

Effectiveness of Simulation-based Activity Regarding Cyberbullying on Anxiety, Aggression and Self-esteem among Adolescents: A Pilot Study

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ABSTRACT

Introduction: Cyberbullying has emerged as a major psychosocial and public health concern among adolescents due to increased use of smartphones, social media, and online communication. Victims often experience anxiety, aggression, emotional distress, and low self-esteem, adversely affecting their academic and psychosocial wellbeing. Simulation-based educational activities may help adolescents develop awareness, coping skills, empathy, and emotional regulation related to cyberbullying.

Aim: To assess and compare anxiety, aggression, and self-esteem among adolescents before and after a simulation-based cyberbullying activity in experimental and comparison groups; to identify relationships among anxiety, aggression, and self-esteem; and to determine associations between these variables and selected demographic characteristics.

Materials and methods: A quantitative quasi-experimental non-equivalent control group pre-test post-test pilot study was conducted among adolescents aged 15–18 years in selected schools of Ambala, Haryana. Initially, 200 adolescents were screened using the Modified European Cyberbullying Intervention Project Questionnaire (ECIPQ). Forty cyber-victimised adolescents were selected through total enumerative sampling and assigned to experimental (n=20) and comparison (n=20) groups. The intervention consisted of a 25-minute simulation-based activity including animated cyberbullying

scenarios, coping strategies, empathy training, and group discussion. Data were collected using the Cyberbullying-Related Anxiety Scale, Modified Aggression Scale, and Rosenberg Self-Esteem Scale. Statistical analysis was performed using descriptive and inferential statistics in IBM SPSS. Sample size for the main study was estimated using G*Power software (effect size $d=0.50$, $\alpha=0.05$, power=0.95), resulting in a final estimated sample of 250 adolescents after accounting for attrition.

Results: In the experimental group, anxiety scores significantly decreased from 48.35 ± 8.24 to 31.10 ± 6.42 ($t=8.96$, $p<0.001$), while aggression scores reduced from 39.80 ± 7.16 to 24.65 ± 5.83 ($t=7.84$, $p<0.001$). Self-esteem scores improved from 18.75 ± 4.52 to 29.40 ± 5.11 ($t=-9.12$, $p<0.001$). No significant changes were observed in the comparison group. Anxiety showed a positive correlation with aggression ($r=0.62$, $p<0.001$) and a negative correlation with self-esteem ($r=-0.58$, $p<0.001$). Minimal attrition (<5%) confirmed study feasibility.

Conclusion: The pilot study demonstrated that simulation-based cyberbullying intervention is feasible and effective in reducing anxiety and aggression while improving self-esteem among adolescents, supporting its integration into school health nursing programmes.

Keywords: Aggression, Anxiety, Cyberbullying, Simulation based learning, Self-esteem.

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