Effects of health empowerment intervention on resilience of adolescents in a tribal area: A study using the Solomon four-groups design

Kaushik Sarkar a, *, Aparajita Dasgupta a, Multipada Sinha b, Bhaskar Shahbabu a

a Department of Preventive & Social Medicine, All India Institute of Hygiene & Public Health, Kolkata, India
b Jadavpur University, Kolkata, India

abstract

Rationale: Resilience prevents the emergence of stress-related mental health problems among adolescents. Adolescents in tribal areas of India are more prone to develop such problems.

Objectives: The primary objective was to determine the effect of combined life skills-based health empowerment intervention on the resilience of school-going adolescents in a tribal area. The secondary objectives were to determine the effect of the intervention on internal health locus of control and self-determination and to compare the effect of intervention on resilience between non-tribal and tribal adolescents.

Methods: We conducted this quasi-experimental study using a Solomon four-group design among 742 adolescents in two schools of Purulia, West Bengal, India. Students of the pretested group were examined for resilience using the Child Youth Resilience Measurement scale. A life skills education-based health empowerment intervention was administered among students of the experimental group. Post-test data on resilience, self-determination, internal health locus of control and pathological behaviour was obtained 3 months after the completion of intervention. A multi-level general linear mixed model was constructed to determine the effect of intervention on resilience.

Results: Resilience was less among tribal adolescents at baseline. The intervention significantly improved resilience \(\beta_{\text{Adjusted}} = 11.19 (95\% CI = 10.55, 11.83)\), with a greater increase for tribal adolescents \(\beta_{\text{tribal-nontribal}} = 1.53 (95\% CI = 0.03, 3.03)\). The intervention also significantly improved internal health locus of control (marginal mean increment 1.38 ± 0.05), self-determination (marginal mean increment 3.71 ± 0.09) and reduced pathological behaviour of the adolescents.

Conclusion: Our study informed the current health policy that the existing life skills education-based programme should be reviewed and modified to include generic life skills, and the life skills education-based programme should be coupled with developmental interventions aimed at improving adult education and family climate for optimum effect on mental health and health behaviour of adolescents.

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behavioural disorders among vulnerable adolescents who are exposed to different forms of stressful situations. This ability of a vulnerable individual to cope in the presence of an adverse situation is labelled resilience (Zimmerman, 2013). Researchers have argued that two conditions are critical for defining resilience: (a) ‘exposure to significant threat or adversity’ and (b) ‘achievement of positive adaptation despite major assaults on the developmental process’ (Luthar et al., 2000).

Examples of threats and stressors that individuals may face include poverty, violence, disaster and war. Positive adaptations include a positive view of self, high intellectual functioning, effective self-regulations of emotions and attachment behaviour, converting traumatic helplessness to learned helplessness, and actively coping with stressors (Charnley, 2003). It has been reported that low stress resilience in adolescence is associated with greater risk of receiving medications for depression and anxiety in middle age (Hiyoshi et al., 2015).

Two resilience characteristics determine positive health behaviours and actions of adolescents: self-determination and internal health locus of control (internal HLC). Self-determination indicates the self-control of an individual over his/her behaviour and health-related actions, and is also related to autonomy in making the best decision out of available alternatives of behaviour or action to ensure a rewarding health outcome (Deci and Ryan, 2012; Ryan et al., 2012). Health locus of control (HLC), on the other hand, is a multi-dimensional construct that indicates the health expectancy of an individual. An individual with an internal HLC believes that health outcomes are related to one’s own ability and effort. These individuals perceive that they have the power to retain the reward by modifying their own behaviour (Keedy, 2009; Wallston and Wallston, 1978; Wallston et al., 1978a; Wallston, 1992, 1982). This perception ultimately ensures the reinforcement of health behaviour and consequently the sustenance of a behaviour promoted by behaviour change interventions (Bell et al., 2002; Kaplan and Cowles, 1978; Karsten, 2006; McLeod, 2013; Shipley, 1981).

In recent years, a growing set of literatures has recommended interventions targeted to increase resilience and its characteristics—self-determination and internal HLC—to prevent the emergence of mental health and health behaviour-related problems among at-risk adolescents. In community psychology, empowerment has been shown as an effective method to increase resilience, and it is also closely associated with the development of internal HLC and self-determination (Brodsky and Cattaneo, 2013). A popular form of strength-based intervention is life skills education (LSE), which concentrates on five basic areas: (a) decision-making and problem solving, (b) creative thinking and critical thinking, (c) communication and interpersonal skills, (d) self-awareness and empathy, and (e) coping with emotions and stress (World Health Organization, 1999).

In India, the NIMHANS Life Skills Education Group developed a programme and modules for health promotion using life skills approach for adolescents in schools, which was intended to be implemented by school teachers to develop one or more life skills of students (Srikantha et al., 2002). The School Health Programme of India focuses on development of life skills by using the LSE as a non-curriculum-based programme. The existing LSE module includes health promotion interventions such as nutrition, reproductive health, and hygiene, in which it was conceptualized that specific life skills would be enhanced and/or developed through the approach of each intervention. For example, enhancing nutrition intervention through game play or group discussion would result in the development of critical thinking, creative thinking, and problem solving (Srikantha et al., 2002).

An experimental study among students aged 14–16 years in South India assessed the impact of this programme using the Rosenberg scale of self-esteem, preadolescent adjustment scale, generalized self-efficacy scale, strengths and difficulties questionnaire (SDQ) (self-report version) and classroom indicators. Despite observing that the adolescents in the intervention group adjusted better to the school and teachers compared to the students in the control group, and had higher confidence levels regarding their ability to deal with developmental challenges, researchers found that there was no difference between the intervention and control groups with regard to psychopathologies assessed by SDQ (Srikantha and Kishore, 2010). Moreover, there is no evidence, so far, of equal improvement among those who are marginalised and particularly at risk by this programme. Literature suggests that the success of LSE depends on the fidelity of implementation, which is ‘the extent to which the critical components of an intended program are present when that program is enacted’ (Century et al., 2010; Hodge et al., 2012). In this context, it was hypothesised that administering interventions to develop specific life skills prior to delivering health-specific interventions in separate sessions and by trained educators would increase fidelity of implementation and would produce desired increase in resilience and its components compared to no intervention among school-going adolescents.

We conducted this study to inform the current health policy regarding the effect of a short-term modified LSE-based empowerment intervention on the resilience of school-going adolescents in a tribal area of West Bengal. The secondary objectives were to determine the effect of the modified intervention on internal HLC and self-determination and to compare the effect of intervention on resilience between non-tribal and tribal adolescents.

1. Method

1.1. Study design

We conducted this school-based quasi-experimental study using the Solomon four-group design to obviate the potential bias due to pre-test sensitization (LeBuffe, 2002).

1.2. Study area and study period

The study was conducted in Purulia district of West Bengal during a period of 24 months from 2013 to 2015. Approximately, one-fifth of the district’s population is tribal, and majority are residents of rural areas (West Bengal Directorate of Census...
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