



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.1069487>

Available online at: <http://www.iajps.com>

Research Article

**CASUAL COMPARATIVE ANALYSIS OF
INCIDENCE & EXTENT OF ERECTILE DYSFUNCTION
AMONG SMOKERS & NON-SMOKERS PRESENTING AT A MALE
SEXUAL HEALTH CLINIC IN HYDERABAD**

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Abstract:

Background: The term ‘erectile dysfunction’ (ED) is defined as the inability to achieve and maintain an erection sufficient for satisfactory sexual performance. ED affects millions of men throughout the world, with a strong negative effect on the quality of life and well-being of men and couples. The etiology of ED once was considered to be mainly psychogenic. However, because of advances in the understanding of the physiology of erection and the development of modern diagnostic techniques, it is now generally agreed that the etiology of ED is often multifactorial, with psychological, neurological, endocrine, vascular, traumatic or iatrogenic causes. **Objective:** Smoking, among many other causes, is believed to be associated with smoking. This study hopes to compare the incidence and extent of erectile dysfunction (ED) among smokers and non-smokers presenting at a male sexual health clinic in an attempt to further understand the association. **Methodology:** This casual-comparative analysis was conducted upon a total of 64 male patients presenting with erectile dysfunction at a sexual health clinic. Inquiries regarding the habit of smoking were made using a structured interview based questionnaire and extent of erectile dysfunction was investigated using the ‘International Index of Erectile Function (IIEF-5) Questionnaire’. The data obtained was analyzed using MS. Excel 2017 and SPSS v. 21.0.

Results: Smokers showed a markedly high incidence when compared to non-smokers. The extent of erectile dysfunction too was observed to be significantly high among smokers in comparison to non-smokers. Ex-smokers too showed a more worrisome IIEF-5 score, when compared to non-smokers. **Conclusion:** The results obtained, make it abundantly clear that, the association between the incidence and extent of erectile dysfunction and smoking is strong. Although, the research does not attempt to control co-founding variables, the results can be regarded as reliable due to the sheer difference in incidence and extent of erectile dysfunction between smokers and non-smokers.

Keywords: Erectile Dysfunction, Smoking, The International Index of Erectile Function (IIEF-5) Questionnaire, Sexual Health & Sex Related Quality of Life.

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Please cite this article in press as Muhammad Iqbal et al., *Casual Comparative Analysis of Incidence & Extent of Erectile Dysfunction Among Smokers & Non-Smokers Presenting at A Male Sexual Health Clinic in Hyderabad*, *Indo Am. J. P. Sci*, 2017; 4[11].

INTRODUCTION:

The term “erectile dysfunction” (ED) is defined as the inability to achieve and maintain an erection sufficient for satisfactory sexual performance [1]. ED affects millions of men throughout the world, with a strong negative effect on the quality of life and well-being of men and couples [2,3]. The etiology of ED once was considered to be mainly psychogenic. However, because of advances in the understanding of the physiology of erection and the development of modern diagnostic techniques, it is now generally agreed that the etiology of ED is often multifactorial, with psychological, neurological, endocrine, vascular, traumatic or iatrogenic causes [4].

Recent data [5-9] suggest an independent and dose response relationship between smoking and the risk of erectile dysfunction. A cross-sectional study [5] showed that Chinese men in Hong Kong who smoked more than 20 cigarettes daily had a 50% higher risk of having erectile dysfunction; and ex-smokers had a 30% lower risk of having erectile dysfunction than those who smoked more than 20 cigarettes daily. Another cross-sectional study [7] in China further showed an increasing trend in the risk of erectile dysfunction with cigarette smoking. Improvement in erectile dysfunction in smokers after they stopped smoking was observed in a prospective study [10] in Iran.

The Massachusetts Male Aging Study, a cohort study of men aged 40–70 years living in the Boston area, found that cigarette smoking at baseline almost

doubled the likelihood of moderate or complete erectile dysfunction at follow-up, after controlling for other risk factors [11]. In another study, Mannino et al [12] reported that in a study of 4462 Vietnam War veterans aged 31–49 years; smokers were one and a half times more likely to report impotence than non-smokers. However, these findings were weakened by their selective study populations.

Smoking has long been considered a potent risk factor for Erectile Dysfunction (ED), yet efforts have seldom been made to investigate extent, in addition to mere incidence, among the patients. This study unearths the extent of the problem and shall serve as the basis for further interventional research. This study hopes to compare the incidence and extent of erectile dysfunction (ED) among smokers and non-smokers presenting at a male sexual health clinic in an attempt to further understand the association.

METHODOLOGY:

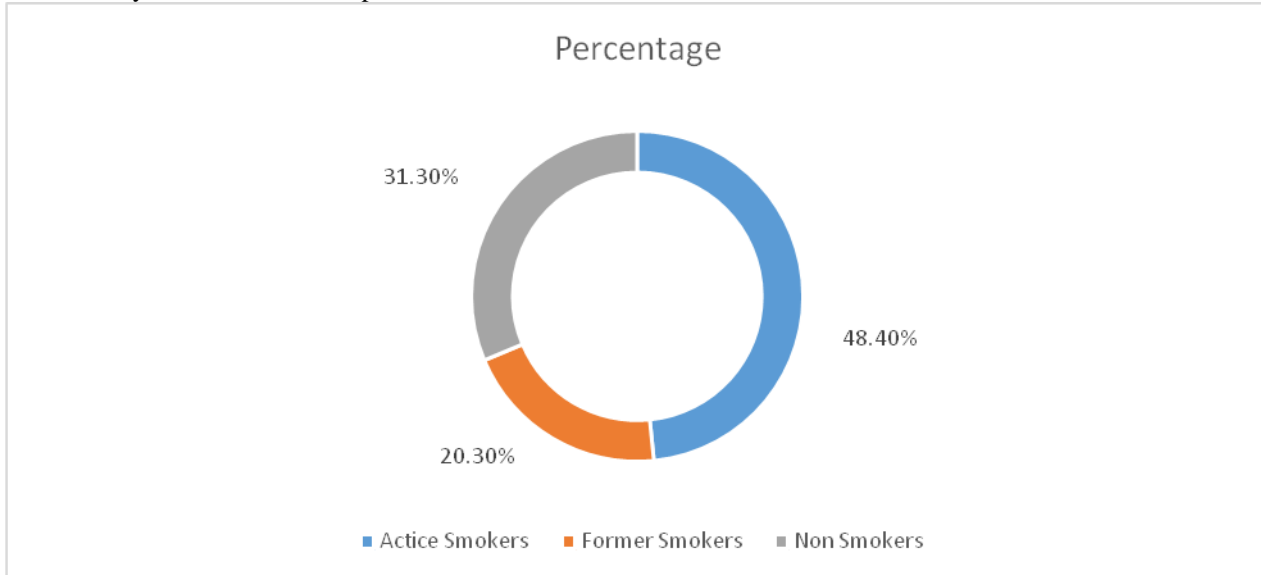
This casual-comparative analysis was conducted upon a total of 64 patients presenting with erectile dysfunction at a sexual health clinic. Inquiries regarding the habit of smoking were made using a structured interview based questionnaire and extent of erectile dysfunction was investigated using the “International Index of Erectile Function (IIEF-5) Questionnaire”. The data obtained was analyzed using MS. Excel 2017 and SPSS v. 21.0.

The below version of the International Index of Erectile Function (IIEF-5) Questionnaire was used.

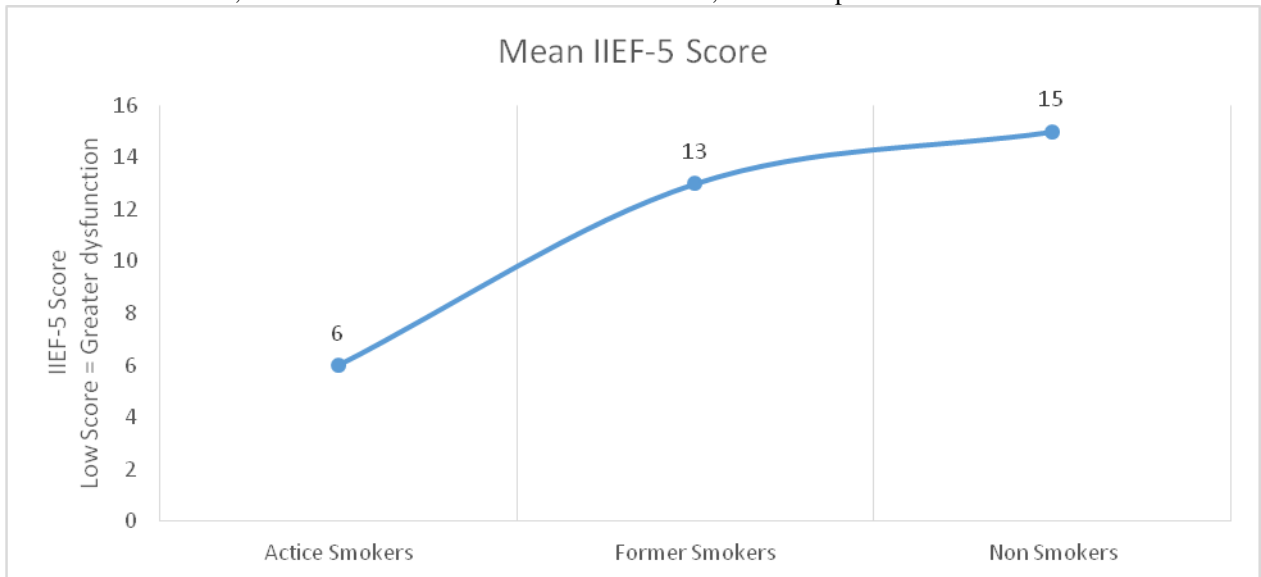
RESULTS:

<i>How do you rate your confidence that you could get and keep an erection?</i>	<i>Very low 1</i>	<i>Low 2</i>	<i>Moderate 3</i>	<i>High 4</i>	<i>Very high 5</i>
<i>When you had erections with sexual stimulation, how often were your erections hard enough for penetration?</i>	<i>Almost never/never 1</i>	<i>A few times (much less than half the time) 2</i>	<i>Sometimes (about half the time) 3</i>	<i>Most times (much more than half the time) 4</i>	<i>Almost always/always 5</i>
<i>During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?</i>	<i>Almost never/never 1</i>	<i>A few times (much less than half the time) 2</i>	<i>Sometimes (about half the time) 3</i>	<i>Most times (much more than half the time) 4</i>	<i>Almost always/always 5</i>
<i>During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?</i>	<i>Extremely difficult 1</i>	<i>Very difficult 2</i>	<i>Difficult 3</i>	<i>Slightly difficult 4</i>	<i>Not difficult 5</i>
<i>When you attempted sexual intercourse, how often was it satisfactory for you?</i>	<i>Almost never/never 1</i>	<i>A few times (much less than half the time) 2</i>	<i>Sometimes (about half the time) 3</i>	<i>Most times (much more than half the time) 4</i>	<i>Almost always/always 5</i>

Among the 64 subjects enrolled into the study, 31 were smokers and 13 had been smokers in the past. The remaining 20 subjects were non-smokers. The smokers thus, exceeded probable expectations and showed a markedly high incidence of erectile dysfunction when compared to non-smokers.



The extent of erectile dysfunction too was observed to be significantly high among smokers in comparison to non-smokers. Ex-smokers, too showed a more worrisome IIEF-5 score, when compared to non-smokers.



For ease of interpretation of the mean score of IIEF-5 score. Below is a tabulated key.

22-25	No erectile dysfunction
17-21	Mild erectile dysfunction
12-16	Mild to Moderate erectile dysfunction
08-11	Moderate erectile dysfunction
05-07	Severe erectile dysfunction

DISCUSSION:

Cigarette smoking appears to have a deleterious effect on erection. Other studies in the literature support our results and further demonstrate two types of effects of cigarette smoking on male potency. One effect is an acute one, shown in animal experiments. [13]. Inhalation of cigarette smoke by dogs simultaneously undergoing penile hemodynamic monitoring electrical stimulation of penile nerves caused failure in the venous occlusion mechanism and decrease in the arterial inflow. This acute effect during smoking may be due to inhibition of smooth muscle function [13] or to the inhibition of neurovascular mediators, such as prostacyclin [14].

Further evidence for the acute effect of smoking comes from human studies. Subjects watched erotic films while their penile diameters were continuously recorded. Smoking two high-nicotine cigarettes in immediate succession significantly decreased the rate of change in penile diameter. Several studies in the literature also show chronic effects of smoking. [15, 16] The mechanism of chronic effect of nicotine is not totally clear. Atherosclerotic vascular changes are suggested as one possible mechanism [17].

Other possible mechanisms are hypercoagulability and increased platelet aggregation, the release of free-fatty acids and catecholamine, or a direct toxic effect of nicotine and carbon monoxide on vascular endothelium. Diabetes mellitus is a common health problem that can cause a variety of complications. One of the common complications of this metabolic disorder is impotence that obviously has an impact not only on the diabetic patient himself but also on his sexual partner, and possibly on his family life.

Impotence has even been reported in some instances as the first symptom of diabetes [18]. Erectile dysfunction occurs in 35 percent to 75 percent of men with diabetes mellitus. The incidence of impotence is significantly higher in diabetics than in the age-matched general population [19]. The exact reason for the increased incidence of erectile dysfunction associated with diabetes mellitus is not clear, but it has been observed that impotence in diabetics is commonly of organic origin [20]. Although there have been reports of psychological factors involved in diabetic impotence [21] the fact that impotence in diabetes frequently is irreversible [22] indicates that impotence in patients with diabetes is essentially organic.

A history of hypertension also contributes to the pathogenesis of organic impotence. Not only is hypertension an evidence of systemic vascular disease, "but treatment with anti-hypertensive medication might further impair erectile function as a side effect.

CONCLUSION:

The results obtained, make it abundantly clear that, the association between the incidence and extent of erectile dysfunction and smoking is strong. Although, the research does not attempt to control co-founding variables, the results can be regarded as reliable due to the sheer difference in incidence and extent of erectile dysfunction between smokers and non-smokers. The

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