

Abstract 2: Epidemiological study of causal link between traumatic events and stress anxiety spectrum (SAS), in 1465 patients, Chiren Therapy Centre, Limerick, Ireland.

Objectives:

To investigate the causal link between traumatic events and stress anxiety spectrum symptoms, accounting for confounding factors in 1465 patients first visit.

Background:

This research started 24 years ago with the aim of understanding the relationship between various diagnoses without medical explanations. Observing similarities among many symptoms led us to create an indicator called the 'Stress Anxiety Spectrum' (SAS). The purpose of this indicator is to quantify the spectrum of symptoms commonly exhibited by patients. These observations and developments motivated us to create a platform to comprehend the role of traumatic or stressful events as potential causal factors. This study aims to unravel the causal pathways, embedded in the Diathesis-Stress Model, by investigating how exposure to traumatic events affects the onset of the stress and anxiety symptoms. Our null hypothesis posits no causal effect between recalled traumatic or stressful events and SAS.

Methods:

Utilizing data from the Chiren Therapy Centre, Limerick, Ireland, from September 2019 to September 2023. Initial assessments captured patients' chief complaints, subsequently classified, and recorded according to the International Classification of Diseases version 11 (ICD-11). For this study the top nine most prevalent ICD 11 code were selected. Exposure variable was obtained by asking every patient, "do you recall any physical or emotional trauma or stressful situations before or during the onset of symptoms?" (Yes, or No). Stress-Anxiety Spectrum (SAS) scores were derived from a comprehensive list of 41 symptoms, with intensities rated on a 0 to 10 scale. SAS scores categorized patients as functional stress (≤ 40) or dysfunctional stress (>40). Stratified analysis by gender, age groups and each ICD11 code. Statistical analyses, including descriptive and multivariate techniques, were performed using Oracle Analytics, Chi-square, and P-value statistical test in SPSS version 28.

Findings:

Significant associations were found between exposure to traumatic stress events and SAS score (Chi-square = 117.6326, $p < 0.00001$), age group (Chi-square = 148.606, $p = 0.0000$), and gender (Chi-square = 127.538, $p = 0.0000$) with full data are summarized in table 1. Additionally, significant associations were observed between exposure to traumatic stress events and overall health outcomes based on ICD11 codes (Chi-square = 236.201, $p < 0.00001$) as shown in Table 2 outlining specific health conditions analyzed, some of which displayed no significant association with traumatic stress exposure.

**Interpretation:**

The statistical analysis reveals a strong association between exposure to traumatic stress events and Stress-Anxiety Spectrum (SAS) scores, further supported by stratified data analysis by age groups and gender. Notably, associations emerged across various health outcomes based on ICD11 codes, even among patients with seemingly unrelated pain pathologies. This discovery has the potential to deepen our understanding of Nociceptive pain. Moreover, the absence of significant associations in anxiety stress pathologies and post-COVID 19 cases, as highlighted by previous authors, suggests a possible synergistic effect and high specificity of this methodology, which resonates with the underlying principles of the Diathesis-Stress Model. These findings underscore the complexity of pain perception and highlight the intricate interplay between psychological factors, such as stress and anxiety, and physical health outcomes.





References

Monroe SM, Cummins LF. Diathesis–stress models. In: The encyclopedia of clinical psychology. John Wiley & Sons, Inc.; 2015:1–6.

Fitzcharles, M.-A., Cohen, S. P., Clauw, D. J., Littlejohn, G., Usui, C., & Häuser, W. (2021). Nociceptive pain: towards an understanding of prevalent pain conditions. *The Lancet*, 397(10289), 2098–2110. doi:10.1016/s0140-6736(21)00392-5



Table 1. Causal link between traumatic events and stress anxiety spectrum symptoms in 1465 patients, stratified by Age group and gender. Chiren Therapy Centre, Limerick, Ireland, September (2019 to September 2023).

		SAS		Chi-Square	P-value
		> 40	<= 40		
	Trauma exposure				
	Yes	733	122		
	No	372	238		
	Grand Total	1,105	360	117.6326	0.0001
The p-value is 0.0001. significant at $p < 0.05$.					
Age group	Trauma exposure	> 40	<= 40	Chi-Square	P-value
<= 40	Yes	197	29	29.2440	0.0000
	No	107	60		
> 40 to 60	Yes	405	56	44.8720	0.0000
	No	185	89		
> 60	Yes	131	37	33.7850	0.0000
	No	80	89		
	Grand Total	1,105	360	148.6060	0.0000
The p-value is 0.0000. significant at $p < 0.05$.					
Gender	Trauma exposure	> 40	<= 40	Chi-Square	P-value
F	Yes	518	71	72.0001	0.0000
	No	216	119		
M	Yes	215	51	36.4440	0.0000
	No	156	119		
	Grand Total	1,105	360	127.5380	0.0000
The p-value is 0.0000. significant at $p < 0.05$.					

Table 2. Causal link between traumatic events and stress anxiety spectrum symptoms in 1465 patients, stratified by ICD 11 codes. Chiren Therapy Centre, Limerick, Ireland, September 2019 to September 2023.

ICD 11 Codes	Trauma exposure	SAS		Chi-Square	P-value
		> 40	<= 40		
ME86-Symptom or complaint of a body part	Yes	79	28	32.532	0.0000
	No	37	69		
MG30-Chronic pain	Yes	250	26	29.044	0.0000
	No	122	50		
ME84-Spinal pain	Yes	114	37	17.673	0.0000
	No	72	67		
ME82-Pain in joint, hip joint	Yes	13	3	6.471	0.0110
	No	18	23		
6A73-Mixed depressive and anxiety disorder	Yes	36	2	5.445	0.0196
	No	10	4		
RA02-Post COVID-19 condition	Yes	30	2	4.237	0.0396
	No	17	6		
QE01-Stress, not elsewhere classified	Yes	66	5	2.726	0.0987
	No	40	8		
6B00-Generalised anxiety disorder	Yes	116	13	1.986	0.1588
	No	53	11		
6B40-Post traumatic stress disorder	Yes	29	9		
	No				
		1,102	363	236.201	0.0000

The p-value is 0.0000. significant at $p < 0.05$.