論文の内容の要旨

論文題目　Risk and Protective Factors for Depression, Substance Use, and Risky Sexual Behaviors among Adolescents in Cambodia

和訳　カンボジアにおける青年期の抑うつ、サブスタンスの使用および性的リスク行動に関するリスクと保護要因

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1. Background

The period of adolescence is a time of multiple transitions. These transitions include transition to puberty and transition involving parent-child relationships, school, peers, and cognitive abilities. Given these transitions, adolescents are typically regarded as an especially high-risk group for engaging in health risk behaviors. Epidemiological studies of adolescent health provide a great deal of evidence that psychological problems, substance use, and sexual risk taking are among the most common health problems during adolescence.

Furthermore, research has indicated that health risk behaviors during adolescence are strongly linked to unhealthy habits in adulthood. Therefore, prevention for adolescent health risk behaviors has been described as a cost-effective method for limiting expenses associated with co-morbid health conditions.

In Cambodia, a complex set of circumstances has rendered the country's young people particularly vulnerable to psychological problems and their attendant habitual health risk behaviors. Cambodian adolescents are exposed to anxiety, depression, post-traumatic stress disorder (PTSD), and violence in their parents as a result of torture experienced during the "killing fields" and the civil wars characterizing the period from the 1970s through the 1990s. A disturbing trend of substance use and its consequences, such as violence perpetration and risky sexual behaviors, has become major public concerns. In spite of the alarming situation, research on adolescent health in Cambodia has received limited attention, and consequently, adolescent healthcare has been inadequate.

Empirical research studies have identified the effects of risk and protective factors in different domains such as individual, family, peers, school, and community in predicting adolescent mental health and health risk behaviors. In the literature, mental and psychological problems, health risk behaviors in family members and peers, and exposure to family or community violence are among the most potential risk factors. Regarding protective factors, communication with family, parental monitoring, and school connectedness have been most

frequently described. However, most of the empirical research on adolescent health risk

behaviors has been focused solely on risk factors or protective factors. There has been debate

over which domains of risk or protection are the most potential predictors of certain

adolescent outcomes. Furthermore, research on adolescent health has been mostly

concentrated in the west and other developed countries, while previous studies have indicated

that socio-economic status, culture, and race are among the major factors that may moderate

the effects of risk and protective factors on adolescent health risk behaviors.

Including all of the potential risk and protective factors in a single study would

present a formidable task. We need data that include a wide array of risk and protective

factors as well as measures of different types of adolescent health outcomes. Therefore, many

scholars have recommended that theory-driven models be used to direct the study of

adolescent health risk behaviors. To address this issue, a conceptual model was constructed

for our study under guidance of adolescent social development and behavior models, such as

the socio-ecological framework and the social development model, integrated with findings

from previous studies.

2. Objectives and hypotheses

We conducted this study with two main objectives: (1) to obtain baseline data of

exposure to family and community violence, depression, substance use, and risky sexual

behaviors among adolescent students in Battembang, Cambodia; and (2) to examine the effects of risk and protective factors in individual, family, peer, school, and community domains in predicting adolescent depression, substance use, and risky sexual behaviors. We hypothesized that risk factors would be positively associated with all the adolescent outcomes examined in this study (e.g., depression, substance use, and risky sexual behaviors), while protective factors would be inversely associated with these outcomes.

3. Methods

From October 2007 to January 2008, we conducted this study in Battembang provincial town. The "Probability Proportional to Size" sampling was used to select 10% of male and female adolescents from a name list of students in each classroom in grades 7 through 12 of all five junior high and six high schools in the town. In total, we included 1,943 students in this study. This study was approved by the Ethical Committee of the University of Tokyo, Japan and the National Ethics Committee for Health Research, Ministry of Health, Cambodia.

The expected risk factors for depression, substance use, and risky sexual behaviors included peer delinquency, family-violence victimization, family-violence witnessing, community-violence victimization, and community-violence witnessing. In addition, depression was in turn considered as a risk factor for substance use and risky sexual

behaviors, and substance use was in turn considered as a risk factor for risky sexual behaviors. Protective factors included family support function, family dinner frequency, and school attachment.

Standardized scales were adapted from previous studies to measure the expected risk and protective factors. We used the Asian Adolescent Depression Scale (AADS) to assess depression. To measure adolescent substance use, we collected information regarding the use of illicit drugs (methamphetamine, heroin, ecstasy, inhalants, cocaine, or marijuana), alcohol drinking (at least a full glass of beer, wine, or liquor), and smoking (at least a whole cigarette) during the past three months. Based on the 'gateway drug theory,' we used these three items to constitute a substance use scale. Four items constituting a risky sexual behavior scale were adapted from a previous study. We asked whether the participants had engaged in sexual intercourse during the past three months, the number of sex partners during the past three months, the age at the first instance of sexual intercourse, and if the participants used a condom in their last sexual intercourse.

In descriptive analyses, Chi-square test was used for categorical variables. The prevalence of exposure to violence, depression, substance use, and risky sexual behaviors was stratified by gender, age groups, and school-grade groups. The odds ratios (OR) were reported with a 95% confident interval (CI). Means and standard deviations of continuous variables were calculated using t-test and one-way analysis of variance (ANOVA) as

appropriate. Based on our conceptual framework, a structural equation model was constructed. In the model, we included all expected risk and protective factors together with some socio-demographic characteristics including age, gender, family structure, and family income which were found to be potential confounders for adolescent mental health and health risk behaviors in previous studies.

4. Results

Of total, 2.4% of students in this study had a total depression score of 80 or above and were classified as depressed. Regarding substance use, 2.6% of the participants used illicit drugs, 47.4% drank at least a full glass of beer, wine, or liquor, and 9.9% smoked at least a whole cigarette during the past three months. Within the 'gateway drug theory,' 62.0% of the total illicit-drug users were cigarette smokers, and 93.1% of the total cigarette smokers were alcohol drinkers. Regarding risky sexual behaviors, 12.7% reported having sexual intercourse during the past three months. Out of these sexually active students, 34.6% had two or more sex partners during the past three months, and 52.6% did not use a condom in their last sexual intercourse.

Results of structural equation model analyses show that the significant predictors of depression included risk factors such as having been victimized by family violence (Estimate= 0.079, SE= 0.029, CR= 3.157, p= 0.002), higher level of community-violence

victimization (Estimate= 0.057, SE= 0.014, CR= 2.373, p= 0.018), higher level of peer delinquency (Estimate= 0.090, SE= 0.002, CR= 3.685, p< 0.001), and higher level of substance use (Estimate= 0.107, SE= 0.007, CR= 4.095, p< 0.001). Depression was also significantly associated with socio-demographic characteristics including living with a single parent or other adult guardians (Estimate= 0.061, SE= 0.025, CR= 2.373, p= 0.007), lower family income (Estimate= 0.078, SE= 0.025, CR= 3.314, p< 0.001), and female gender (Estimate= 0.130, SE= 0.024, CR= 5.429, p< 0.001). None of the examined protective factors, however, was significantly associated with adolescent depression among adolescent students in this study.

Several risk factors were significantly associated with higher level of substance use including having been victimized by family violence (Estimate= 0.081, SE= 0.092, CR= 3.709, p< 0.001), higher level of community-violence victimization (Estimate= 0.047, SE= 0.045, CR= 2.213, p= 0.027), higher level of community-violence witnessing (Estimate= 0.122, SE= 0.026, CR= 5.430, p< 0.001), higher level of peer delinquency (Estimate= 0.162, SE= 0.005, CR= 7.651, p< 0.001), and depression (Estimate= 0.082, SE= 0.073, CR= 4.095, p< 0.001). Higher level of substance use was also associated with other factors such as family dinner frequency (Estimate= - 0.053, SE= 0.046, CR= - 2.654, p= 0.008), older age (Estimate= 0.213, SE= 0.017, CR= 10.451, p< 0.001), and male gender (Estimate= 0.282, SE= 0.073, CR= 13.996, p< 0.001).

The significant predictors of risky sexual behaviors included having been victimized by family violence (Estimate= 0.068, SE= 0.072, CR= 2.767, p= 0.006), higher level of peer delinquency (Estimate= 0.079, SE= 0.004, CR= 3.284, p= 0.001), and higher level of substance use (Estimate= 0.214, SE= 0.018, CR= 8.342, p< 0.001). Regarding socio-demographic characteristics, higher level of risky sexual behaviors was significantly associated with higher family income (Estimate= 0.059, SE= 0.059, CR= 2.529, p= 0.011), older age (Estimate= 0.138, SE= 0.014, CR= 5.910, p< 0.001), and male gender (Estimate= 0.055, SE= 0.060, CR= 2.307, p= 0.021). In contrast, none of the examined protective factors was significantly associated with risky sexual behaviors among adolescent students in this study.

5. Conclusions

Multiple risk factors in different domains play important roles in predicting adolescent depression, substance use, and risky sexual behaviors, while the examined protective factors in both family and school domains have only limited impacts among adolescent students in this study. Prevention and intervention efforts should focus more on the reduction of these risk factors. Future research should explore other constructs of risk and protective factors in each domain that might influence adolescent health risk behaviors in rural Cambodia.