

In this report, we analyze the difference in comfort level of diagnosing and treating pediatric autoimmune neuropsychiatric disorder associated with streptococcal infections (PANDAS) before and after completing a 30-minute educational module on the topic. Data gathered were based on survey responses before and after completing the educational module. 34 pre survey responses were recorded, while 27 post survey responses were completed. To analyze the differences, pre and post survey responses had to be matched. Because of the anonymous nature of the survey, no unique identifiers were recorded, so IP addresses recorded by Qualtrics were used to pair the before and after responses. As not every respondent used the same device to take the preliminary survey and the follow-up survey, several responses had to be removed from the study. Seven respondents completed a preliminary survey but did not complete the follow-up survey, meaning these seven pre-survey responses had to be removed as well. This left us with 20 paired pre and post survey responses. Due to the qualitative nature of the data and the small sample size, analysis on the difference in comfort level was done using Fisher's exact test with p-values calculated by Monte Carlo simulation. An important consideration when using this test is the assumption that all observations are independent and mutually exclusive. In this case, no one individuals responses should have influenced another's, and each response belongs exclusively to one defined category, so each of these assumptions is satisfied.

Below we show the contingency table for the recorded comfort level in diagnosing PANDAS before and after the educational module:

POST STUDY DIAGNOSING COMFORT LEVEL						
PRE-STUDY DIAGNOSING COMFORT LEVEL	Extremely Uncomfortable	Somewhat Uncomfortable	Neither Uncomfortable nor Comfortable	Somewhat Comfortable	Extremely Comfortable	Total
	Extremely Uncomfortable	0	0	3	7	10
	Somewhat Uncomfortable	0	1	1	5	8
	Neither Uncomfortable nor Comfortable	1	0	0	0	1
	Somewhat Comfortable	0	0	0	1	1
	Extremely Comfortable	0	0	0	0	0
	Total	1	1	4	13	20

Performing Fisher's exact test on the given contingency table, we calculate a p-value of 0.264. The test is unable to confirm that there is a significant difference in comfort level of diagnosing PANDAS before and after the educational module.

We now show the contingency table for recorded comfort level in treating PANDAS before and after the educational module:

		POST STUDY TREATMENT COMFORT LEVEL					Total
PRE-STUDY TREATMENT COMFORT LEVEL		Extremely Uncomfortable	Somewhat Uncomfortable	Neither Uncomfortable nor Comfortable	Somewhat Comfortable	Extremely Comfortable	
	Extremely Uncomfortable	0	2	3	6	1	12
	Somewhat Uncomfortable	0	1	2	1	0	4
	Neither Uncomfortable nor Comfortable	1	0	0	0	0	1
	Somewhat Comfortable	0	0	0	2	1	3
	Extremely Comfortable	0	0	0	0	0	0
	Total	1	3	5	9	2	20

Performing the same test on this contingency table, we get a p-value of 0.361. Again, we are unable to say that there is a significant difference in comfort level in treating PANDAS before and after the educational module.

Despite the failure to prove significance in either of these cases, this test does appear to be approaching significance, and the visual test of the contingency tables above confirms this. 10 respondents claimed extreme discomfort in diagnosing PANDAS in the pre-survey, and seven of them claimed to be "somewhat comfortable" in the post-survey. (the other three claimed neither comfort nor discomfort). Similar results can be seen in the "Treatment Comfort" data. Ultimately, the failure to claim significance may be due in large part to the very small sample size given.

In addition to getting a clearer picture of any significance that may or may not be present, an increase in sample size would also allow for further analysis. The pre-survey included several questions such as licensure, years practicing and past experience with PANDAS. Unfortunately, this data was not able to be included in the study. However, were the sample size increased significantly, further analysis could be done to see whether the educational module had a different impact on relatively inexperienced subjects vs. experienced subjects, for example.

Increasing the sample size may still provide insignificant results, however there may be enough evidence to warrant an expanded study to determine the true effects of the educational module, along with the added benefit of increased analysis.