Executive Summary

□ Introduction

Suicide is becoming an issue of the Korean society that needs urgent attention recently. The suicide rate has rapidly increased from 9.1 per 100,000 people in 1985 and 10.6 per 100,000 people in 2000 to 31.7 per 100,000 people in 2011. As for the age group, the number one cause of mortality in teens, twenties and thirties is suicide. While the total number of deaths in teenage adolescents is decreasing since 2000, the suicide rate is showing a tendency to increase in percentage.

Although there is an opinion that adolescent suicide is a complex result arising from various causes like school and home in a broad sense, and sleeping hours and psychiatric disroders in a narrow point of view, but a wholistic and systemic research on these various risk factors is insufficient. This research aims to provide the basis of policy to prevent suicide through researching the risk factors of adolescent suicide in Korea.

□ Risk factors reported in Korean studies

○ Study method

In previous researches in Korea, the factors reported as risk factors that affect suicide in adolescents were investigated and categorized to be compared with reports from outside Korea, and the method of systemic literature review was applied to find out what factors have the major effects. The search DB used were the domestic core DB, which are KMBase, NDSL, KoreaMed and RISS, and the search date was August 13th, 2012. The keyword was limited to 'adolescent suicide'.

○ Study result

A total of 357 studies (KMBase 63 studies, NDSL 67 studies, KoreaMed

50 studies and RISS 177 studies) were searched. After reviewing the titles, 257 studies were first selected whose full-texts were then reviewed second to choose 75 studies that used suicide attempt and suicidal idea as outcomes.

The variable lists included in the researches and significant variables among them were separately organized by dividing into the suicide idea group and the suicide attempt group in order to find out the general properties of the ultimately selected studies, and 6 studies had suicide idea as the outcome, and 69 studies had suicide attempt as the outcome. For any one reference that reported several outcomes, each outcome was included as one case.

Established reports that categorized the risk factors that affect adolescent suicide include the adolescent suicide risk factor research by Hawton et al. (2012) which proposed sociodemographic and educational factors, negative life incident and family troubles of one individual, psychiatric disorders and psychological factors, description of suicidal behavior and reports of suicide in various media. Similar categorical classification could be made from the research on the domestic studies based on these researches. The risk factors of the suicide attempt group were high in psychiatric disorders, sexual experience and health behavior in descending order. The risk factors of the suicide idea group were other mental illnesses, psychiatric disorders, social factors and sexual experience in descending order, showing a similar pattern to that of the suicide attempt group.

□ The current status and risk factors of adolescent suicide

○ Study method

In order to find out the risk factors of adolescent suicide, Korean Youth Risk Behavior Web-based Survey(KYRBW) that can reflect individual properties were used to discover the relation between suicide attempt and risk factors. The risk factors of suicide attempt were studied by comparing the rate of suicide attempt by each property (attempt, sex, age group) and

using a model of multivariate logistic regression. The same method was used for data that can reflect social and environmental factors.

Second, usable data among factors selected from previous literature review were secured to select data that can reflect the social and environmental factors of the region. Multivariate spatial regression analysis was performed using inter-regional spatial information in order to utilize the secured data and investigate the relevance of social, environmental/individual risk factors of the region and the suicide rate of each region. The count data that includes analysis were converted to standardize per-100,000 people using the number of population. Conditional Autoregressive Model (CAR), one of the Bayesian spatial models, was used to build the model for the Standardized Mortality Rate (SMR) of adolescent suicide in each city using the spatial information between regions.

○ Study result

The data of 2010 Korean Youth Risk Behavior Web-based Survey were analyzed to find out each individual's risk factors of adolescent suicide attempt, and the results showed that the risk of suicide attempt was greater for women aged 12~14 years old with lower academic achievements, lower evaluation (below average) of subjective state of health, lower evaluation (average) of subjective happiness, moderate physical activities for 2~5 days or more, less try for weight control, more stress, more experience of alcohol, smoking and sex, experience of sexual assault, habitual drug abuse, feeling of addiction to internet more or so occasionally, the number of family trip 1~3 trips or more, environment of not living with the father, and depression. Also, 'academic grades' among the causes of stress were used as the criterion for analysis in order to compare the risk of suicide attempt according to the type of stress, and the results showed that conflict with the parents, family circumstances, conflict with the teacher, relationship with friends, health problems and stress of appearance/look all had greater risk than academic grades. The biggest stress among these factors was family circumstances.

Secondary data currently available domestically were gathered to investigate the regional social and environmental factors of adolescent suicide attempt. Such data include the number of psychiatric hospitals and psychiatrist from the annual report of Korean NeuroPsychiatric Association, number of adolescent depression from the bills to Health Insurance review and Assessment Service, the unemployment rate poverty, residence, labor and rate of single-parent family provided by the population census report of the National Statistical Office, current status of young offenders and the total crime incidence for each region using the statistical yearbook of the National Police Agency. The number of suicides were investigated using the mortality cause data of the National Statistical Office from 2001 to 2010. The multivariate spatial regression analysis was performed using the collected secondary data to find out the suicide rate of each region and the relation with the local social and environmental/individual risk factors. The results showed that the suicide rate was significantly higher with more national basic livelihood security recipients, lower unemployment rate (the rate of unemployment in ages 15 years old or older) and more patients treated for depression in the age range of 12~18 years old.

Also, higher area and lower area based on the mortality rate were selected, and a comparative assay for the mean difference between these two areas was performed. The results showed significant difference with the rate of single-parent family, householder with elementary school education or no education, number of national basic livelihood security recipients and the age. Independence was reviewed for adolescent-specific factors, and the results showed significance with the academic background of mother (middle school education or less/high school education or more), recognition of subjective health (recognition of one's health state as average or healthy/unhealthy, very unhealthy), and the number of family trip (none/one or more).

□ Effects of the amount of press reports on adolescent

suicide

○ **Study method**

In order to verify whether the amount of suicide-related press release in Korea affects the number of adolescent suicides between the age of 12 and 25 years old, the amount of press release in Korea corresponding to monthly suicide-related keywords from 2001 to 2010 was investigated and the transfer function model, which is a time-series regression analysis, was applied. For each of 9 data groups composed of sex (whole, male, female) and age (age of 12~18 years old, 19~25 years old and 12~25 years old), three input variables of the number of suicide-related articles, the number of celebrity suicide-related articles and the number of student-related articles and the output variable (the number of actual adolescent suicide) were each made into a model and analyzed.

○ **Study result**

The results of investigating the effects of the number of press release on the number of suicides of adolescents aged 12~25 years old revealed that the number of press release in the relevant month and the previous month affected the number of suicides of adolescents aged 12~25 years old. The age group was then divided into the ages of 12~18 years old and 19~25 years old to find out the effect for each age group, and the number of press release seemed to have significant effect on the suicides of adolescents aged 19~25 years old but no effect on those of 12~18 years ol. The number of celebrity-related suicides, especially, had significant effect on the adolescents of age 19~25 years old regardless of their sex.

□ **Conclusion and Policy recommendations**

There is a limit of interpretation due to limitation of currently available data in 2012, but the following conclusion and policy recommendations can be

deduced.

The results of literature review in Korea has limitation of operant categorization of various factors, but psychiatric disorders of adolescents need to be treated aggressively in order to prevent suicide attempt and idea of adolescents.

Measures in consideration of the risk factors of suicide attempt investigated from analyzing secondary resources and the inclination of suicide method for each age group need to be reflected when designing a suicide prevention program.

The number of national basic livelihood security recipients, unemployment rate (the rate of unemployment in ages 15 years old or older) and inter-regional difference of risk factors of patients aged 12~18 years old treated for depression need to be considered when establishing measures to prevent suicide in each area.

Therefore, there is need for prudent press release in consideration of the effects for each age group and keyword.