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What predicts medical lethality of suicide attempts in Asian youths?

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ABSTRACT

This study explores youth suicide attempts in Singapore using multiple databases of comprehensive archival records. Three years of medical records related to suicide attempters (N = 666) who were admitted to the emergency department of a large teaching hospital in Singapore were subjected to retrospective analysis. Compared to other age groups, a peak in suicide attempts (n = 207) was observed in youths aged between 15 and 24 years old (76.3% females; 23.7% males, mean age = 19.30, SD = 2.89). The model using recognized risk and protective factors was significant in predicting medical lethality, and correctly classified 62.8% of high lethality cases. Only resolution of precipitant made a unique statistical significant contribution. Analysis was separately conducted for males and females. Implications of the findings are discussed.

1. Introduction

Worldwide trends reveal that suicide rates increase with age from adolescence to young adulthood (Lynch et al., 2008; World Health Organization, 2014). Suicide under 14 years of age is rare, rates begin to rise through adolescence into young adulthood (Bertolote and Fleischmann, 2002; Malone et al., 2013; Pritchard, 1995), with corresponding heightened rates of suicidal ideation and attempts (Apter et al., 2009; World Health Organization, 2013). Trends might be associated with onset of schizophrenia and depression in late adolescence (Kerfoot and Butler, 1988; Limosin et al., 2007; Osborn et al., 2008; Palmer et al., 2005), and increased alcohol consumption in youths (Beautrais, 2000; Hawton, 1998; Klerman, 1988; Nock and Kessler, 2006).

Youth suicide rates have been rising faster compared to other age groups (Wasserman et al., 2005; Mittendorfer-Rutz and Wasserman, 2004), with a peak in those between 15 and 24 years old (Blum and Nelson-Mmari, 2004; Tiller et al., 1998). In most Asian countries, suicide rates increase with age in both genders, but with a smaller male preponderance compared to their Western counterparts (Liu and Yip, 2008; Maris et al., 2000; Peng and Choo, 1990). Young females have lower rates of completed suicides than males (Bridge et al., 2006; Li et al., 2008), but higher rates of suicidal ideation and attempts (Fergusson et al., 2000; Grunbaum et al., 2000; Lee and Tsang, 2004; Sung and Kyoung, 2012). This is often attributed to males having multiple risk factors, e.g., comorbid mood and alcohol abuse disorders, using more lethal suicide methods (Hawton, 2000; Värnik et al., 2009), in lethal suicide attempts (Brent et al., 1998; Gould et al., 1996; Shaffer and Pfeffer, 2001).

Age plays an important role in determining suicide precipitants. Youths tend to be more impulsive, making them more prone to suicidal behaviour (Daniel and Goldston, 2009). Mental illness has been associated with youth suicide (Chia, 1981; Lo, 1992), and for those without mental illness, precipitants were mainly adverse interpersonal circumstances, and stressful life events (Brent et al., 1998; Dieserud et al., 2010). However, explanations of mechanisms leading to suicide remain inadequate. Many biopsychosocial factors interact and lead to suicide attempts (Cantor, 2000; Rohaimi, 2016), suicide epidemiology needs to include an expanded interdisciplinary perspective.

Youths have unique patterns of risk and protective factors. Risk factors include psychopathology e.g., mood and conduct disorders (Lee et al., 2010) and family history of psychopathology/suicide (Bridge et al., 2006; Cash and Bridge, 2009). Psychosocial variables include social isolation, help-rejection, lack of coping skills, hopelessness, impulsivity (Berman and Jobes, 1994), alcohol/drug abuse (Lee et al., 2010; Lester, 2000; Schilling et al., 2009; Sung and Kyoung, 2012), abuse, poor socio-economic circumstances (Gould et al., 2003), lack of support (Teft, 2000), family stresses (Pfeffer, 1986), academic problems (Lee et al., 2006), and chronic illness (Beautrais, 1998; Hoberman and Garkindel, 1988; Poteet, 1987). A combination of risk factors contributes to heightened risk, e.g., stressful life events in youths with conduct disorder, personality disorder, heightened hopelessness, im-

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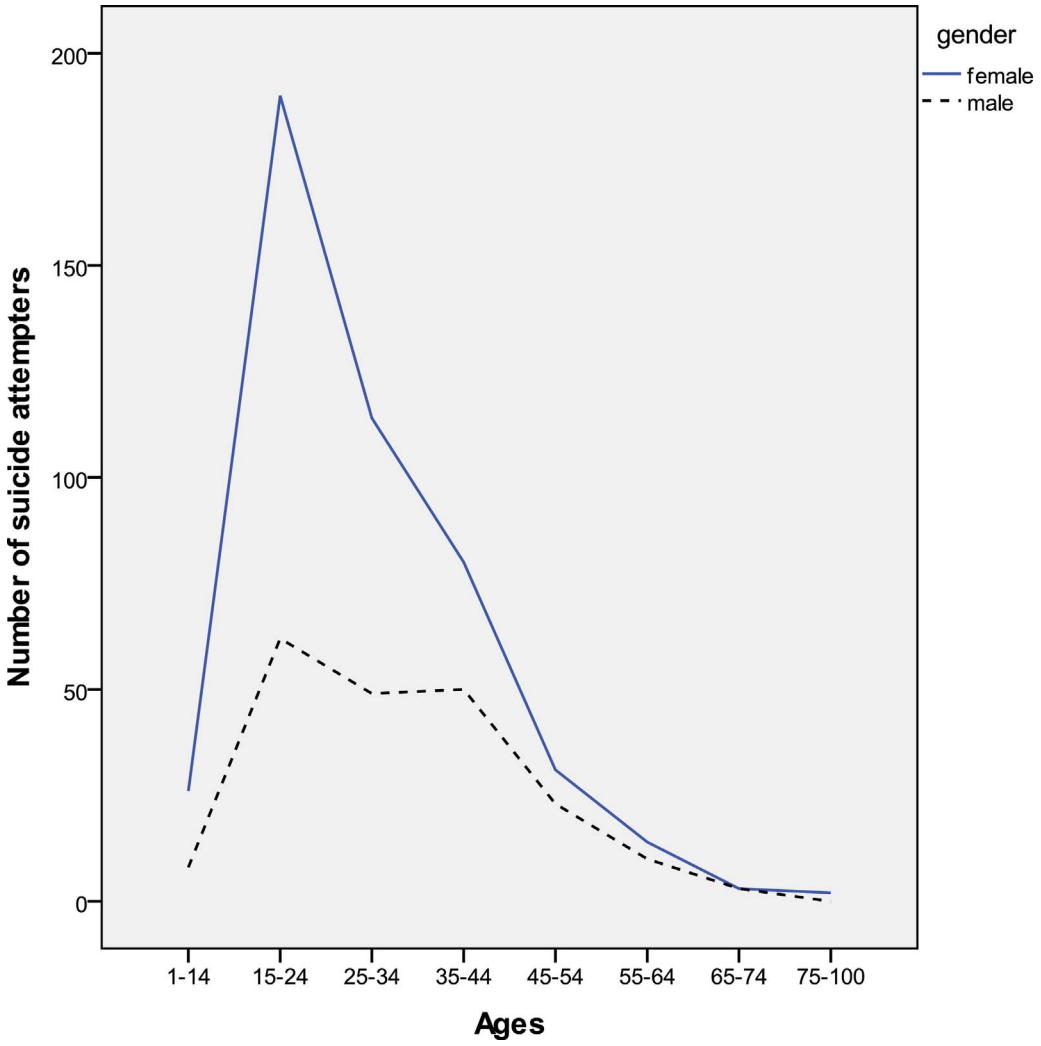

Fig. 1. Graph of suicide attempts by age groups for females and males from 2004–2006.

pulsivity and anger contribute to elevated suicide risk (Males, 2000).

In Asia, prominent risk factors for youth suicides include mental illness, interpersonal conflicts, school problems and stress with military service (Cheok et al., 2000; Chia et al., 2008; Ho and Kua, 1998; Tsoi and Kok, 1982). Recent life and relationship stressors, family problems (Ang et al., 2006; Chia, 1999; Ung, 2003), and academic stress (Loh et al., 2012) predicted youth suicides in Singapore. Suicide attempters often reacted impulsively to a stressor (Kok, 1988). Suicide protective factors in youths is comparatively less researched, these include family cohesion, religious beliefs (Kyle, 2013), positive outlook, self-efficacy in coping, feelings for family (Borowsky et al., 2001; Chan, 1995; Eisenberg and Resnick, 2006; Young et al., 2011), and parental support (Ackard et al., 2006; Borowsky et al., 2001; Brausch and Gutierrez, 2010; Eisenberg et al., 2007; Logan et al., 2011; Taliaferro and Muehlenkamp, 2013).

Most suicide studies were conducted on suicide deaths, thus a study on suicide attempts would enhance understanding of protective factors to reduce the impact of risk factors. Analysis of the prediction of medical lethality could help in identifying high lethality attempts, with the ultimate aim to prevent lethal attempts resulting in death.

This study aims to explore age trends in suicide attempts in Singapore, and analyse the prediction of medical lethality of youth suicide attempts using available risk and protective factors.

The hypotheses are

- A peak in suicide attempts will be noted in youths between 15–24 years old
- Medical lethality in youth suicide attempts will be predicted by a combination of risk and protective factors. Based on evidence in both Western and Asian studies, analysis will be conducted on the following variables, available as part of the Suicide Risk Assessment Form utilized by medical officers at the local hospital where this study took place. The risk factors include: physical illness (e.g., Chong et al., 1992), mental illness (e.g. Judd et al., 2012), alcohol/drug use (e.g., LeardMann et al., 2013), interpersonal conflict (e.g., Chen et al., 2012), protective factors include: emotional support (e.g., Takahashi, 1998), willingness to seek help (e.g., Evans et al., 2005), resolution of precipitants (e.g., Schneidman, 2001), religion (e.g., Kok and Tseng, 1992), regret of the attempt (e.g., Bhugra, 2002), and positive future planning (e.g., Williams and Pollock, 2000).

2. Method

2.1. Procedure

Ethics approval was obtained from the Domains-Specific Review Board of a local hospital and the Human Research Ethics Committee at James Cook University. The inclusion criteria were suicide attempters admitted to the emergency department from January 2004 to December 2006. This is a retrospective study of archival data extracted from the Patient Psychiatric Assessment Form (PPAF), which includes the suicide