

# Effect of tobacco use on symptom severity and medication adherence in schizophrenia



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# Introduction

- Tobacco use is the leading preventable cause of death in patients with psychiatric illnesses.<sup>1</sup>
- Every year millions of people die because of smoking.
- Smoking status is often overlooked when treating patients with mental health problems.<sup>2</sup>



Source: [Pharmaceutical-Networking.Com](http://Pharmaceutical-Networking.Com)

# Smokers vs. non-smokers & schizophrenia?

**SMOKER**



**NON-SMOKER**



# Tobacco use consequences

- Increased risk for cardiac, pulmonary illnesses, diabetes, cancer.<sup>1,2</sup>
- Increased risk for suicide.<sup>3</sup>
- Reduced life expectancy for 25 years.<sup>4</sup>
- Worse social status (public assistance:269,20 eur; 133.13 spent on cigarettes).
- Worse quality of life.

1 Carney CP et al., 2006 J Gen Intern Med 21:1133-7 2. De Heart M 2009 Eur Psychiatry 24:412-12 3. Breslau N 2005 Arch Gen Psychiatry 62:328-344. Colton CW, Manderscheid RE 2006 Prev Chronic Dis 3: A42

# Aim of the study

- **Smoking rates** in patients with schizophrenia (PS).
- Tobacco use and **symptom severity** in PS.
- **Medication adherence**.
- **Hospitalization rates**.
- **First outbreak of the disease** in PS.



# Methods I

- **91 patients** with schizophrenia.
- **Various form of treatment.**
- **36 females** (39.6%), **55 males** (60.4%)
- **Average age 41.33 years.**
- **Unemployed** (41.33), **retired** (38.5 %).
- **Single** (76.9 %), **divorced** (9.9 %).
- **More than half finished high school.**

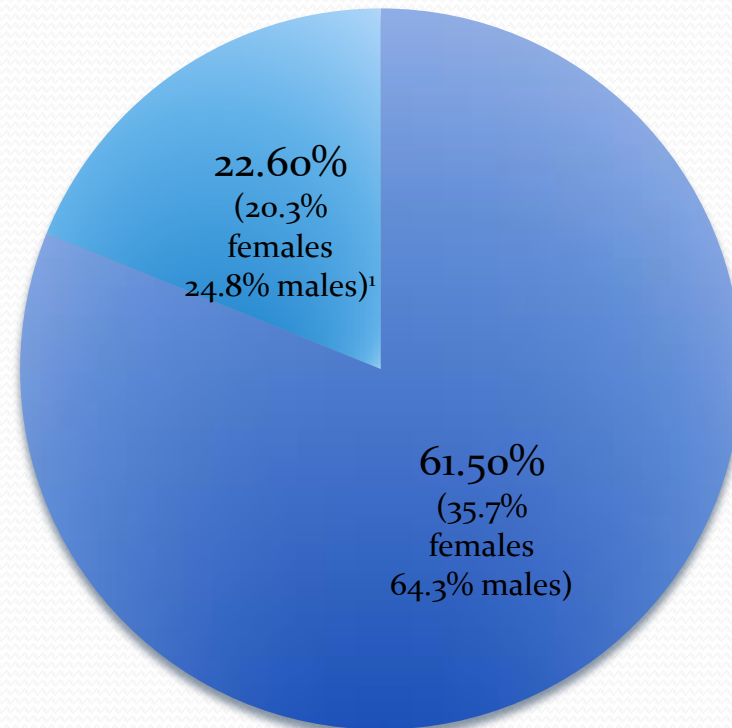
# Methods II

- Part of a larger survey<sup>1</sup>.
- **Questionnaire** included socio-demographic, tobacco consumption, and some other characteristics of the participants<sup>1</sup>.
- **Adherence** was assessed **subjectively**<sup>1</sup>.
- **Clinical symptoms** were rated by using the Positive and Negative Syndrome Scale (**PANSS**)<sup>2</sup>.

# Results I: Prevalence of tobacco use

Prevalence of tobacco use among patients with schizophrenia and general population in Slovenia.

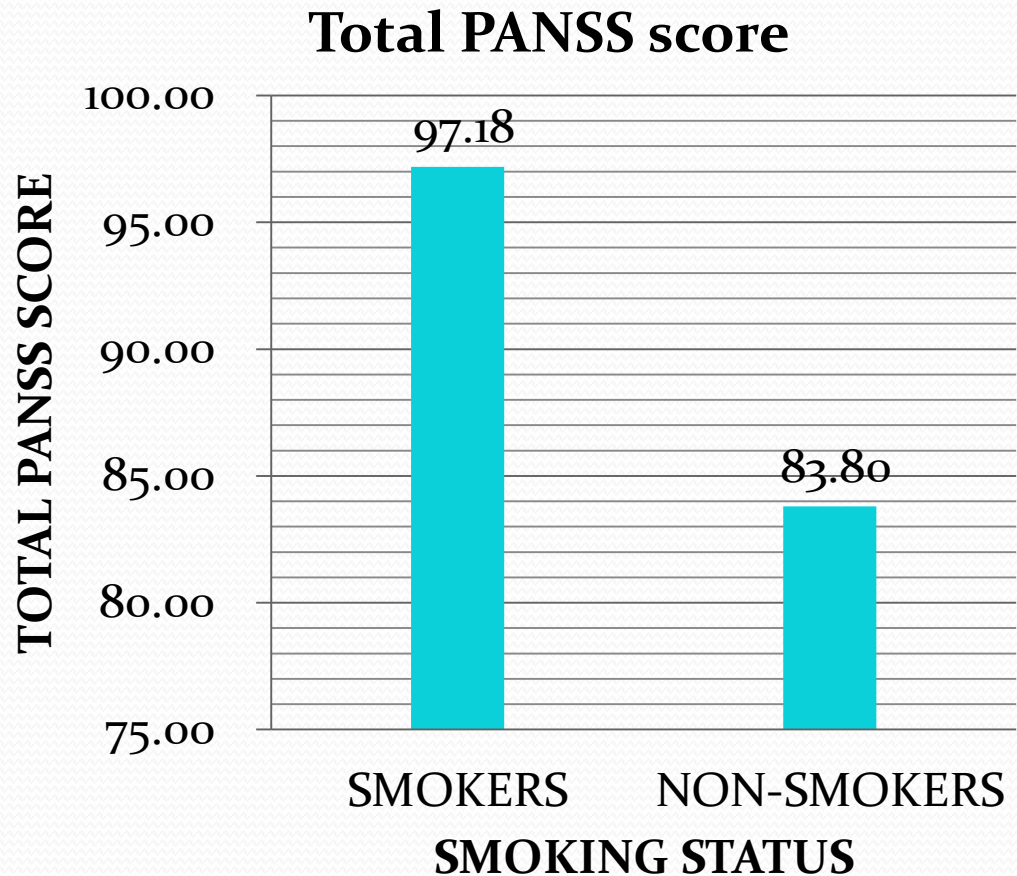
*The prevalence of tobacco use among patients with schizophrenia was 61.50% .*





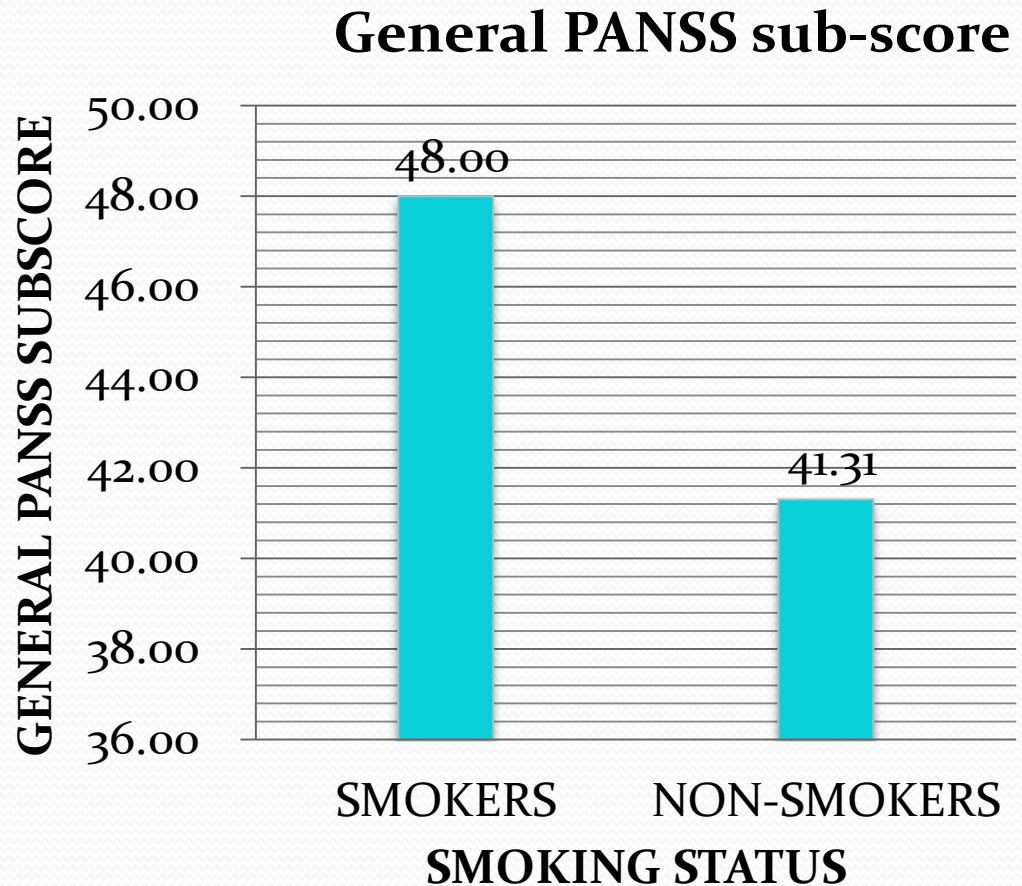
# Results II: Total PANSS score (p=0.015)

*Smokers had significantly higher total PANSS score.*



# Results III: General PANSS sub-score (p=0.007)

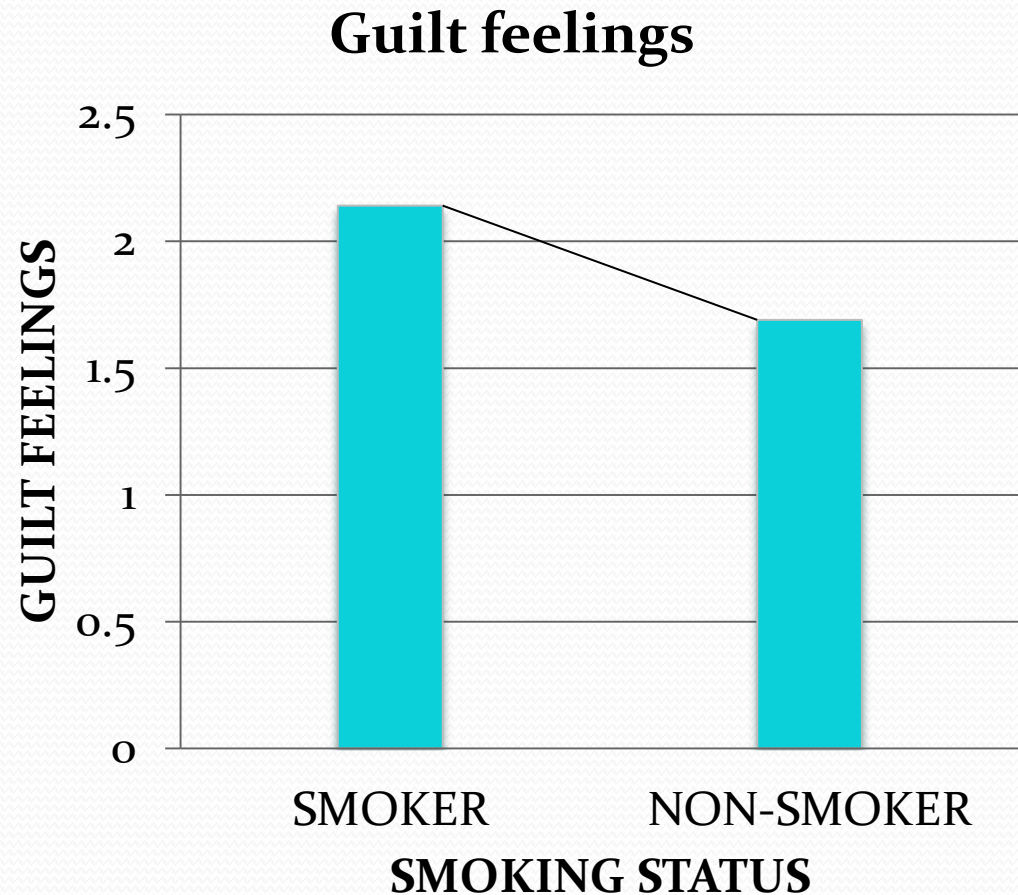
*Smokers had significantly higher General PANSS sub-score.*



# Guilt feelings (G3)

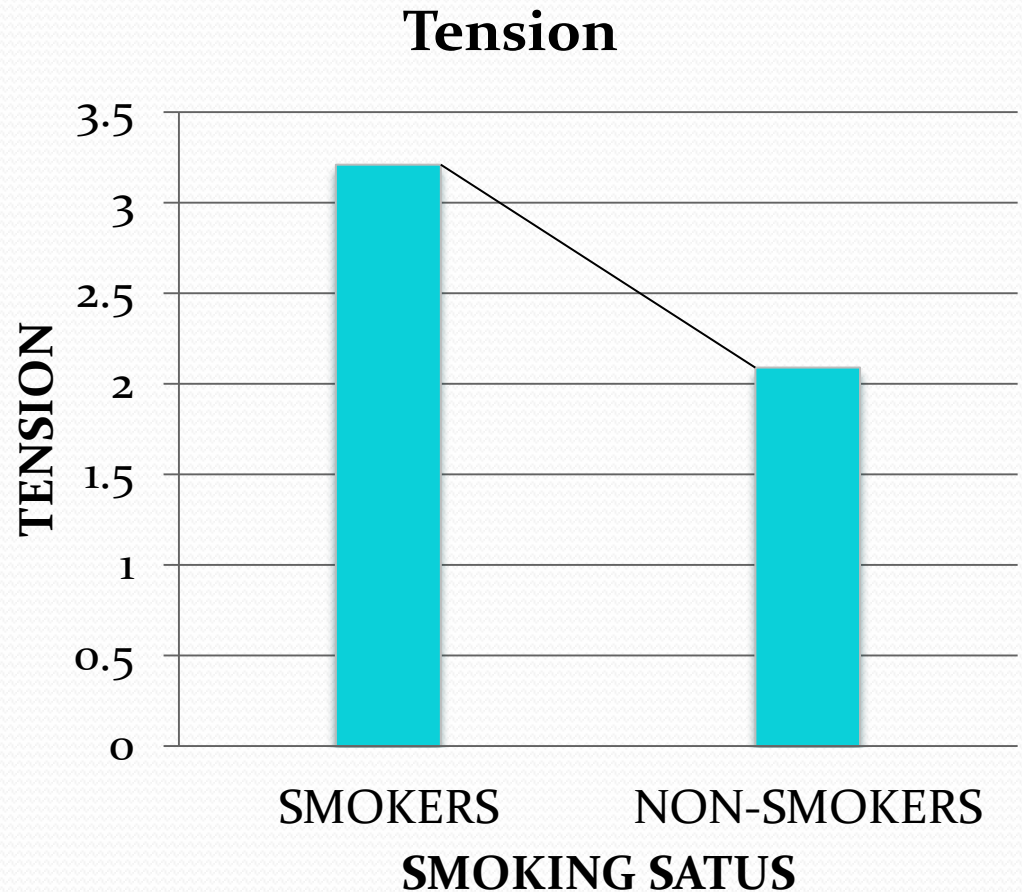
( $p=0.047$ )

*Guilt feeling were more pronounced among smokers.*



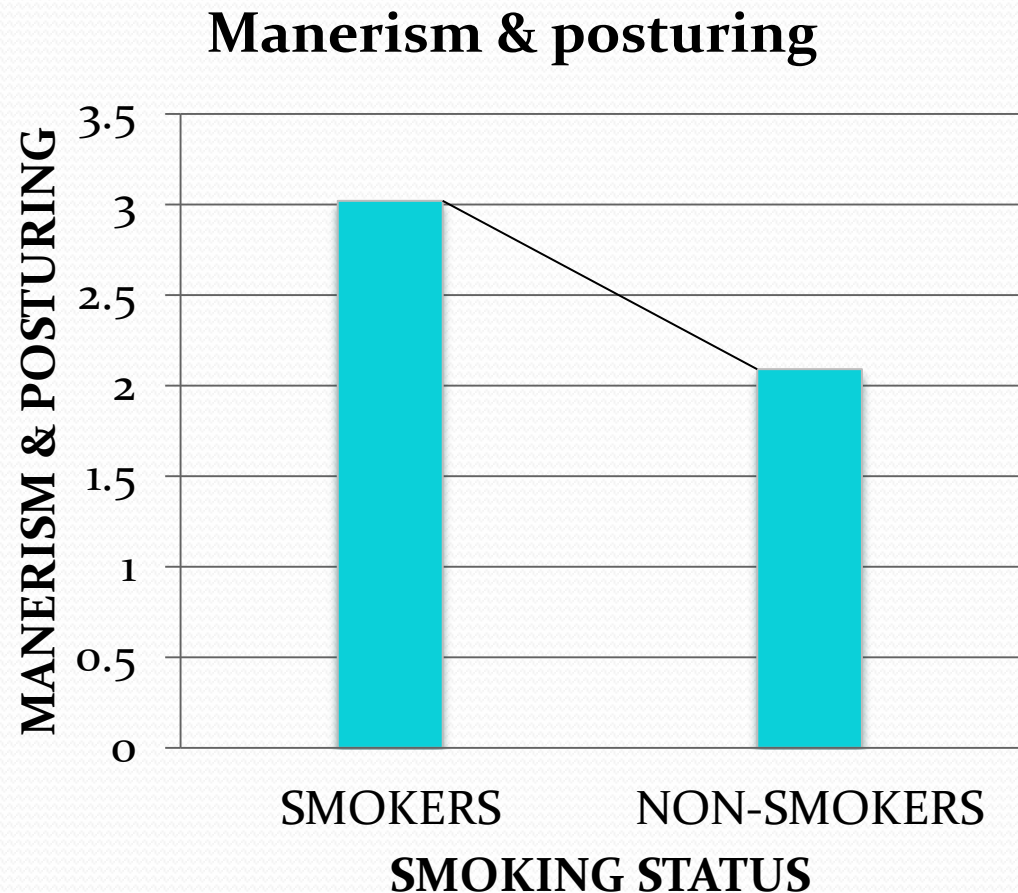
# Tension (G4) (p=0.008)

*Tension was more pronounced among smokers.*



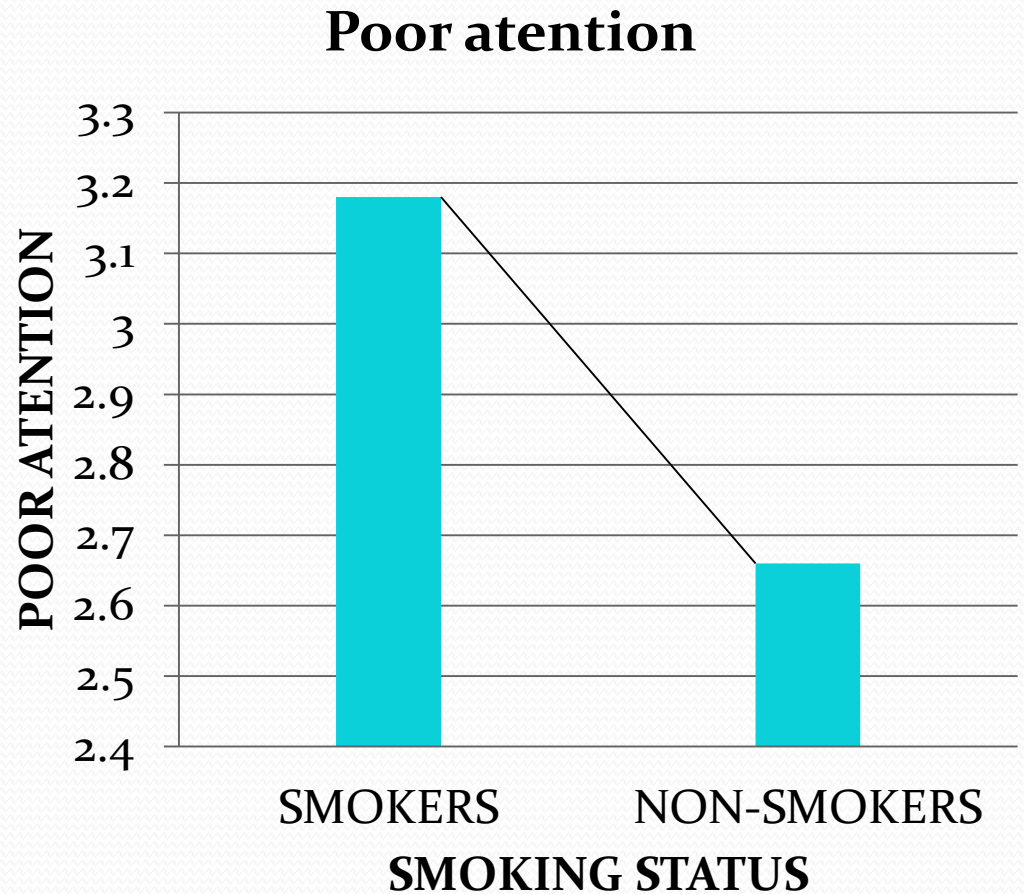
# Mannerisms & posturing (G5) ( $p=0.004$ )

*Mannerisms & posturing was more pronounced among smokers.*



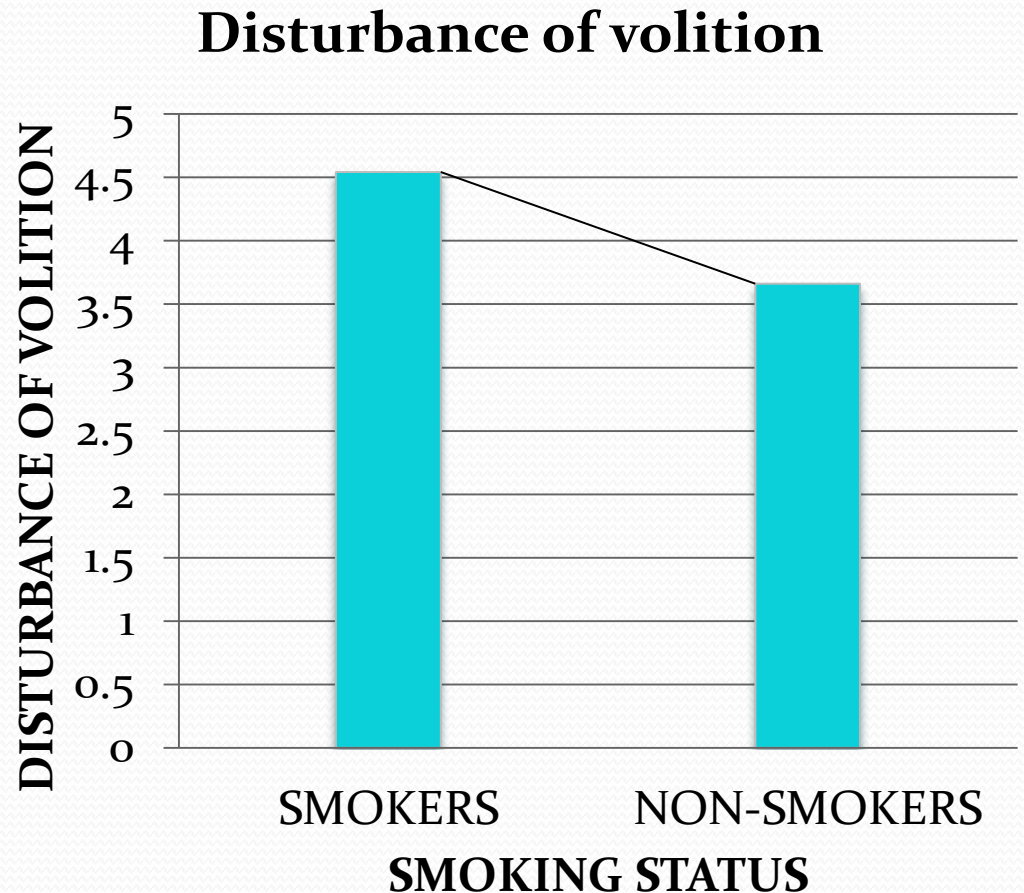
# Poor attention (G11) (p=0.032)

*Poor attention was more pronounced among smokers.*



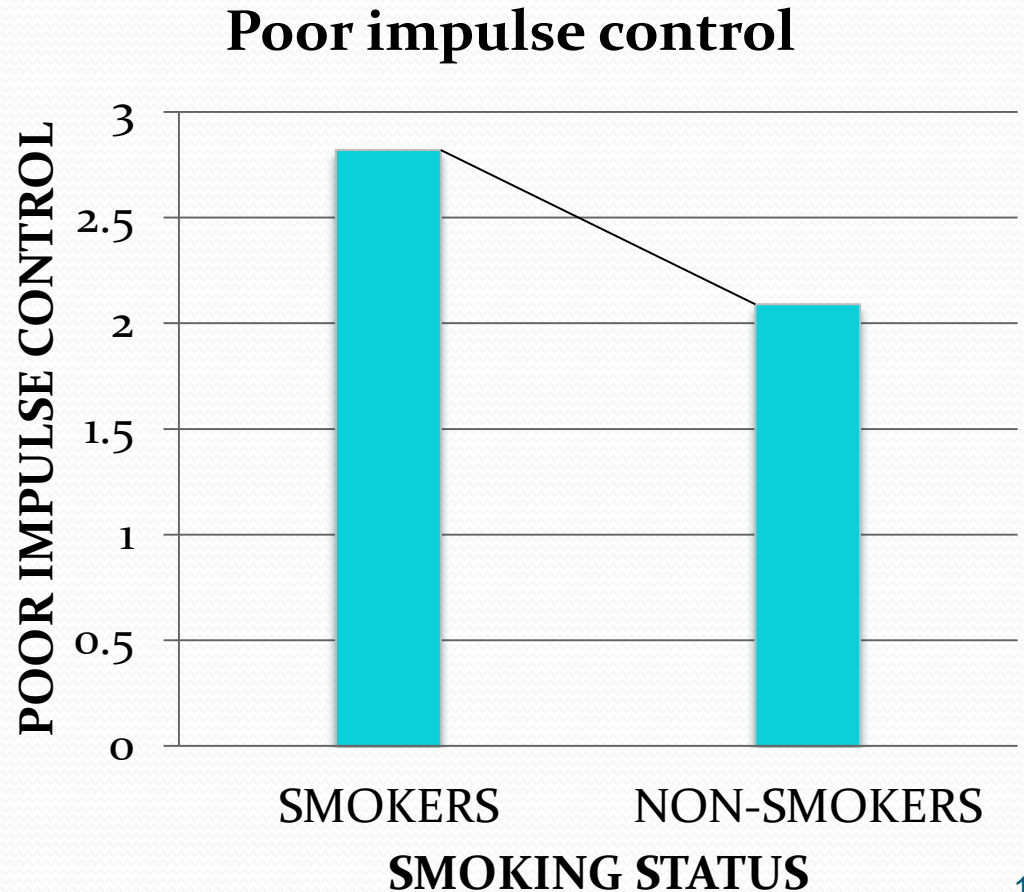
# Disturbance of volition(G13) (p=0.000)

*Disturbance of volition more was pronounced among smokers.*



# Poor impulse control (G14) ( $p=0.008$ )

*Poor impulse control was more pronounced among smokers.*

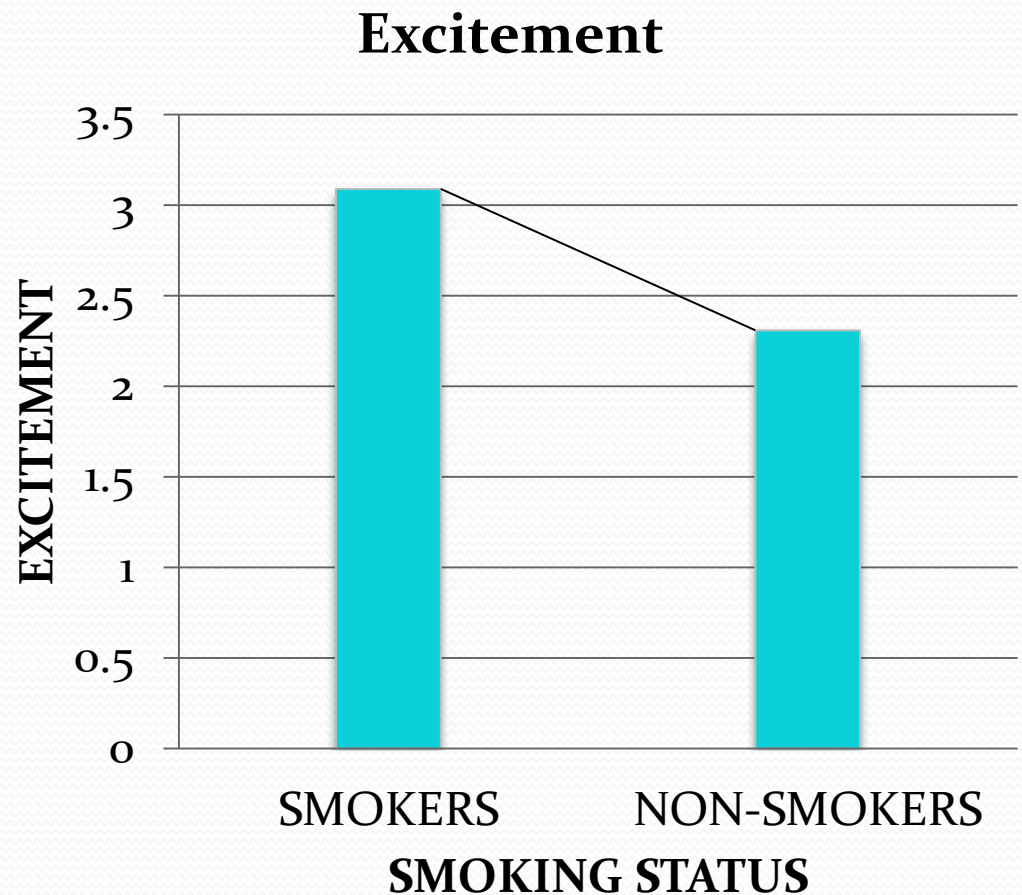




# Excitement (P4)

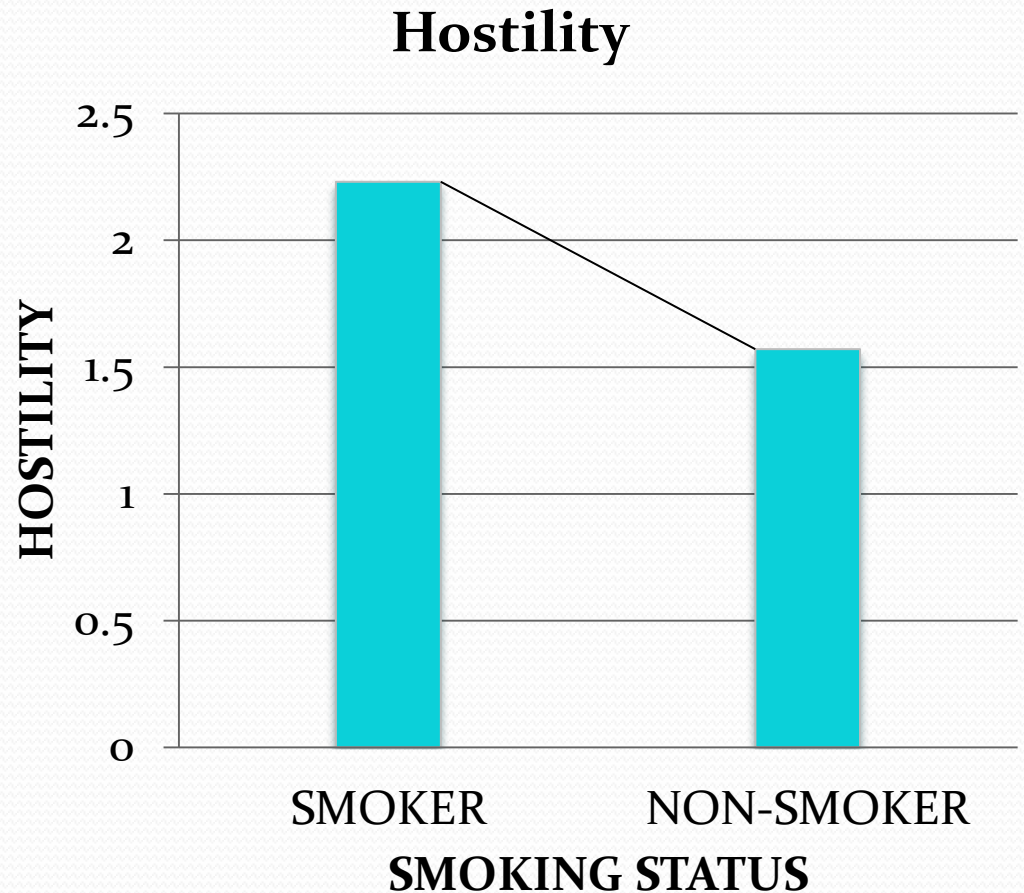
( $p=0.020$ )

Excitement was *more pronounced among smokers.*



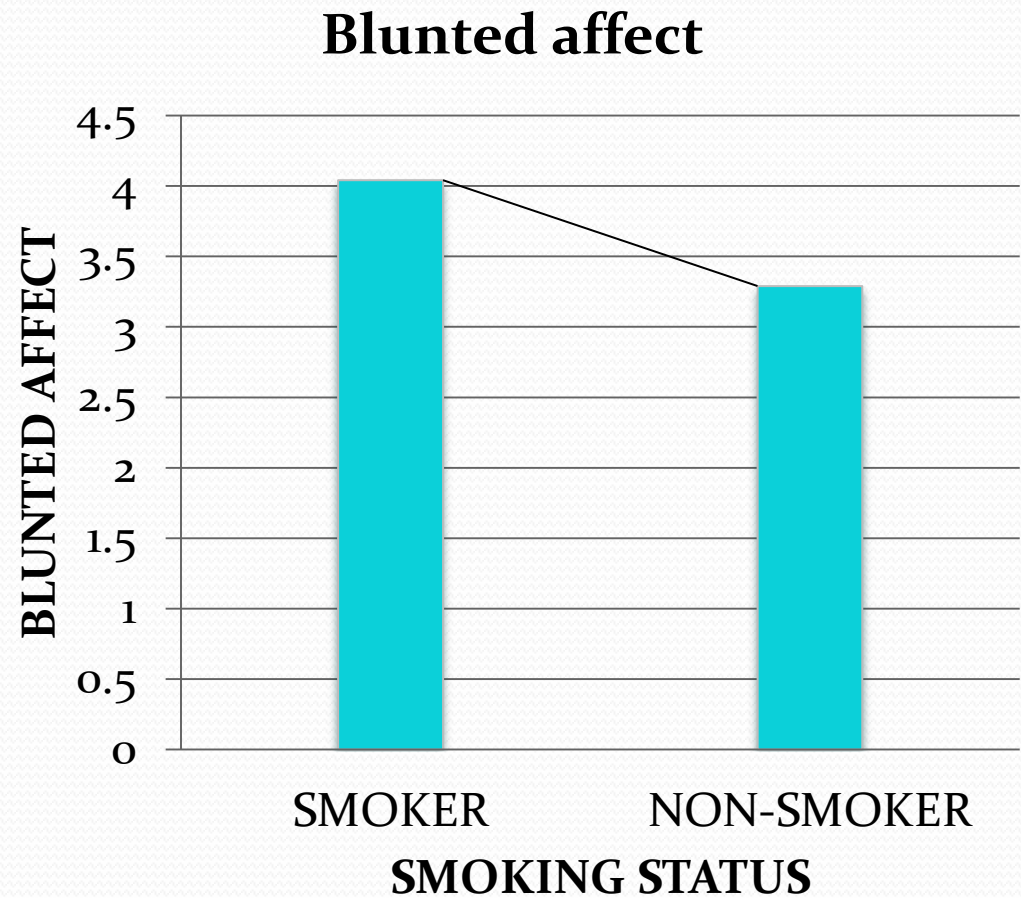
# Hostility (P7) ( $p=0.008$ )

*Hostility was more pronounced among smokers.*



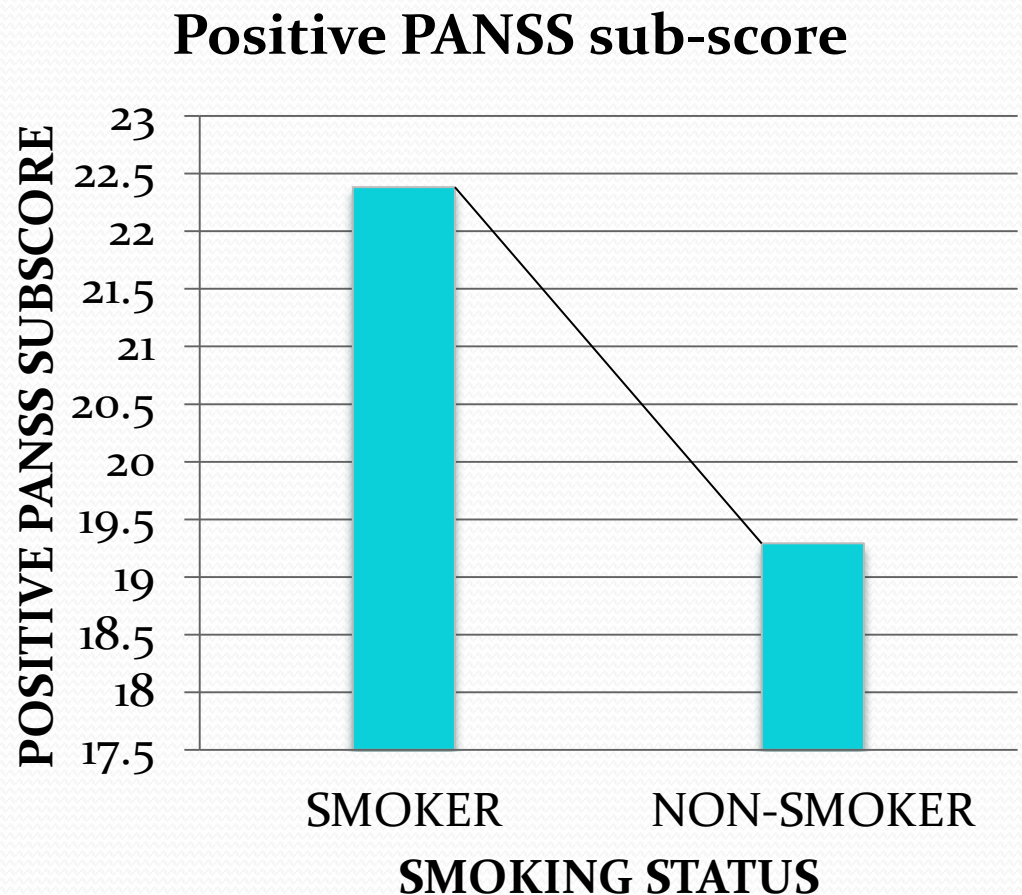
# Blunted affect (N1) ( $p=0.022$ )

*Blunted affect was more pronounced among smokers.*



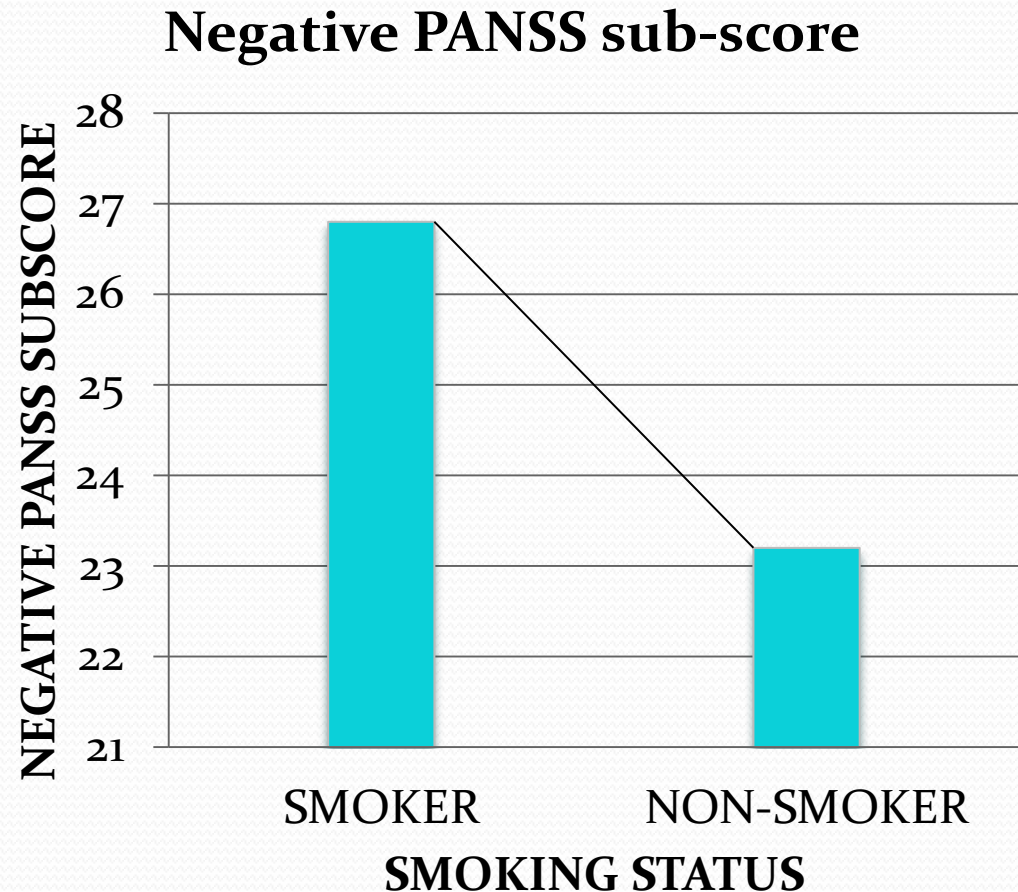
# Results IV: Positive PANSS sub-score ( $p=0.077$ )

Trend indicates that smokers have higher positive PANSS sub score compared to non-smokers.



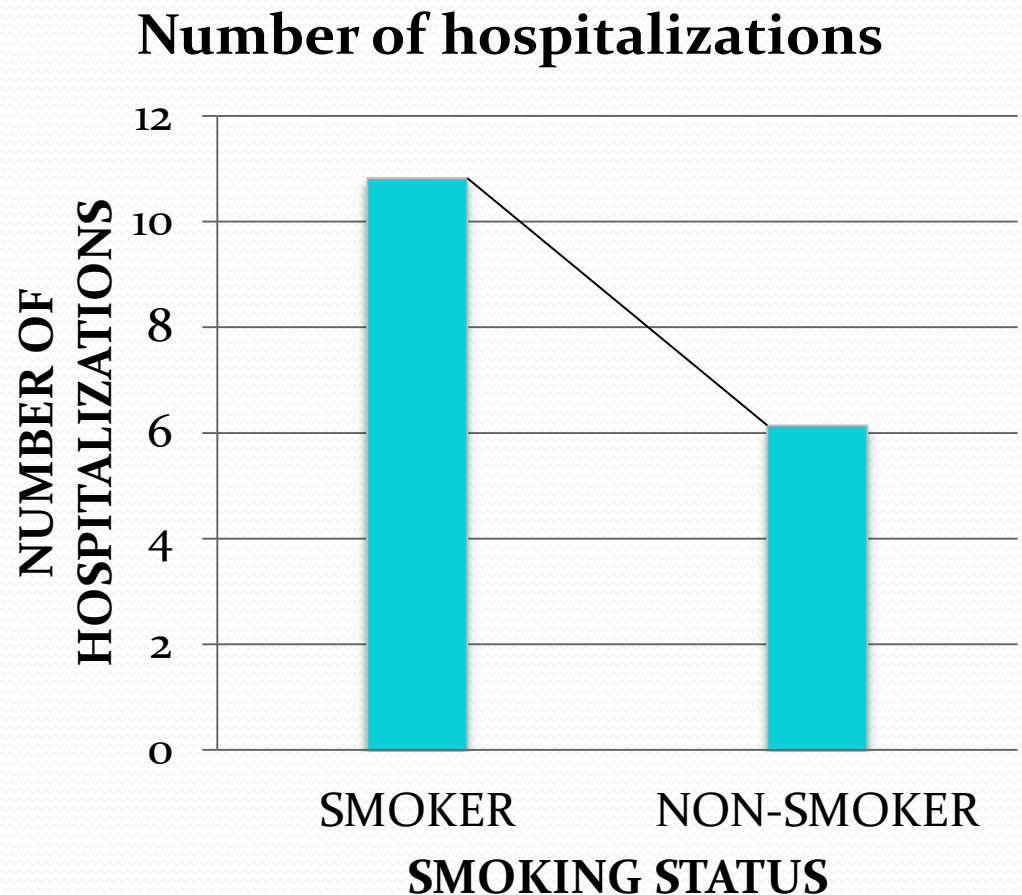
# Results V: Negative PANSS sub-score ( $p=0.054$ )

*Trend indicates that smokers have higher negative PANSS sub-score compared to non-smokers.*



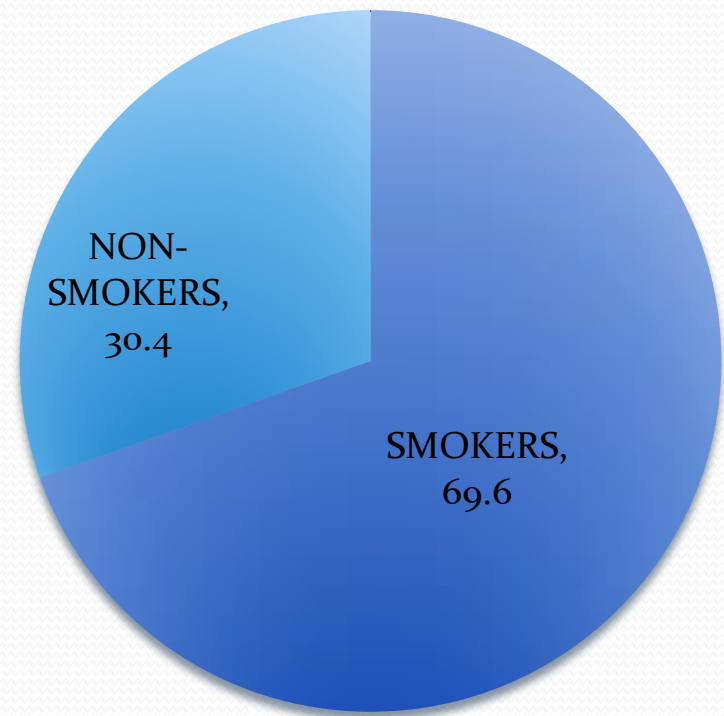
# Results VI: Number of hospitalizations (p=0.060)

*Trend indicates that smokers have higher number of hospitalizations compared to non-smokers.*



# Results VII: Non-adherence among smokers

*Almost 70% of smokers were non-adherent to their prescribed medication.*





Source: Smolić, 2009





# No association

- **Age** ( $p=0.343$ ), **age of schizophrenia onset** ( $p=0.881$ ) or **other socio-demographic characteristics** of the participants and smoking.
- **Number of prescribed medications** (3.29 vs. 3.17;  $p=0.735$ ) or **daily doses** (2.45 vs. 2.29;  $p=0.345$ ) among smokers and non-smokers.



# Summary

- Tobacco use might be associated with more severe schizophrenia psychopathology, medication non-adherence and perhaps higher number of hospitalizations.



Source: [www.hngn.com](http://www.hngn.com)

# Pharmaco-therapeutic Self-medication & Vulnerability hypothesis

- To restore blocked dopamine effect.<sup>1,5</sup>
- Reduce side effect. <sup>1,2,5</sup>
- Nicotine reduces plasma level of antipsychotic medication up to 50%. <sup>3</sup>
- Self-medication of cognitive deficit and negative symptoms.<sup>4,5</sup>
- Genetic factors.<sup>6</sup>



Source: [www.ctri.wsc.edu](http://www.ctri.wsc.edu)

# Acute vs. chronic tobacco use?

## Non-adherence & tobacco use?

- **Acute nicotine effect** may be experienced as beneficial with regard to cognitive functioning and negative symptoms, however **chronic nicotine consumption** may have deterioration effect on schizophrenia psychopathology.<sup>1</sup>
- **Non-adherence** to prescribed antipsychotic medication is associated with relapse, hospital admission and persistent psychotic symptoms.<sup>2</sup>



# WHAT CAN WE DO?

Tobacco use is a huge burden for the patients with schizophrenia, their relatives and society.



# 1. Pay greater attention to patients with schizophrenia and tobacco use dependence

- None of the participants had diagnosis of tobacco dependence (F17).
- **Include smoking status in the treatment process.**  
(prescribing medication, control blood pressure, cholesterol and sugar levels, weight gain).
- **Promote healthy life style.**



## 2. Promote a smoking free environment

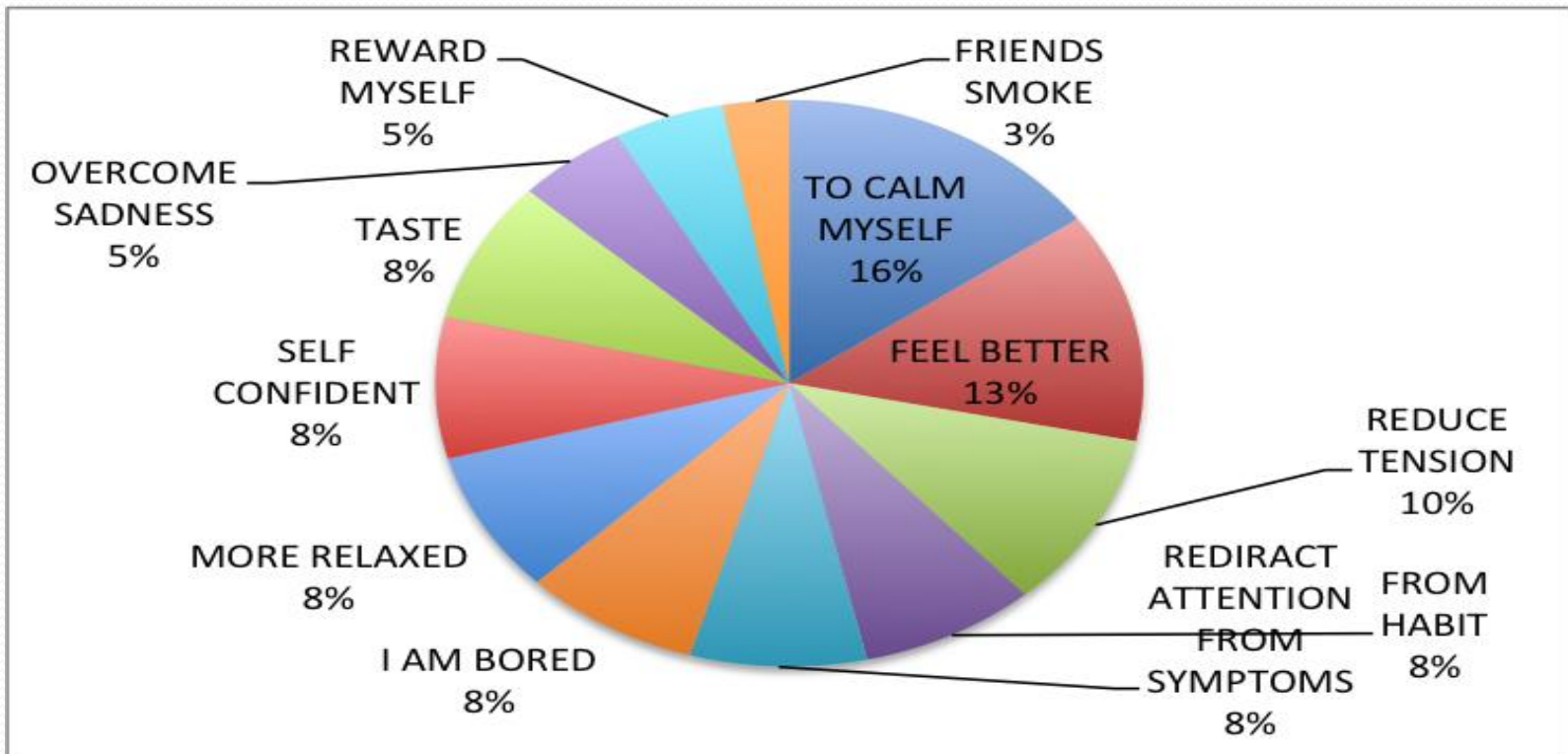
- Law permits smoking in psychiatric settings.
- Reconsider permitting smoking in open wards.
- We encourage patients to smoke.





# 3. Promote smoking cessation

- Every patient has different reason for smoking.
- Individual approach considering the causes of tobacco use.



# 4. Promote 100% medication adherence

- Almost 70 % of smokers were non-adherent to their prescribed antipsychotic medication!



Source: Personal Source

# 5. Educate & Research

- Patients with schizophrenia.
- Relatives.
- Health care professionals.
- Public.
- Research (more attention to tobacco use and medication non-adherence).



# CONCLUSION

**“It is the only thing I have in this life - cigarettes and coffee”.**

