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Abstract 7: Epidemiological study of causal link between Ongoing traumatic or stressful events (OTS) and stress anxiety spectrum (SAS) among nine medical conditions in 855 patients, Chiren Therapy Centre, Limerick, Ireland, (September 2029 -September 2023).

Objectives:
To investigate the causal link between OTS event and SAS, accounting for confounding factors in 855 patients first visit.

Background:
The understanding of ongoing traumatic or stressful events and their impact on health or chronic diseases is still under investigation. As part of our routine assessment, we included an open question: "Is there any traumatic or stressful situation ongoing?" (Yes or No), among patients who had already confirmed exposure to a traumatic or stressful event. Additionally, 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. This study aims to unravel the causal pathways by investigating how exposure to ongoing traumatic or stressful events affects the onset of SAS among nine medical conditions. Our null hypothesis posits no causal effect between ongoing 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?”. If answer is “YES” the practitioner, ask the patient “Is there any traumatic or stressful situation ongoing?” (Yes, or No), answers are recorded. SAS scores were derived from a comprehensive list of 40 symptoms, with intensities rated on a 0 to 10 scale. SAS scores categorized patients as functional stress (≤40) or dysfunctional stress (>40), additionally, we calculated OTS by SAS intensity. 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:
The statistical analysis reveals significant associations between exposure to OTS and SAS scores (Chi-square = 33.109, $p < 0.0000$), age group (Chi-square = 48.91, $p = 0.0000$), and gender (Chi-square = 40.567, $p = 0.0000$), as summarized in Table 1. Additionally, significant associations were observed between exposure to OTS events and overall health outcomes based on ICD11 codes (Chi-square = 78.84, $p < 0.0000$), as shown in Table 2, which outlines specific health conditions analyzed. Notably, Post-Traumatic Stress Disorder (PTSD) (ICD 11 code: 6B40) exhibited a significant association with OTS exposure (Chi-square 5.505, P-value 0.019), while some ICD 11 codes showed no significant association. Patients exposed to OTS and identified as "YES" by SAS demonstrated a 22% increase in SAS intensity (Figure 1).

Interpretation:

The statistical analysis has shown a robust association between exposure to OTS and SAS scores, further validated through stratified data analysis by age groups and gender. Particularly notable are the observed associations with various health outcomes categorized by ICD-11 codes. This highlights the intricate interplay between psychological factors such as stress and anxiety and physical health outcomes, emphasizing the complexity of pain perception. The identification of significant associations, especially with PTSD (ICD 11 code: 6B40), suggests the novel nature of these findings, as they were not previously detected. The increase in SAS intensity among patients exposed to OTS indicates a direct association between exposure and symptom severity. In clinical practice, exposure to OTS produces a prolonged delay in patients' recovery, which will be addressed in another paper. Further studies are warranted to delve deeper into these results, exploring potential mechanisms underlying the observed associations and elucidating strategies for mitigating the adverse effects of OTS events on health outcomes.

References

Chiu, Henry Tak Shing, Angel Hiu Tung Chan, and Richard Meiser-Stedman. "Relationship between anxiety sensitivity and post-traumatic stress symptoms in trauma-exposed children and adolescents: a meta-analysis." *Cognitive Therapy and Research* (2023): 1-11.

Figure 1. Distribution of Ongoing traumatic or stressful (OTS) event, by stress anxiety spectrum (SAS) intensity in 855 patients. Chiren Therapy Centre, Limerick, Ireland, September 2019 - September 2023.

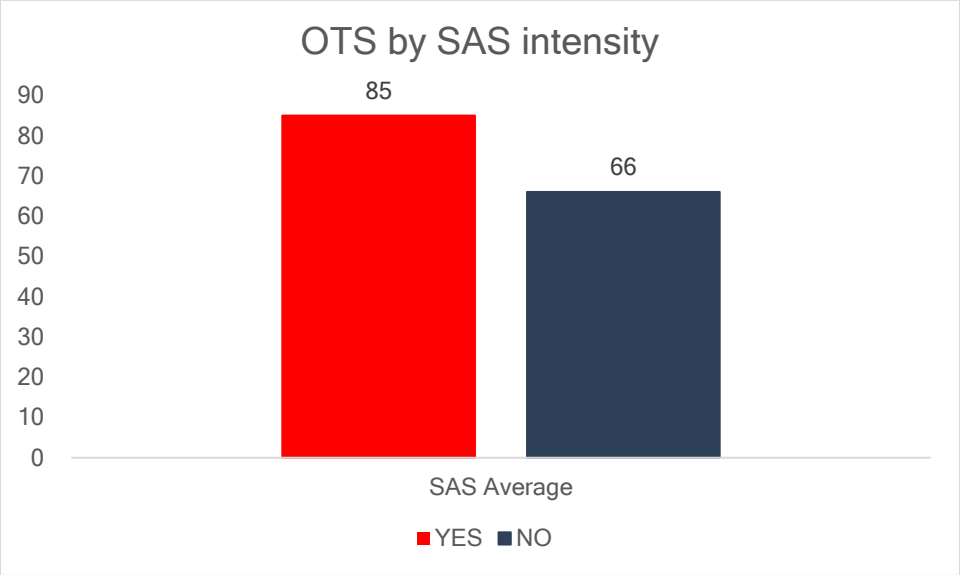

Table 1. Causal link between Ongoing traumatic or stressful (OTS) events and Stress Anxiety Spectrum (SAS) in 855 patients, stratified by Age group and gender. Chiren Therapy Centre, Limerick, Ireland, September (2019 to September 2023).

		SAS			
	OTS	> 40	<= 40	Chi-Square	P-value
	Yes	472	45		
	No	261	77		
	Grand Total	733	122	33.109	0.0000
	The p-value is 0.0001. significant at p < 0.05.				
Age group	OTS	> 40	<= 40	Chi-Square	P-value
<= 40	Yes	115	11	4.283	0.0385
	No	82	18		
> 40 to 60	Yes	272	24	12.6451	0.0004
	No	133	32		
> 60	Yes	85	10	16.83	0.0000
	No	46	27		
Grand Total		733	122	48.91	0.0000
	The p-value is 0.0000. significant at p < 0.05.				
Gender	OTS	> 40	<= 40	Chi-Square	P-value
F	Yes	334	25	22.473	0.0000
	No	184	46		
M	Yes	138	20	10.659	0.0011
	No	77	31		
Grand Total		733	122	40.567	0.0000
	The p-value is 0.0000. significant at p < 0.05.				

Table 2. Causal link between Ongoing Traumatic or Stressful (OTS) events and Stress Anxiety Spectrum (SAS) in 855 patients, stratified by ICD 11 codes. Chiren Therapy Centre, Limerick, Ireland, September 2019 to September 2023.

ICD 11 Codes	OTS	SAS > 40	SAS <= 40	Chi-Square	P-value
ME86-Symptom or complaint of a body part	Yes	46	5	13.507	0.0002
	No	33	23		
MG30-Chronic pain	Yes	153	10	5.036	0.0248
	No	97	16		
ME84-Spinal pain	Yes	69	13	7.258	0.0071
	No	45	24		
ME82-Pain in joint, hip joint	Yes	11	1	3.418	0.0645
	No	2	2		
6A73-Mixed depressive and anxiety disorder	Yes	25	2		
	No	11			
RA02-Post COVID-19 condition	Yes	26	3		
	No	3	3		
QE01-Stress, not elsewhere classified	Yes	58	4	0.261	0.6094
	No	8	1		
6B00-Generalised anxiety disorder	Yes	68	7	0.109	0.7413
	No	48	6		
6B40-Post traumatic stress disorder	Yes	28	5	5.505	0.019
	No	1	1		
		732	126	78.84	0.0000
	The p-value is 0.0000. significant at $p < 0.05$.				