

The Effect of Online Harassment on Adolescent Mental Health

Ben Levy

Abstract

Objective: Research on the mental health impacts of harassment on social media is lacking in terms of detection directly from adolescents' communications with others. Thus, this study explores how US adolescents express the mental health effects of cyber harassment.

Methods: Machine learning algorithms were applied to two datasets: Reddit mental health subreddit posts and an Instagram data donation dataset. Various posts from a myriad of mental health subreddits (e.g., r/SuicideWatch) and general subreddits (e.g., r/AskReddit) were collected and used to train classifiers to identify potentially indicative messages of mental health issues. Several machine learning classifiers were tested, including k -nearest neighbors, multi-layer perceptron neural networks, support vector machines, and logistic regressions, and the best model was utilized for further analysis. Using these trained classifiers, private messages involving adolescents on Instagram were analyzed using the selected mental health classifier.

Results: Using a multi-layer perceptron neural network (F1-score=0.85), we found that US adolescents do express their mental health effects of online harassment, as messages revealed a high frequency of depression (44.8%), stress (42.0%), and a low frequency of suicide (1.6%).

Conclusions: Through the use of a multitude of machine learning models trained to classify various mental health responses on social media, this study reveals an understanding of how US adolescents express the mental health effects of online harassment. Our findings contribute to the field of cyberbullying in terms of better-targeting adolescents for various treatments/support methods. With future research examining the correlation of mental health effects of online harassment among US adolescents to race and research verifying our findings, we encourage social media platforms to utilize mental health classifiers similar to the ones presented in our study to assist adolescent victims of harassment online.