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# A cross-sectional observation of the factors associated with deliberate self-poisoning with acetaminophen: impact of gender differences and psychiatric intervention

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**Objectives** The objectives of this study were to determine the risk factors and life stressors that are prevalent among the acetaminophen deliberate self-poisoning (DSP) cases, to identify gender differences in the associated factors, and to determine the prevalence of psychiatric diagnosis and the patterns and types of psychotherapeutic interventions provided by psychiatrists.
**Methods** This is a cross-sectional study, a retrospective descriptive case review of hospital admissions for acetaminophen DSP.
**Results** There were 177 incidences of DSP during the study period. The mean age of the cases was $23.1 \pm 7.3$ years and 84.1% of them were females. The risk factors were more significantly associated with males: chronic ethanol intake ($p = 0.04$), higher reported dose ingested ($p = 0.01$), higher latency time ($p = 0.04$) and longer hospital stay ($p = 0.03$). The most commonly reported psychotherapeutic interventions used by psychiatrists were psychoeducation of the patient, followed by referral to a psychiatric clinic, family psychoeducation and psychotropic medication. Sertraline (SSRI) was the most frequently prescribed antidepressant.
**Conclusions** Males have been shown to use more toxic doses and to delay treatment due to high latency time. Most DSP patients have different life stressors and psychiatric diagnoses that may be associated with varying degrees of suicidal intent. All patients presenting following DSP need to be carefully screened for psychiatric illness. Randomized controlled studies need to be conducted on DSP patients with psychiatric illness to determine which treatments are effective. 

KEY WORDS — acetaminophen; deliberate self-poisoning; gender; life stressors; psychiatric

## INTRODUCTION

Deliberate self-poisoning (DSP) is recognized as a major cause of suicide around the world (Eddleston, 2000; Wilkinson *et al*., 2002; Camidge *et al*., 2003). Acetaminophen is the most common drug employed in DSP in many countries (Zaidan *et al*., 2002; Camidge *et al*., 2003; Watson *et al*., 2004), including Malaysia (Fathelrahman *et al*., 2006; Fathelrahman *et al*., 2008). Several factors contribute to the use of acetaminophen in DSP, including its wide availability as an over-the-counter analgesic drug and the absence of legal regulation and adequate information regarding its potential effect (Hawton *et al*., 1996; Camidge *et al*., 2003). Therefore, knowledge of the general pattern of acetaminophen poisoning in a particular region would help in early diagnosis of poisoning cases, which in turn should result in a reduction of morbidity and mortality.

Acetaminophen is rapidly and completely absorbed after oral administration. It exhibits a large first-pass effect with uptake and metabolism in the liver. Acetaminophen overdose is usually distinguished by mild early gastrointestinal upset shortly after ingestion (Zyoud *et al*., 2010). In fact, in large doses acetaminophen is capable of causing both hepatic failure (McGregor *et al*., 2003; Pajoumand *et al*., 2003) and renal failure (Waring *et al*., 2010). The toxicity of acetaminophen is related to the production of the reactive intermediate *N*-acetyl-pbenzoquinonimine (NAPQI) by the hepatic cytochrome P450 system. When the production of NAPQI exceeds the capacity to detoxify it, as can occur in overdose, the excess NAPQI binds to cellular components and can cause the death of hepatocytes (Dart *et al*., 2006). Coma and lactic acidosis, if they occur, are generally a result of fulminant hepatic failure and develop after 2–3 days. Massive acetaminophen ingestion, however, has been

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