



Research report

Age-related differences in the influence of major mental disorders on suicidality: A Korean nationwide community sample



Jee Eun Park^{a,b}, Jun-Young Lee^{a,c}, Hong Jin Jeon^d, Kyung Ho Han^b, Ji Hoon Sohn^{a,b},
Su jeong Sung^{a,e}, Maeng Je Cho^{a,b,*}

^a Department of Psychiatry and Behavioral Science, Seoul National University College of Medicine, Seoul, South Korea

^b Department of Neuropsychiatry, Seoul National University Hospital, Seoul, South Korea

^c Department of Neuropsychiatry, Seoul Metropolitan Boramae Medical Center, Seoul, South Korea

^d Department of psychiatry, Depression Center, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, South Korea

^e Department of psychiatry, Bucheon Geriatric Medical Center, Bucheon, South Korea

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ABSTRACT

Background: We compared the influence of major mental disorders on suicidality according to age, adjusting for suicide-related correlates.

Methods: This study was based on the Korean national epidemiological survey of mental disorders including community-dwelling adults between 18 and 74 years of age ($n=6022$). Subjects were classified into three age groups; young (18–39), middle-aged (40–59), and late adulthood (60–74). Face-to-face interviews were conducted using the Korean version of the Composite International Diagnostic Interview. According to age groups, the influence of major depressive disorder (MDD), anxiety disorder, and alcohol use disorder on risk for suicidality were investigated by multiple logistic regression models adjusting for sex, years of education, marital status, income, employment, presence of chronic medical illness, and lifetime history of suicide attempt.

Results: After including MDD as a covariate, anxiety disorder remained a risk factor only in the middle-aged group (adjusted OR: 2.83, 95% CI: 1.54–5.22), and alcohol use disorder was a risk factor for suicidality only in the young group (adjusted OR: 2.81, 95% CI: 1.06–7.43). Conversely, MDD was the only mental disorder that significantly increased suicidality in all age groups.

Limitations: This was a cross-sectional study and did not include subjects over 75 years of age.

Conclusion: This study showed that the contribution of psychiatric disorders to risk for suicidality varied according to age group. Therefore, strategies for suicide prevention should be specifically designed for different age groups.

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1. Introduction

According to Organization for Economic Cooperation and Development (OECD, 2013) statistics, South Korea has a relatively high suicide rate, at 28.1 per 100,000, which is more than twice the average of OECD countries (12.5 per 100,000). Furthermore, suicide continues to increase steeply every year (Korean National Statistical Office, 2012) and is now regarded as a great social and economic burden. To address this issue appropriately, a study on the risk factors of suicide based on a multilateral and detailed method is necessary.

Although the risk of suicide may be attributed to various socio-demographic factors, one of the main predictors of suicidality is mental disorder (Harris and Barraclough, 1997; Nock et al., 2008). The most common mental disorders in Korea are alcohol use disorder (13.4%), anxiety disorder (8.7%), and major depressive disorder (MDD; 6.7%) (Cho et al., 2011). Among these, MDD has been well established as a risk factor for suicide across all age groups (Beautrais et al., 1996; Kessler et al., 1999; Jeon et al., 2010a; Jeon et al., 2010b), whereas anxiety and alcohol use disorders have shown mixed results. Although many studies reported a positive association between suicide and anxiety disorder (Cox et al., 1994; Kessler et al., 1999; Sareen et al., 2005a; Bolton et al., 2008; Cougle et al., 2009) or alcohol use disorder (Schneider, 2009; Yaldirizli et al., 2010; Whiteford et al., 2013), these two disorders were no longer independently correlated for suicidal behaviors after controlling for comorbid MDD (Beck et al., 1991; Placidi et al., 2000; Rowan, 2001; Conner et al., 2007).

* Corresponding author at: Department of Psychiatry and Behavioral Medicine, Seoul National University College of Medicine, 28 Yeongeong-dong, Jongno-gu, Seoul 110-744, South Korea. Tel.: +82 2 2072 3155; fax: +82 2 7447241.

E-mail address: mjcho@snu.ac.kr (M.J. Cho).

Additionally, the influence of mental disorders on suicidality may differ based on age. However, most previous studies on the association of mental disorders with suicidal behaviors were conducted within a specific age group (Brent, 1995; Almeida et al., 2012; Glaesmer and Braehler, 2012; Jonson et al., 2012). A previous study revealed a different impact of psychiatric disorders according to age (Qin, 2011); recurrent depression increased the risk of suicide especially in the elderly, whereas borderline personality disorder had the strongest effect in young people. However, that study investigated only clinical cases who were admitted with severe illness.

Therefore, we explored age-related differences in the association between suicidality and major mental disorders in a representative community sample. Since the diagnostic criteria of MDD include suicidal contents, whether MDD is independently associated with suicidality is difficult to determine. Therefore, we focused mainly on the differential influence of comorbid anxiety and alcohol use disorders on the risk of suicidality according to age group.

2. Methods

2.1. Data collection and study sample

The 2011 Korean Epidemiologic Catchment Area study (KECA-2011) conducted between July 19, 2011, and November 16, 2011, was a nationally representative survey of major psychiatric disorders. All eligible household residents 18 to 74 years of age, excluding institutionalized people, were included in the survey.

Subjects were selected using a multi-stage, stratified, cluster sampling method based on the 2010 population census data (Korea National Statistical Office, 2011). First, South Korea was divided into six large divisions (primary sampling units) according to administrative districts. Next, 12 catchment areas (secondary sampling units) were selected across these large divisions, considering the population size of each division. Then, three to eight census units per catchment area (tertiary sampling units) were chosen according to probability proportional to the population size. To create sampling units, we adopted the census blocks that were used in the 2010 population census. A total of 246 sampling units were extracted within the 61 subdivisions, and every household in each sampling unit (14,204 households) was regarded as a target of our survey. One individual per selected household was chosen randomly as the respondent in an interview.

Trained field workers conducted a preliminary survey by visiting every household to create a list of eligible subjects. Household visits were repeated at least five times to account for people who were temporarily absent from their homes. Subjects were excluded based on the following criteria: outside the age range, unknown eligibility, not a household, empty house, or unable to contact. From the initially selected subjects between 18 and 74 years of age, a total of 6022 individuals responded to the interview (response rate 78.7%).

All participants were fully informed regarding the aims and methods of the study before completing the interview. Informed consent was obtained prior to participation. This study was approved by the Institutional Review Board of Seoul National University Hospital.

2.2. Measures

2.2.1. Assessment of suicidality

We evaluated suicidality using the modified Suicide Prevention Multisite Intervention Study on Suicidal Behaviors (SUPRE-MISS) employed in a suicide survey by the World Health Organization (WHO) (Bertolote et al., 2005). Among the items, three main questions were used in the present study (Jeon et al., 2010b):

suicidal ideation ("Have you ever seriously thought about committing suicide?"); suicide plan ("Have you ever made a plan for committing suicide?"); and suicide attempt ("Have you ever attempted suicide?"). Each question was followed by sub-questions including age of first onset, age of last onset, and present existence. If a participant experienced any of these items (suicidal idea, plan, or attempt) during the last year, he/she was regarded as having 1-year suicidality.

2.2.2. Assessment of mental disorders

The Korean version of Composite International Diagnostic Interview 2.1 (K-CIDI 2.1) was administered by trained interviewers to all subjects for diagnosis of psychiatric disorders. The CIDI (WHO, 1990) is a fully structured diagnostic interview designed to assess psychiatric diagnoses, as defined in the DSM-IV (American Psychiatric Association, 1994). The K-CIDI was validated by Cho et al. (1999) following the WHO guidelines (WHO, 1997). Blind repeated clinical interviews using the Structured Clinical Interview for the DSM-IV (SCID) and clinical diagnoses were in agreement with K-CIDI diagnoses (Cho et al., 1999). The K-CIDI was also used in previous national mental health epidemiological surveys, 2001 KECA and 2006 KECA-R (Cho et al., 2007; Cho et al., 2010).

2.2.3. Assessment of demographic and clinical correlates

Self-reported demographic characteristics (age, gender, years of education, marital status, income, and employment) and clinical data (chronic medical illness) were collected during the interview. Participants were asked whether they had ever been diagnosed by a medical doctor with hypertension, diabetes, dyslipidemia, heart disease, stroke, or cancer. If any of the four serious diseases that could impact daily life (diabetes, heart disease, stroke, or cancer) were reported, the participants were regarded as having a chronic medical illness.

2.3. Statistical analyses

Demographic variables and the prevalence of one-year suicidality or mental disorders were estimated for three age groups; young (18–39 years), middle-aged (40–59 years) and late adulthood (60–74 years). The descriptive statistics were compared between age groups using Pearson's chi-square test.

Multivariate logistic regression models were used to identify the factors associated with suicidality in each age group. First, multivariate logistic regression analyses were performed for each major psychiatric disorder adjusting for gender, years of education, marital status, income, employment, any chronic medical illness, and history of suicide attempt (Model 1). Next, after including MDD as a covariate, we performed multivariate logistic regression with anxiety and alcohol use disorders (Model 2). To confirm if the influence of each mental disorder had differential significance among age groups, we added terms for the interaction between major mental disorders and age groups in the logistic regression model. Multicollinearity between independent variables was not observed. The model's goodness of fit was evaluated using the Hosmer–Lemeshow test. Statistical significance was determined at a p -value < 0.05 . All statistical analyses were conducted using SPSS, version 21.0 (IBM Corp., Armonk, NY, USA).

3. Results

3.1. Comparison of the demographic characteristics and the prevalence of mental disorders and suicidality according to age group

Of the 6022 participants, 2029 (33.69%) were classified as young, 2372 (39.39%) as middle-aged and 1621 (26.92%) as in late

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