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ASSOCIATION BETWEEN PEER PRESSURE AND RELAPSE DURING TOBACCO QUIT PROCESS

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ABSTRACT
It has been established that smoking is a very different addiction to break. Many smokers persist in tobacco use for several years and cycle through multiple periods of remission and relapse Smoking is not a single event process and relapse is an ordinary component of this process. International guidelines have greatly emphasized on relapse prevention. Very few studies examine the association between the number of cigarettes smokers consume per month and their response to cues derived from peer and physiological distress. This study aims to evaluate association between peer pressure and relapses during tobacco quit. A retrospective study was conducted by reviewing 75,000 patient records of University hospital for a period of nine months from June 2019 to March 2020. About 150 case reports containing information on tobacco dependence and quit rate (in terms of number of relapses) were retrieved and analysed. Descriptive statistics was done to present the sociodemographic details. Chi-square association was done to find the association. Most of the participants (34%) were in the age group 29-38 years, followed by 49-59 years (26%), 19-28 years (24%) and 39-49 years (16%). About 13.3%, 20%, 4%, 10% of 19-28 yrs, 29-38 yrs, 39-48 yrs and 49-59 yrs of patients respectively had peer pressure during their quitting process.About 11.3% 20%, 8.67 and 13.3% of patients in the age group 19-28 yrs, 29-38 yrs, 39-48 yrs and 49-59 yrs had no relapses during the quitting process.No significant association between age and number of relapses (p=0.746; not significant). Hence proving no influence of age on relapse during quitting process. About 28% of patients with peer pressure and 25.3% without peer pressure had no relapse during quitting. However 19.3% and 27.3% with and without peer pressure had >1 number of relapses. during their quitting process,No significant association of peer pressure in relapse (p=0.295, not significant). No influence of peer pressure on relapse during the quitting process. Peer pressure is not much influencing the number of relapses during the quitting process, however a watch over this factor to be taken in account during cessation counselling.

Keywords: Cessation, Peer pressure, Prevalence, Relapse, Smoking.

INTRODUCTION:

Smoking cigarettes harms nearly every system of the human body, causing a broad range of disease, many of which are fatal(Pillitteri *et al.*, 2020). The risk of serious disease diminishes rapidly after quitting, and permanent abstinence is known to reduce the risk of lung cancer, heart disease, chronic lung disease, stroke and other cancers (Wadsworth *et al.*, 2018). Stop smoking usually involves an intention not to smoke any cigarettes in time, followed by self- conscious resistance to the urge to smoke resulting in a period of abstinence. There is no agreement criterion for the term “Quit Rate” to be clear about how long

the abstinence period has been. It is estimated that approximately one billion tobacco smokers worldwide (Lindson-Hawley *et al.*, 2016). Although evidence-based recommendations indicate that smoking cessation programs are useful in helping smokers to quit (Jr, Curran and Miller, 1969). Nicotine has powerful addictive qualities of nicotine and also the ritualistic behaviour of smoking creates a huge hurdle, even for those with a strong desire to quit (Fiore, 2002). Many quitting smokers consider that the typical patient undergoing smoking cessation will eventually relapse, greater sense of control predicts a higher rate of smoking cessation success (Djordjevic, 2010). Patient's attempting to quit experience withdrawal symptoms, which peaks at 1-3 weeks, patients should be urged to seek help if any problems arise that might cause him or her to relapse, therefore health providers should be prepared to provide advice and medical assistance.

Considering cessation what keeps a smoker from successfully quitting cigarettes is an important question among clinicians, policymakers and health economic studies show that nicotine has been found to act in the midbrain, where it creates impulses to smoke in response to stimuli (Bandi *et al.*, 2012). Some studies applied that pavlovian's conditioning theory or social learning theories to highlight the role of environmental or physiological cues that may evoke conditioned reactions to substance use (Stapleton, Sutherland and Russell, 1998). Some studies have noted that the patterning of smoking cues related to reactivity and the responses to cues vary according to smoking history, gender and social situations (Casella, Caponnetto and Polosa, 2010). The role of the dentist lies in creating awareness and telling the patient "ill-effects" of smoking and the negative impact of life. However, abstinence from the habit at one go is not an easy task. Previously our team had conducted numerous clinical trials (Khatri *et al.*, 2019) (Mathew *et al.*, 2020), (Kannan *et al.*, 2017)(Prabakar, John and Srisakthi, 2016),(MohapatraS, Kumar RP ,2019) (Samuel, Acharya and Rao, 2020),(Prabhakar, John J, 2018),(Neralla M, Jayabalan J 2019), surveys (Kumar, Pradeep Kumar and Preethi, 2017) (Kumar, Pradeep Kumar and Vijayalakshmi, 2017) and in-vitro studies (Pratha AA, Prabakar J), (Prabhakar, Murthy and Sugandhan, 2011) (Prabakar, John, Arumugham, Kumar and Srisakthi, 2018) over the past 5 years. Now we are focussing on epidemiological studies. The idea for this study stemmed from the current interest in our community. Therefore this study aims to evaluate association between peer pressure and relapse of tobacco quit and helps to prevent relapse of tobacco and also plan strategies for tobacco cessation.

MATERIALS AND METHODS:

Study design and setting

A retrospective study was conducted by reviewing 86,000 patient records of the authors University hospital for a period of nine months from June 2019 to March 2020.

Sample selection

About 150 consecutive case records of patients who received tobacco cessation counselling at the University tobacco cessation clinic were retrieved. Case records of patients with complete abstinence for a period of 6 months with signed informed consent were sorted.

Data collection

Total number of relapses during their quitting process were collected from the retrieved case records. The nicotine dependence (both smoking & smokeless) measured using Fagerstrom nicotine dependence scale was collected from the case records. A score of 0-2 represents very low dependence, 3-4 represents low dependence, score 5-7 represents moderate dependence and score ≥ 8 represents high dependence. No age and gender restriction placed. Age of the patients were categorized as 19-28 years, 29-38 years, 39-48 years, 49-59 years for statistical convenience. The number of relapses as 1 and >1 for statistical purposes. Presence of peer influence represented as yes and absence of peer influence represented as no.

Statistical Analysis

Data was recorded in Microsoft Excel /2016 (Microsoft office 10) and later exported to the statistical package for social science for windows (version 20.0 , SPSS Inc). Descriptive statistics was done to present the socio demographic details and chi square association test was employed to find the association between peer pressure and relapses with a level of significance set at $p<0.05$.

RESULTS AND DISCUSSION:

Figure 1 shows distribution of age group among the study participants. Most of the participants (34%) were in the age group 29-38 years, followed by 49-59 years (26%), 19-28 years (24%) and 39-49 years (16%). Figure 2 shows, about 13.3%, 20%, 4%, 10% of 19-28 yrs, 29-38 yrs, 39-48 yrs and 49-59 yrs of patients had peer pressure during their quitting process. Figure 3 shows the number of relapses among different age groups. About 11.3% 20%, 8.67 and 13.3% of patients in the age group 19-28 yrs, 29-38 yrs, 39-48 yrs and 49-59 yrs had no relapses during the quitting process.No significant association between age and number of relapses (Pearson's Chi-square value = 1.203; p=0.746; not significant). Hence proving no influence of age on relapse during quitting process.

Figure 4 shows association of peer pressure and number of relapses. About 28% of patients with peer pressure and 25.3% without peer pressure had no relapse during quitting however 19.3% and 27.3% with and without peer pressure had >1 number of relapses. during their quitting process,No significant association of peer pressure in relapse (Pearson' Chi-square value = 1.836; p=0.295, not significant). No influence of peer pressure on relapse during the quitting process.

In the current study since consecutive case records were retrieved there is no chance for selection bias expected in the selection of patients. In the current study a high number of relapses was exhibited in individuals of age group between 29-39 years (36%). This can be attributed to the reason of physical and psychological dependence giving them pleasure. A study in contrast to this study reported that the quit rate was higher among 35 - 45 years of age with less number of relapses (Reddy *et al.*, 2018). In this study we found that most of the participants (55.33%) had peer pressure during the quitting process. Also we observed that no significant association between age group and peer pressure. These findings are supported by several following studies (Tonstad, 2006)(Batra, 2015). One study showed that responses to peer cues play a very important role in the behaviour of smokers (Niaura *et al.*, 1999).

In the current study as age increases the number of relapses during the quitting process decreases. This result was supported by a study which emphasizes the importance of peer effect with regard to influence on teenagers and early adult groups and much effort is required to educate this high risk group (Keeler, Marciniak and Hu, 1999). Cessation treatments have shown promise in treating some addictive disorders patients (Harini and Leelavathi, 2019). Contradictory studies implies that the urge to smoke for some people may be born from an internal need to calm down themselves and also cope up with stress and anxiety (Rohsenow and Niaura, 1999). Reaction of current smokers is more reactive to peer and psychological cues when compared to former smokers (Kotz, Batra and Kastaun, 2020). A network analysis showed that a co-worker who quits smoking increased the likelihood of a subject's smoking cessation by 34%. The influence of co-workers could, therefore, potentially be used in interventions to stimulate smoking cessation in the social setting of the workplace (Stead L.F, Carroll A.J,2017). Also smokers who attempt to quit are more vulnerable in the first phase of quitting smoking and may avoid social situations that could lead to relapse, while in a later phase participants may feel more secure about their abstinence and may be less cautious. This implies that smoking cessation counsellors should evaluate whether there are many smokers in the quitter's social environment and to overcome corresponding barriers to quit success. Therefore having a partner who has never smoked seems to be a factor that can prevent smokers relapse when compared to having a partner that never smoked , having no partner was negatively associated with short term quit success (Nagle, 1999).

Limitations of the study is that extrapolation of the study results to other populations is not possible due to cultural variations. Further prospective longitudinal study with snowball sampling can be implemented to prove the hypothesis.

Conclusion:
The number of relapses during the quitting process decreases with increase in age. The peer pressure plays no significant role in the quitting process of the habit. However, peer pressure during the process of quitting the habit needs to be considered during behavioral therapy for tobacco cessation.

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AUTHORS CONTRIBUTIONS:

First author Keerthika S performed the analysis, and interpretation and wrote the manuscript.
Second author Arthi B contributed to conception, study design, analysis and critically revised the manuscript.
Third author Santhosh Kumar participated in the study and revised the manuscript.

Conflicts of Interest:
None declared

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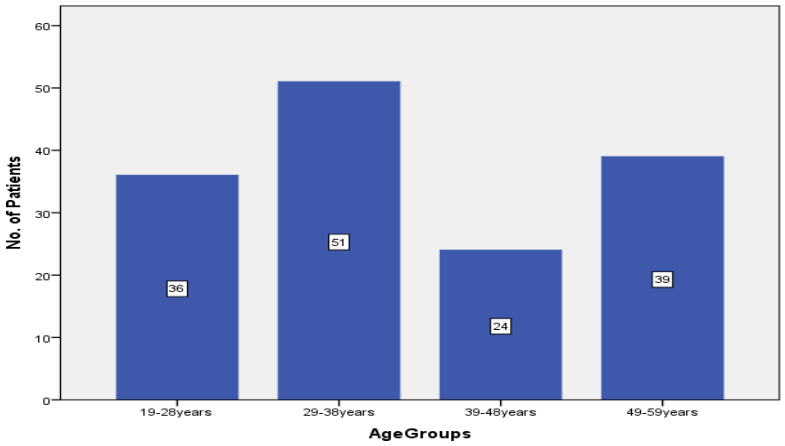

Figure 1: Bar chart showing distribution of age group among the study participants. X axis shows age groups in years. Y axis shows the number of Patients in each age group. Most of the patients were in 29-38 years

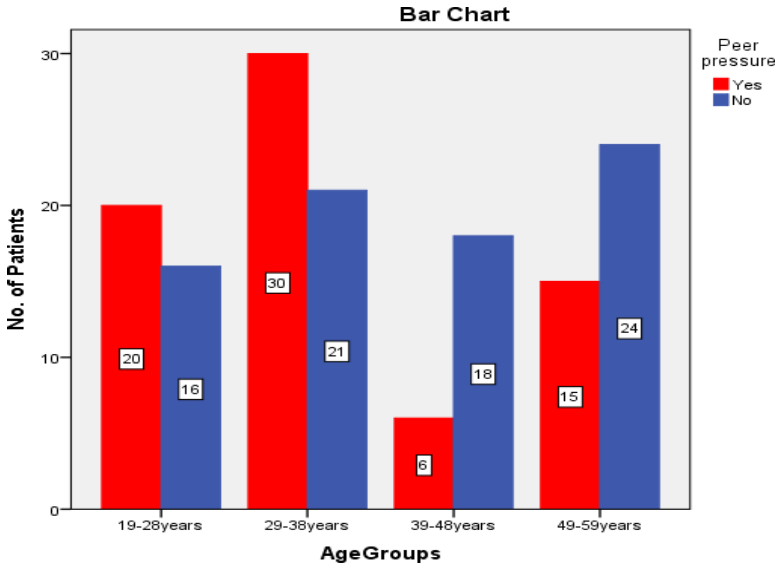

Figure 2: Bar chart showing peer pressure among different age groups. X-axis represents age groups in years. Y -axis represents the number of patients with peer pressure. Chi-square association was done and found to be not significant (Pearson's chi-square = 1.230; p=0.568). Though age increases, the peer pressure during the quitting process is less.

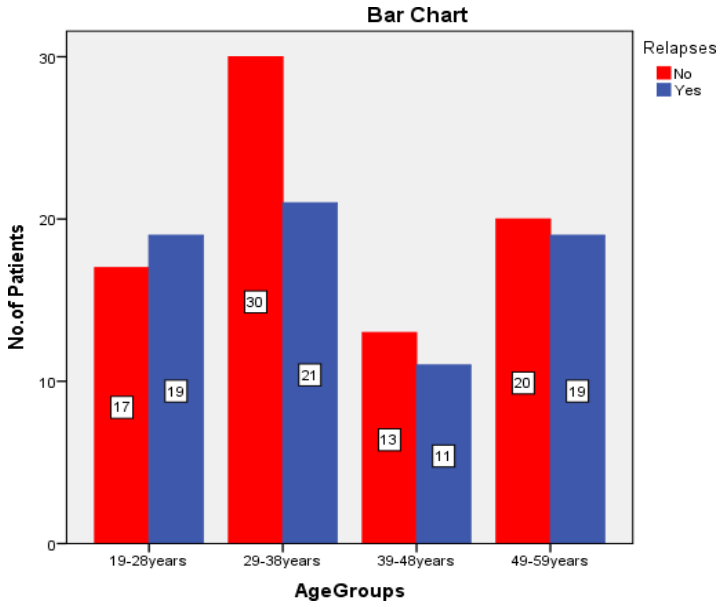

Figure 3: Bar chart showing number of relapses among the age groups. The X-axis represents the age group of participants in years. Y axis represents the number of patients with relapse during the quitting process. Chi-square association was done and found to be not significant (Pearson's Chi-square value = 1.203; p=0.746). There is no influence of age on relapse during the quitting process.

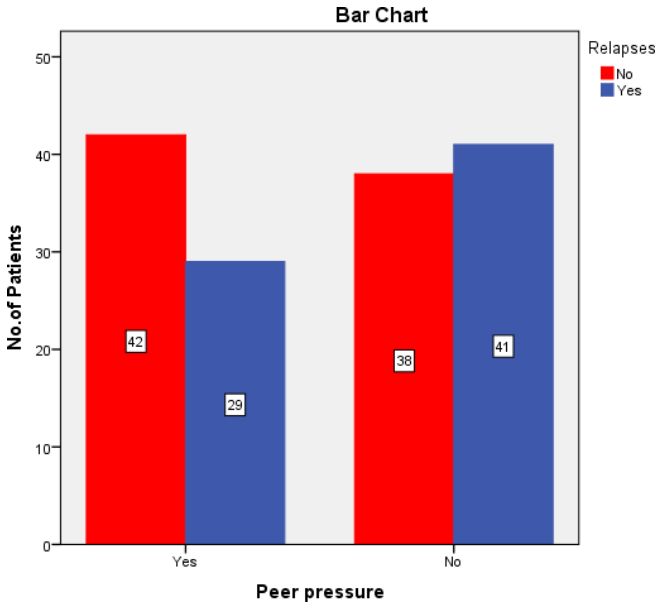

Figure 4: Bar chart showing association of peer pressure with number of relapses. X-axis peer pressure. The Y axis represents the number of patients with relapse. Chi-square association was done and found to be not significant (Pearson' Chi-square value = 1.836; p=0.295). No influence of peer pressure on relapse during the quitting process.