs. 55%;  $HR_{adj}=121$ , 95%CI: 111-132), particularly stress-related disorders (21 vs. 10%;  $HR_{adj}=227$ , 95%CI: 196-262), see Figure 1. The survivors were at increased risk of suicide attempts (0.43 vs. 0.32%;  $HR_{adj}=154$ , 95%CI: 111-213). No difference was noted for mood and anxiety disorders. The risk of stress-related disorders was pronounced among survivors with severe exposure (Figure 2). Among children, there was no difference in overall risk of psychiatric diagnoses between exposed and unexposed (66 vs. 69%;  $HR_{adj}=098$ , 95%CI: 086-111), although exposed children had a higher risk for suicide attempts with uncertain intent ( $HR_{adj}=143$ ; 95%CI: 101-202) and stress-related disorders ( $HR_{adj}=179$ ; 95%CI: 130-246), primarily during the first three months after the tsunami.

### Conclusion

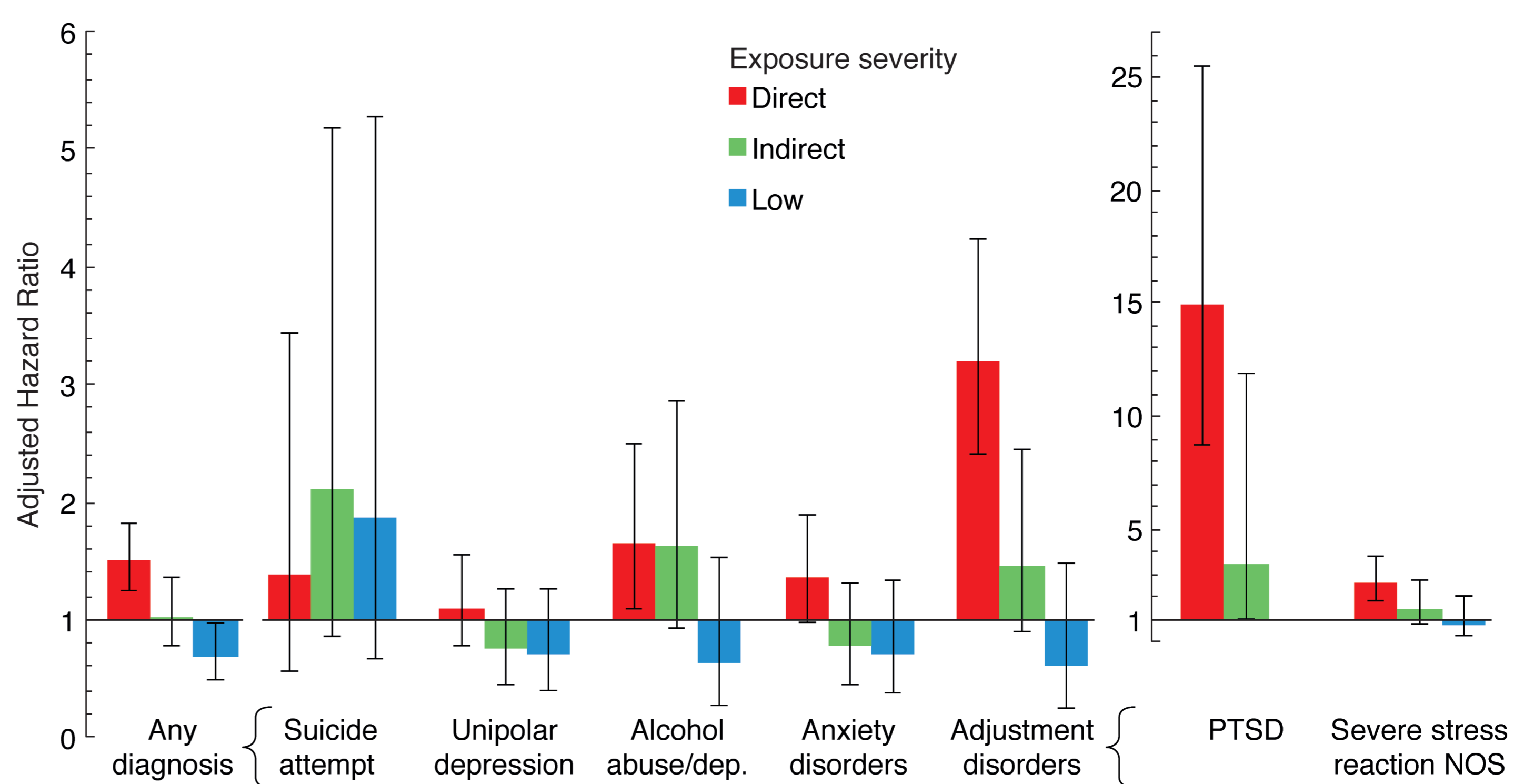
According to these preliminary findings, a disaster such as the tsunami can increase the risk of severe psychopathology independently of previous psychiatric morbidity. The increased rates of suicide attempts among both children and adults highlight the pervasive negative effects of disasters.

Figure 1



Time to a diagnosis of psychiatric disorders in tsunami survivors as compared with matched unexposed individuals. Log-rank test  $P_s < 0.001$  for stress-related disorders in both adults and in children and adolescents.

Figure 2



Risk of any psychiatric diagnosis according to exposure severity as compared with matched unexposed individuals. Survivors were stratified by disaster exposure and compared with matched unexposed individuals. Follow-up time was 5 years post-disaster. Error bars indicate 95% confidence intervals. Adjusted for pre-disaster psychiatric diagnoses. There were no PTSD cases in the low exposure group.