The World Health Organization estimates that nearly 1 million people die by suicide annually worldwide. Recent national suicide statistics indicate that, in the US in 2009, 36,909 people died by suicide; the highest rates were among white males. The 11th leading cause of death in the US in 2008, suicide, became the 10th leading cause of death in 2009.

A more comprehensive understanding of the etiological pathways to suicide is needed to improve prevention and treatment efforts. This issue of Psychiatric Annals focuses on the relationship between stress and suicidal behaviors (SB), herein defined as suicide attempt and completed suicide, and includes four articles that address the stress-suicide link from different perspectives.

My article with Jan Fawcett, MD (see page 85), provides the context and background for the other papers included in the special issue. In the literature, several stress-related constructs have been linked to SB, herein defined as suicide attempt and completed suicide, and includes four articles that address the stress-suicide link from different perspectives.

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are influential in the stress-SB association as possible common causes, mediators, or moderators of the relationship. There appear to be individual differences in response to trauma that could imply individual thresholds based upon psychiatric status, as well as genetic and epigenetic influences. Dave Checknita, BA, and colleagues review the literature on epigenetic modification of genes critical to stress regulation and neural development linking early life adversity (ELA) and suicide (see page 89). Although exactly how these are linked later in life is still unknown, evidence supports that alterations on the hypothalamic-pituitary-axis (HPA) stress response and adaptive neurodevelopment in response to ELA may be driven by epigenetic mechanisms. Epigenetic regulation of the glucocorticoid receptor (GR) gene may play a role in sustained maladaptive HPA stress responses, which may increase suicide risk.

The authors also point out that studies suggest epigenetic alteration in the gene TrkB, which codes for brain-derived neurotrophic factor’s (BDNF) expression receptor in suicide victims, is brain-region-specific and may be unique to stress-regulating areas, whereas altered BDNF expression may occur more globally. The good news is that epigenetic gene alteration can be reversible though pharmacological, and possibly by cognitive-behavioral, interventions.

Erin L. Kinnally, PhD, and J. John Mann, MD, review the literature on early adversity, such as abuse or neglect; reprogramming an individual’s behavioral and physiological response to stress, thereby increasing risk for depression; impulsive aggression; and SB (see page 95).

Identifying the molecular pathways that may mediate the risk conferred by early stress will help identify potential targets for intervention and treatment.
The serotonin system may modulate the association between early trauma and psychiatric outcomes. There may be direct genetic effects as well as gene environment interactions. Childhood may be a critical developmental period resulting in increased sensitivity to adversity as neurodevelopment continues at this stage in the both the HPA axis and serotonin pathways.

Yunqiao Wang, BSc, and colleagues (see page 101) investigate the association between a broad range of stressful life events (SLEs) and suicide attempts. The authors provide evidence that the type and number of past year SLEs are associated with past year suicide attempt in a nationally representative sample of US adults.

The authors studied whether there exists a relationship between specific SLEs and suicide attempts that is independent of demographics, and past-year Axis I and Axis II mental disorder diagnoses. Their study provided evidence of a dose-response relationship between SLEs and suicide attempts.

Only two SLE categories remained significantly associated with past-year suicide attempts after accounting for demographic characteristics, Axis I and II mental disorder diagnoses, and the impact of each of the other SLEs: any assaultive violence and any financial stress. Their findings on the link between financial stress and suicide attempt is of particular concern, given the current economic conditions in the US and co-occurring increasing trend in national suicide rates. The study highlights that recent occurrence of certain SLEs may be important elements of suicide risk assessment and may warrant intervention.

Additional research in this area is critical to our ability to identify causal mechanisms and to prevent suicide. It is possible that individual response to chronic and acute stress is a malleable risk factor for SB that could be targeted for intervention. Appropriate identification of psychiatric symptoms and treatment of the underlying psychiatric condition may make a suicide attempt much less likely in the event of a stressful life event. Within the context of a current major psychiatric disorder (most prominently a mood disorder) and/or impulsive aggressive traits, exposure to early-life adversity such as child abuse and neglect, as well as the recent occurrence of assaultive violence, may be important elements in suicide risk assessment.

REFERENCES

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about the guest editor

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Dr. Wilcox is the lead investigator of a study on early trauma exposure; hypothalamic-pituitary-adrenal axis function; and risk for suicide attempts among young people at familial risk for recurrent early-onset depression. She is also the Johns Hopkins site principal investigator of a multisite genetic study of young people at risk for bipolar disorder.

Dr. Wilcox is the recipient of young investigator awards from NARSAD and the American Foundation for Suicide Prevention.