

## 論文の内容の要旨

論文題目 Effect of psychosocial support training by school teachers on improving mental health and hope of school going adolescents in earthquake-affected district in Nepal

(ネパール地震被災地において教師による心理社会的サポートが思春期学童へのメンタルヘルスと希望に及ぼした効果)

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### **Abstract**

#### **Background**

Adolescents are prone to mental health problems such as post-traumatic stress disorder (PTSD) and depression which could become worse in the aftermath of disasters. However, some adolescents can have better hope that helps them to cope with the challenges following adverse events such as earthquake.

Nepal is a low income and disaster prone country that ranks 11<sup>th</sup> for earthquake risks in the world. In April 2015, the country faced a devastating earthquake of 7.8 Magnitude that killed thousands of people.

The adolescents comprise 11.8% of the total population in Nepal. However, they did not receive enough psychosocial support after the earthquake. The damage caused by earthquake was further worsened by the political instability in the country leading to delay in reconstruction work in earthquake-affected areas. Difficult circumstances following the earthquake could have affected the mental health of adolescents negatively. However, the evidence on mental health status of adolescents following massive disaster such as earthquake remains inadequate.

For resource poor and disaster prone settings such as Nepal, school teachers can provide timely psychosocial support that could improve mental health and hope among adolescents. School based teacher mediated interventions could be more sustainable and feasible in the complex scenario of post-disaster settings. However, evidence on teacher mediated interventions in low resource disaster settings remain inadequate.

Therefore, I first assessed the status of PTSD, depression and hope among adolescents and examined the factors associated with them in earthquake affected districts of Nepal. I then examined the effect of training school teachers to provide psychosocial support among the adolescents' PTSD and depression symptoms, and hope.

#### **Methods**

I conducted this cluster RCT in schools of Dhading, a severely affected district by earthquake in Nepal. The trial has been registered with ClinicalTrials.Gov. under following registration number: NCT03387007, retrospectively. The district was selected by convenience and a list of total 15 government secondary schools within the municipality of the district was first identified. I then divided the schools into

pairs based on similar characteristics such as geographical location, remoteness and school infrastructure based on the suggestions from the district education office. One school from each pair was randomly assigned to either intervention or control group. However, schools included in this study were in odd numbers. The remaining school without a pair in each district was randomly assigned to either intervention or control group as well. As a result, 8 were in intervention group and 7 in control group. I collected the data of the students from each school through simple random sampling method. I consulted the school teachers and prepared a list of total students from grade six, seven and eight in each school. The average number of students in each grade was around 40 to 50 and the average daily attendance rate was around 75 to 80% in most schools.

I calculated the sample size based on the mean values of Child PTSD symptom scale (CPSS) from a similar study conducted in Nepal. The mean scores of CPSS in the previous study for two groups were 17.7 (SD 5.0) and 18.6 (SD 5.3). The minimum required sample size for this study was calculated to be 498 for each group with a power of 80% and 5% level of significance; the total minimum required sample size was calculated to be 996.

Considering loss to follow up, the sample size was extrapolated. A total of 1500 adolescents were screened for eligibility with an attempt to collect 100 students from each school. After exclusion, a total of 1220 adolescents were recruited in this study, of which 1070 were available for the follow up.

The intervention for this study was schoolteachers' training on psychosocial support. A clinical psychologist who had worked closely with the children and adolescents provided 2-day (a total of 16 hours) training on psychosocial support for the schoolteachers. I adapted the standard training guidelines based on the United Nations Relief and Works Agency on psychosocial support for education in emergencies. The training provided basic skills to the schoolteachers so that they will be able to support the psychosocial wellbeing of children affected. A total of 16 teachers participated in the training with 2 teachers from each intervention school.

I used the validated tools available in Nepali language that were designed for children and adolescents aged 11 years and above. I adopted the socio-demographic variables from Nepal Adolescents and Youth Survey. The variables included gender, age, living arrangement and family size. The primary outcome variable of this study was PTSD symptoms, and the secondary outcomes were depression symptoms and hope. For PTSD symptoms, I used Child PTSD symptom scale. For depression symptoms, I used Depression Self Rating Scale, and for hope, I used Children's Hope Scale. I collected the baseline data in August 2016 in Dhading. I collected follow up data in February 2017. Data was collected in classrooms during school hours and the questionnaires were self-administered by the adolescents.

The Research Ethics Committees of the Graduate School of Medicine at the University of Tokyo and Nepal Health Research Council reviewed and approved the study protocol. The District Education Offices of both districts and the school principals of all schools provided permission for the adolescents from selected grades to participate in the study within the school hours. I also obtained written informed

assent from the adolescents and written informed consent from their guardian at the baseline, for both baseline and follow up. I ensured the adolescents participated voluntarily and maintained their confidentiality.

I conducted both bivariate and multivariable analysis. I conducted chi squared test and independent sample t-tests to assess the difference between the intervention and control groups at baseline and follow up. I then used generalized estimating equation (GEE) model with both unadjusted and adjusted models to examine the effect of teachers training on PTSD and depression symptoms, and hope among the adolescents. I used PASW Statistics 18.0 (SPSS Inc., Chicago, Illinois, USA) for all statistical analyses and a *p* value of less than 0.05 as the significance level for all analytical procedures.

Focus group discussion was conducted with trained and untrained teachers from the 8 intervention schools as part of the process evaluation of the intervention.

## **Results**

A total of 1500 adolescents were assessed for eligibility of which 1220 adolescents participated in the baseline study. A total of 280 students were excluded from the study due to absence of consent from the guardians or refusal to participate. A total of 605 adolescents belonged to intervention group and 615 to control group. At six- month follow up, a total of 511 adolescents were available from intervention group and 556 from control group for the study. The follow up rate was 91% for the intervention group and 83% for the control group. The main reason for loss to follow up was due to absenteeism on the day of data collection. The average school attendance was around 75% to 80% in every school.

The mean age was almost 13 years in both groups. No significant difference was identified in gender between the intervention and control groups. More than 60% of the adolescents lived with both parents in the intervention and control groups. The mean family size was almost 5 in both groups.

No major differences were identified for PTSD symptoms between the intervention and control groups. However, mean score of PTSD symptoms among adolescents at baseline in the intervention group (mean 16.4, SD 7.9) was slightly lower than those in the control group (mean 17.4, SD 8.1,  $p=0.025$ ). No significant difference was determined for PTSD symptoms at follow up between intervention and control group.

The mean score for depression symptoms at baseline was also slightly lower among adolescents in intervention group (mean 12.7, SD 3.6) than those in the control group (mean 13.2, SD 3.6,  $p=0.037$ ). At follow up, no significant difference was determined for depression symptoms between the groups. No significant difference was determined for hope at baseline between intervention and control groups. No significant difference was determined for hope between the groups at follow up as well.

The intervention did not show significant effect on the PTSD symptoms at six months follow up. The PTSD symptoms scores were significantly lower in the intervention group ( $\beta=-1.02$ ,  $P=0.025$ ) at baseline. The intervention also did not show significant effect on the depression symptoms at six month follow up. However, the depression symptoms scores were significantly lower in the intervention group

( $\beta=-0.42$ ,  $p=0.039$ ). There were no significant change in depression symptoms over time between baseline and follow up. The intervention did not show significant effect on the hope scores at six months follow up. No significant change in hope was observed over time between baseline and follow up. Moreover, no significant difference in intervention and control groups were observed.

The qualitative findings suggested that majority of the teachers found the training to be useful and indicated the need to scaling up such trainings.

## **Conclusions**

In this study the intervention did not show significant effect on reducing PTSD and depression symptoms and improving hope among the adolescents. The intervention on training school teachers to provide psychosocial support to adolescents seems feasible to reach out to adolescents in low resource and disaster prone settings.

The training on psychosocial support was perceived to be useful by the teachers. Training more teachers on psychosocial support and for longer duration could help improve the level of hope among more adolescents. However, interventions for PTSD and depression may require more focused interventions by health care professionals targeting smaller sub-groups. Moreover, longer follow up is necessary to provide a longitudinal perspective of the changes in status of mental health and hope among the adolescents.