

**UNIVERSITI TEKNOLOGI MARA**

**EFFECTS OF SUPERVISED EXERCISE  
INTERVENTION ON TOBACCO WITHDRAWAL  
SYMPTOMS DURING TEMPORARY SMOKING  
ABSTINENCE**

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## ABSTRACT

Tobacco withdrawal symptoms (TWS) occur following smoking abstinence and are a barrier to quit smoking. Recently, exercise found to be an adjunct treatment for smoking cessation. This study's objectives were to examine the effects of an exercise intervention on TWS among sedentary to minimally active male smokers. This study aimed to investigate whether exercise affects the physiological, psychological and hormones, namely serum cortisol, serum beta-endorphin, and plasma adrenaline, are involved in regulating TWS and exploring the experience of an exercise intervention on abstinence related feeling. This study consists of three phases, starting with a validation study of the study instrument, followed by an intervention and qualitative study. The validation study involved the validation process for study instruments for the intervention study. The intervention study carried out with a convenience sampling method. Thirty healthy smokers were recruited from various institutions and were given an exercise intervention programme for two months. Then, fourteen smokers that underwent the intervention were interviewed for the qualitative study. For the validation study, exploratory and confirmatory factor analyses were performed. The intervention study was analysed using Repeated Measure ANOVA and correlation. The result of the qualitative study was analysed using thematic analysis. This study found a significant reduction in (craving, urge components), improved mood, increased adrenaline, and a favourable trend of the study variables following the exercise intervention. The qualitative study found that most participants perceived benefits of an exercise intervention on TWS and smoking habit. In conclusion, exercise intervention found to improve certain study variables. Thus, exercise can help reduce TWS for smoking cessation and recommend designing the smoking cessation programme.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Research background

According to the Centers for Disease Control (CDC) and Prevention Status Reports, Atlanta (2015), tobacco use has become a significant public health problem worldwide. It is one of the 10 most emergent problems globally. In the year 2018, over 34.2 billion adults of the world's population are smokers. These numbers represent 13.7% of all adults: 15.6% of men, 12.0% of women (CDC, 2020). Furthermore, about 1600 youngsters start to smoke every day (CDC, 2020).

George Institute of Global Health (2010) also reported that 30% of the world's smokers are from the Asia-Pacific region ( Tan, 2012). According to the World Health Organization (WHO), almost 80% of the world's one billion smokers are from low to middle-income countries, including the Western Pacific Region (Control tobacco, control disease, 2012). In 2012, the Asian continent recorded the highest prevalence age of smokers with >35% of the total smokers (Islami, Stoklosa, Drope, & Jemal, 2015).

Globally, it was reported that smoking was associated with 8 million deaths (WHO, 2019). From 1997 until 2017, smoking was consistently listed as among the most potential cause of death for non-communicable diseases (Stanaway et al., 2018). Smoking prevalence was high in developing countries (Kuang et al., 2018). It became the leading risks of males' total death and projected to cause premature death among 50% of a billion people alive today (Britton, 2017). Total tobacco-attributable deaths are projected to rise year by year. By 2030, it is expected that approximately 10 million mortalities from smoking-related diseases will occur (Lim et al., 2018)