

# Smoking Tobacco Mixed with Marijuana and Development and Progression of Chronic Obstructive Pulmonary Disease

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## ABSTRACT

*Relationship between smoking tobacco and development of COPD has been well established, including description of involved underlying pathophysiological mechanisms, resulting in high morbidity and mortality around the world. Compared to tobacco smoking and COPD, the evidence demonstrating relationship between marijuana smoking and development of COPD is limited and not very strong. Along the most traditional and most studied population of older tobacco smokers with COPD, a new population of younger individuals with common histories of smoking cigarettes composed of mixture of tobacco and marijuana developing COPD at early age has been emerging in the Caribbean region. At present, there is no scientific evidence evaluating the above population. Systematic clinical studies are needed to establish relationship of smoking cigarettes composed of tobacco and marijuana and COPD development and progression.*

## Keywords

Smoking, Tobacco, Marijuana, COPD.

## Introduction

Prolonged exposure to different inhaled irritants is known to be involved during development and progression of chronic obstructive pulmonary disease (COPD) [1,2]. Tobacco smoking is the most evidenced cause of this slowly progressive condition with high morbidity and mortality around the world [3,4]. In addition to established linkage between tobacco smoking and COPD, underlying pathophysiological mechanisms have been studied, resulting in detailed descriptions of pathophysiological respiratory changes in individuals with COPD [5]. Generally, two main components of COPD, chronic obstructive bronchitis and emphysema are broadly linked to pathology of COPD. Development and progression of COPD is associated with irritation of airways by repeated exposure to tobacco smoke, resulting in activation of persistent inflammatory response, characterized by involvement of many immune cells and release of multiple pro-inflammatory mediators including pro-inflammatory cytokines [6]. The resultant airway tissue inflammation progresses to airway remodeling, narrowing, and pulmonary tissue destruction [5].

Although connection between tobacco smoking and development and progression of COPD is well evidenced, marijuana smoking also received attention as another potential cause of COPD over more than the past three decades [7,8]. Compared to numerous evidence showing clear link between tobacco smoking and COPD, the evidence demonstrating relationship between marijuana smoking and development of COPD is limited and not very strong. Smokers have been grouped as tobacco smokers only, marijuana smokers only, and individuals smoking both tobacco and marijuana. Although some studies indicated potentially additive effect of smoking both tobacco and marijuana cigarettes, the evidence is not conclusive [8,9]. Main difficulties regarding the evidence in these studies include small numbers of participating individuals, questionable accuracy of self-reported marijuana use, as well as effect of illegality of marijuana use [10].

Because of chronic characteristics of development and progression of COPD, older patients typically in their sixties are affected and treated. Most of these patients have significant medical histories of many years of tobacco smoking. Medical history of marijuana smoking has in comparison limited documentation and accuracy [10]. In parallel to the traditional population of COPD patients,

elderly individuals with longstanding histories of tobacco smoking, a new population of COPD patients has been emerging over about the past two decades. This group consists of young individuals with common histories of smoking cigarettes composed of mixture of tobacco and marijuana. Although there have been no systematic scientific studies published, informal observations and communications indicate that these individuals start this type of smoking during their teenage years and develop significant loss of respiratory functions consistent with COPD during their thirties, significantly affecting them to carry their regular daily activities [11,12]. Since most of these patients have been detected only in the Caribbean region, it is not known how widespread this phenomenon of early development and rapid progression of COPD really is. At this time, there is no scientific evidence of any kind evaluating the above population. Systematic clinical studies are needed to establish relationship of smoking cigarettes composed of tobacco and marijuana and COPD development and progression.

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