

P90 Sentiment analysis of open-text survey responses: Using PROMs to assess differences in affective states

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Objective: Sentiment analysis is a lexicon-based approach to assess the affective state of a sentence or piece of open text by using a polarity score. This is a continuous score that ranges from -1 (negative) to +1 (positive) based on the relative amount of positive/negative words used in a sentence. In this study we apply sentiment analysis to an open-text question on the impact of the pandemic regulations on the lives of children.

Methods: During the COVID-19 pandemic we asked children (age 8 to 18 years old) an open question regarding the impact of the pandemic regulations on their lives at seven different occasions. We calculated a polarity score for each response and provide mean polarity scores and percentages of positive (>0.03), negative (<-0.03) and neutral responses. Subsequently, we split the group into children with/without (sub)clinical anxiety scores (T-score > 50.6 on PROMIS Anxiety) and compared the mean polarity scores by independent T-test (total and per topic emerging from a structural topic model), where a Cohen's D >0.2 was considered as at least a small, relevant effect.

Results: In total there were 7604 responses from 3821 children. The sentiment analysis shows that overall children mainly had negative responses (polarity = -0.09 , 49% of responses negative) to the pandemic regulations. Children with (sub)clinical anxiety scores were more negative on average (-0.12 vs -0.06 , Cohen's D = -0.14). From eight topics (adaptation/resilience, distress, social distancing measures, bonding, activities/boredom, future perspectives, homebound (school closures) and lack of celebratory events) differences between children with (sub)clinical anxiety and children without (sub)clinical anxiety were only found on the topics adaptation/resilience (-0.19 vs -0.10 polarity; Cohen's D = -0.24 , 59% vs. 49% negative responses) and distress due to lockdown (-0.06 vs 0.02 polarity; Cohen's D = -0.20).

Conclusions: Performing sentiment analysis allows us to quickly assess the affective states of respondents from open-text. Combining it with PROMs can be used to assess how outcomes are related to the affective states, which provides us with additional insights of possible relationships between children's mental health and open-text responses.