Knowledge Regarding Tobacco Cessation among Undergraduate, Graduate, and Postgraduate/Faculty in Dental Colleges of Ludhiana: A Survey

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Abstract

**Aim:** The aim of the study is to assess and compare the knowledge regarding tobacco cessation among various educational groups.

**Materials and Methods:** A questionnaire comprising 15 questions was distributed among three educational groups (graduate, undergraduate, and postgraduate/faculty) in dental colleges of Ludhiana. **Statistical Analysis:** One-way analysis of variance and Student’s *t*-test were used to compare the knowledge among different groups using education level and gender as the variables, respectively.

**Results:** A total of 300 participants (73.17%) completed the survey of which 71 (23.66%) were undergraduates, 160 (53.33%) were graduates, and 69 (23%) were postgraduates/faculty. Statistically significant difference was detected among the three educational groups and gender. **Conclusion:** Difference in viewpoint was observed on the basis of educational groups and gender. Participants have insufficient knowledge and training for tobacco cessation. Adoption of new measures to stop tobacco consumption is the need of the hour.

**Keywords:** Counseling, educational groups, tobacco cessation

**INTRODUCTION**

Tobacco consumption is one of the greatest challenges the world is facing today. Every tenth adult (10.7%, 99.5 million) in India currently smokes tobacco.[1] Nearly two of every five (38.5%) smokers made an attempt to quit smoking. A small proportion of smokers who made an attempt to quit smoking in the past 12 months used either pharmacotherapy including nicotine replacement therapy (NRT) or use of prescription medicine (4.1%) or counseling/advice that includes cessation clinic and a telephone quitline/helpline (8.6%); 4.1% smokers tried to quit smoking by switching to smokeless tobacco use. Most of the smokers (71.7%) who made an attempt to quit smoking in the past 12-month period before the survey tried to do it without assistance of any formal method. The Global Adult Tobacco Survey 2 revealed that 28.6% (266.8 million) of adults in India aged 15 and above currently use tobacco in some form. Among the adults, 24.9% (232.4 million) are daily tobacco users and 3.7% (34.4 million) are occasional users.[1] Average age at initiation of tobacco use was 17.8 with 25.8% females starting tobacco use before the age of 15 (Global Adult Tobacco Survey 2009–2010).[2] Annual oral cancer incidence has been estimated to be as higher to 10/100,000 among males in Indian subcontinent.[3]

One unique aspect of dentistry is that some of the adverse health effects of tobacco use are clinically apparent in the oral cavity even in relatively early stages of use.[4,5] As it is said “prevention is better than cure,” therefore, dentists can diagnose any malignant or premalignant changes in the oral cavity that has occurred by the use of tobacco and guide the patients to quit the habit in earlier stages.

The objective of this study was to evaluate and assess knowledge of different educational groups in dentistry (graduate, undergraduate, and postgraduate/faculty) regarding various aspects of tobacco cessation.

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**Materials and Methods**

A cross-sectional study was conducted wherein a questionnaire consisting of 15 questions was prepared and distributed to undergraduate (UG), graduate (G), and postgraduate (PG)/faculty (F) of various dental colleges in Ludhiana. Permission to proceed with the survey was taken from the ethical committee of the college. Approval to conduct the survey was taken from the head of institution of the respective colleges. The participants of the survey were chosen randomly. The study was anonymous, so the confidentiality of the participants was maintained. A total of 410 questionnaires were distributed, of which 300 were completely filled and returned. The responses to the questionnaire were marked on the multiple choice two-point scale. The questionnaire consisted of demographic data that included gender followed by education level and the 15 questions [Questionnaire 1].

**Statistical analysis**

For exploring association between different educational groups, one-way analysis of variance and Student’s t-test for comparing gender were used. The statistical significance was set at $P < 0.05$.

**Results**

A total of 410 questionnaires were distributed among three different educational groups (undergraduate, graduate, and postgraduate/faculty) in various dental colleges, of which 300 (73.17%) were completely filled and returned. A total number of females and males who participated in the questionnaires were 237 (79%) and 63 (21%), respectively. Of 300 participants, 71 (23.66%) were females and 229 (76.34%) were males. A total of 410 questionnaires were distributed, of which 300 were completely filled and returned. The responses to the questionnaire were marked on the multiple choice two-point scale. The questionnaire consisted of demographic data that included gender followed by education level and the 15 questions [Questionnaire 1].

Most of the participants felt that they had a responsibility in tobacco cessation which included UG (92.96%), G (98.75%), and PG/F (98.55%) [Figure 1]. Majority of them asked the patient about tobacco habits which included 97.18% UG, 96.25% G, and 92.75% PG/F. A total of 98.59% UG, 93.75% G, and 97.10% PG/F explained patients about health risks related to tobacco consumption. A variation was seen in different groups regarding the use of tobacco cessation aids during practice. About 83.10% UG compared to 58.75% G and 63.77% PG/F agreed to using them. Only few dentists had been a part of tobacco cessation programs, in that 46.48% UG, 41.88% G, and 39.13% PG/F had attended these programs. Some of the participants were of the view that educating patients about tobacco cessation would bring monetary halt in clinical practice (18.31% UG, 11.8% G, and 10.14% PG/F) and also felt that tobacco consumption had decreased in recent years due to counseling given to patients regarding tobacco cessation and awareness programs (46.48% UG, 41.88% G, and 39.13% PG/F). Majority of the dentists had a view that reading material on tobacco cessation such as brochures, posters, and pamphlets are available in waiting areas of hospital and clinics (94.37% UG, 91.88% G, and 98.55% PG/F). When asked about whether lack of knowledge among dentists prevents them from educating patients about tobacco cessation, majority of the dentists felt that it had an impact (73.24% UG, 65% G, and 66.67% PG/F). Majority of the dentists were using one of the following steps for tobacco cessation such as counseling and NRTs (91.55% UG, 93.13% G, and 95.65% PG/F). Some of them felt that they had sufficient training to educate and guide patients about tobacco cessation (56.34% UG, 48.75% G, and 52.17% PG/F). Few of them got positive feedback from the patients and they had counseled regarding tobacco cessation (60.56% UG, 48.13% G, and 62.32% PG/F). Participants had different views, regarding referring the patients with heavy tobacco dependence to psychiatrist/psychotherapist (70.42% UG, 28.13% G, and 34.78% PG/F). Almost all the dentists felt that new measures should be adopted to help patients quit tobacco. Significant statistical difference in $P$ values within different educational groups was observed in Q1 ($P = 0.010$), Q4 ($P = 0.002$), Q5 ($P = 0.002$), and Q14 ($P = 0.000$) which was further evaluated using post hoc analysis [Table 1].

Post hoc comparison using Tukey’s honestly significant difference indicated significant difference in $P$ value in the following pairs: Q1 (UG with G [$P = 0.008$]), Q4 (UG with G [$P = 0.001$] and PG/F [$P = 0.039$]), Q5 (UG with G [$P = 0.001$]), and Q14 (UG with G [$P = 0.000$] and PG/F [$P = 0.000$]) [Table 2]. Statistical difference in $P$ values was observed in t-test with respect to gender in the following questions: Q7 ($P = 0.024$), Q12 ($P = 0.001$), and Q15 ($P = 0.001$) [Table 3].

The analysis showed that in Q1, the mean value of PG/F and G was greater than UG, whereas in Q4, the mean value of UG was greater than G and PG/F [Table 1]. In Q5, the mean value of G was greater than PG/F, and in Q14, the mean value of UG was more the G and PG/F. The mean value for females was more than the males in Q7 and Q15 whereas it was less than males in Q12.

Comparison of different questions was made using mean and education category [Graphs 1 and 2].
Table 1: ANOVA applied on the basis of education level

| Question number | Variable (education) | n  | Mean | SD  | Yes (%) | F ratio | P      |
|-----------------|----------------------|----|------|-----|---------|---------|--------|
| 1               | UG                   | 71 | 0.93 | 0.26| 66 (92.96) | 4.70    | 0.010  |
|                 | Graduate             | 160| 0.99 | 0.08| 158 (98.75) |         |        |
|                 | PG/faculty           | 69 | 0.99 | 0.12| 68 (98.55)  |         |        |
| 2               | UG                   | 71 | 0.97 | 0.17| 69 (97.18)  | 0.96    | 0.382  |
|                 | Graduate             | 160| 0.96 | 0.19| 154 (96.25) |         |        |
|                 | PG/faculty           | 69 | 0.93 | 0.26| 64 (92.75)  |         |        |
| 3               | UG                   | 71 | 0.99 | 0.12| 70 (98.59)  | 1.28    | 0.280  |
|                 | Graduate             | 160| 0.94 | 0.23| 150 (93.75) |         |        |
|                 | PG/faculty           | 69 | 0.97 | 0.17| 67 (97.10)  |         |        |
| 4               | UG                   | 71 | 0.83 | 0.38| 59 (83.10)  | 6.47    | 0.002  |
|                 | Graduate             | 160| 0.59 | 0.49| 94 (58.75)  |         |        |
|                 | PG/faculty           | 69 | 0.64 | 0.48| 44 (63.77)  |         |        |
| 5               | UG                   | 71 | 0.31 | 0.47| 22 (30.99)  | 6.42    | 0.002  |
|                 | Graduate             | 160| 0.56 | 0.50| 90 (56.25)  |         |        |
|                 | PG/faculty           | 69 | 0.43 | 0.48| 30 (63.77)  |         |        |
| 6               | UG                   | 71 | 0.18 | 0.39| 13 (30.99)  | 1.11    | 0.331  |
|                 | Graduate             | 160| 0.12 | 0.33| 19 (56.25)  |         |        |
|                 | PG/Faculty           | 69 | 0.10 | 0.30| 7 (43.48)   |         |        |
| 7               | UG                   | 71 | 0.62 | 0.49| 44 (18.31)  | 0.03    | 0.975  |
|                 | Graduate             | 160| 0.63 | 0.48| 101 (11.88) |         |        |
|                 | PG/faculty           | 69 | 0.64 | 0.48| 44 (10.14)  |         |        |
| 8               | UG                   | 71 | 0.46 | 0.50| 33 (61.97)  | 0.40    | 0.671  |
|                 | Graduate             | 160| 0.42 | 0.50| 67 (63.13)  |         |        |
|                 | PG/faculty           | 69 | 0.39 | 0.49| 27 (63.71)  |         |        |
| 9               | UG                   | 71 | 0.94 | 0.23| 67 (46.48)  | 1.65    | 0.193  |
|                 | Graduate             | 160| 0.92 | 0.26| 147 (41.88) |         |        |
|                 | PG/faculty           | 69 | 0.99 | 0.12| 68 (39.13)  |         |        |
| 10              | UG                   | 71 | 0.73 | 0.45| 52 (94.37)  | 0.76    | 0.467  |
|                 | Graduate             | 160| 0.65 | 0.48| 104 (91.88) |         |        |
|                 | PG/faculty           | 69 | 0.67 | 0.48| 46 (98.55)  |         |        |
| 11              | UG                   | 71 | 0.92 | 0.28| 65 (73.24)  | 0.48    | 0.618  |
|                 | Graduate             | 160| 0.93 | 0.28| 149 (65.00) |         |        |
|                 | PG/faculty           | 69 | 0.96 | 0.21| 66 (66.67)  |         |        |
| 12              | UG                   | 71 | 0.56 | 0.50| 40 (91.55)  | 0.48    | 0.620  |
|                 | Graduate             | 160| 0.49 | 0.50| 78 (93.13)  |         |        |
|                 | PG/faculty           | 69 | 0.52 | 0.50| 36 (95.65)  |         |        |
| 13              | UG                   | 71 | 0.61 | 0.49| 43 (56.34)  | 2.71    | 0.068  |
|                 | Graduate             | 160| 0.48 | 0.50| 77 (48.75)  |         |        |
|                 | PG/faculty           | 69 | 0.62 | 0.49| 43 (52.17)  |         |        |
| 14              | UG                   | 71 | 0.70 | 0.46| 50 (60.56)  | 22.02   | 0.000  |
|                 | Graduate             | 160| 0.28 | 0.45| 45 (48.13)  |         |        |
|                 | PG/faculty           | 69 | 0.35 | 0.48| 24 (62.32)  |         |        |
| 15              | UG                   | 71 | 0.97 | 0.17| 69 (70.42)  | 1.13    | 0.323  |
|                 | Graduate             | 160| 0.99 | 0.08| 158 (28.13) |         |        |
|                 | PG/faculty           | 69 | 0.97 | 0.17| 67 (34.78)  |         |        |

*P* statistically significant <0.05

**Discussion**

There is overwhelming evidence for the health benefits, effectiveness, and cost-effectiveness of quitting smoking and of treatment of tobacco dependence, a disorder recognized by the tenth version of the World Health Organization’s International Classification of Diseases (WHO 1992). Public sector in many countries is not investing in smoking cessation services and in the development of infrastructure that will motivate smokers to quit and support them in doing so. Studies have shown that dentists trained in smoking cessation counseling were able to contribute to smoking cessation program in community with good success rates, compared to rates reported in general medical practice settings.
In our study, we found that the G and PG/F was statistically significant <0.05. SD: Standard deviation

According to our study, G was statistically significant <0.05. SD: Standard deviation

The United States Department of Health and Human Services, in the 2000 guidelines on treating tobacco use and dependence, recommended a counseling protocol known as the “5A’s” to identify smokers who want to quit and how best to support them in their attempt. The “5A’s” protocol which consists of asking about the smoking status, advising the benefits of quitting, assessing the motivation to quit, assisting in the quit attempt, and arranging for supportive follow-up was developed based on comprehensive review of up to 6000 articles on tobacco addiction published from 1975 to 1999. The protocol was designed to be brief such that minimal counseling time is required, which was estimated to be only 3 min or less of direct clinician time.[11]

According to earlier studies, dentists feel that they have a responsibility in tobacco cessation (the United States, the United Kingdom [John et al., 1997], Australia, and Saudi Arabia).[12-16] In our study, we found that the G and PG/F supported these studies to a greater extent as compared to UG (P = 0.010) [Graph 3].

Evidence has shown that only a few dentists advocated tobacco cessation practices and further fewer had maintained records and pursued with follow-up.[17] According to our study, G was supporting this viewpoint to some extent as compared to UG and PG/F (P = 0.002) [Graph 4].

Similarly, a study by Trotter and Worcester[18] suggested that even though dentists were willing to participate in smoking cessation, their activities were neither comprehensive nor systematic, and there was a need of education and training in this area. In our study, some participants answered that they

| Question number | Tukey’s HSD | Pair | P   |
|-----------------|------------|------|-----|
| 1               | UG         | G    | 0.008 |
|                 | UG         | PG/F | 0.070 |
|                 | G          | PG/F | 0.922 |
| 2               | UG         | G    | 0.945 |
|                 | UG         | PG/F | 0.405 |
|                 | G          | PG/F | 0.460 |
| 3               | UG         | G    | 0.289 |
|                 | UG         | PG/F | 0.895 |
|                 | G          | PG/F | 0.599 |
| 4               | UG         | G    | 0.001 |
|                 | UG         | PG/F | 0.039 |
|                 | G          | PG/F | 0.790 |
| 5               | UG         | G    | 0.001 |
|                 | UG         | PG/F | 0.290 |
|                 | G          | PG/F | 0.200 |
| 6               | UG         | G    | 0.456 |
|                 | UG         | PG/F | 0.332 |
|                 | G          | PG/F | 0.881 |
| 7               | UG         | G    | 0.985 |
|                 | UG         | PG/F | 0.974 |
|                 | G          | PG/F | 0.995 |
| 8               | UG         | G    | 0.792 |
|                 | UG         | PG/F | 0.656 |
|                 | G          | PG/F | 0.922 |
| 9               | UG         | G    | 0.838 |
|                 | UG         | PG/F | 0.533 |
|                 | G          | PG/F | 0.165 |
| 10              | UG         | G    | 0.437 |
|                 | UG         | PG/F | 0.687 |
|                 | G          | PG/F | 0.967 |
| 11              | UG         | G    | 0.898 |
|                 | UG         | PG/F | 0.597 |
|                 | G          | PG/F | 0.763 |
| 12              | UG         | G    | 0.594 |
|                 | UG         | PG/F | 0.876 |
|                 | G          | PG/F | 0.921 |
| 13              | UG         | G    | 0.186 |
|                 | UG         | PG/F | 0.976 |
|                 | G          | PG/F | 0.117 |
| 14              | UG         | G    | 0.000 |
|                 | UG         | PG/F | 0.000 |
|                 | G          | PG/F | 0.513 |
| 15              | UG         | G    | 0.455 |
|                 | UG         | PG/F | 0.999 |
|                 | G          | PG/F | 0.435 |

| Question number | Gender | n   | Mean | SD  | Yes | P   |
|-----------------|--------|-----|------|-----|-----|-----|
| 1               | Male   | 63  | 0.98 | 0.13 | 62  | 0.660 |
|                 | Female | 237 | 0.97 | 0.16 | 230 |     |
| 2               | Male   | 63  | 0.92 | 0.27 | 58  | 0.115 |
|                 | Female | 237 | 0.97 | 0.18 | 230 |     |
| 3               | Male   | 63  | 0.95 | 0.22 | 60  | 0.729 |
|                 | Female | 237 | 0.96 | 0.19 | 228 |     |
| 4               | Male   | 63  | 0.68 | 0.47 | 43  | 0.672 |
|                 | Female | 237 | 0.65 | 0.48 | 154 |     |
| 5               | Male   | 63  | 0.43 | 0.50 | 27  | 0.460 |
|                 | Female | 237 | 0.48 | 0.50 | 114 |     |
| 6               | Male   | 63  | 0.19 | 0.40 | 12  | 0.134 |
|                 | Female | 237 | 0.12 | 0.32 | 28  |     |
| 7               | Male   | 63  | 0.51 | 0.50 | 32  | 0.024 |
|                 | Female | 237 | 0.66 | 0.47 | 156 |     |
| 8               | Male   | 63  | 0.38 | 0.49 | 24  | 0.445 |
|                 | Female | 237 | 0.43 | 0.50 | 102 |     |
| 9               | Male   | 63  | 0.98 | 0.13 | 62  | 0.116 |
|                 | Female | 237 | 0.93 | 0.25 | 220 |     |
| 10              | Male   | 63  | 0.60 | 0.49 | 38  | 0.183 |
|                 | Female | 237 | 0.69 | 0.46 | 164 |     |
| 11              | Male   | 63  | 0.90 | 0.30 | 57  | 0.308 |
|                 | Female | 237 | 0.94 | 0.24 | 223 |     |
| 12              | Male   | 63  | 0.70 | 0.46 | 44  | 0.001 |
|                 | Female | 237 | 0.47 | 0.50 | 111 |     |
| 13              | Male   | 63  | 0.52 | 0.50 | 33  | 0.727 |
|                 | Female | 237 | 0.55 | 0.50 | 130 |     |
| 14              | Male   | 63  | 0.43 | 0.50 | 27  | 0.521 |
|                 | Female | 237 | 0.38 | 0.49 | 90  |     |
| 15              | Male   | 63  | 0.94 | 0.25 | 59  | 0.001 |
|                 | Female | 237 | 1.00 | 0.07 | 237 |     |

P statistically significant <0.05. SD: Standard deviation
had participated in tobacco cessation programs, thus supporting the earlier studies with UG and PG/F to a greater extent as compared to G \( (P = 0.002) \) [Graph 5].

In some of the studies which analyzed factors that may influence dentists’ adherence to tobacco use treatment guidelines, a lack of training and a lack of confidence in their ability to help patients quit smoking are consistently associated with low rates of cessation intervention delivery.\(^\text{[16-21]}\) In our study, different educational groups felt the same, thus supporting earlier studies [Graph 6].

A study by Dolan et al.\(^\text{[22]}\) concluded that tobacco control activities such as asking about tobacco use and documenting tobacco use status in patient’s record were not a routine part of dental practice. In our studies, we found a contrast where majority of the participants asked the patients about tobacco habits.

In our study, we found that more of the females felt that tobacco consumption by health professionals impede them from giving proper education about risks of tobacco \( (P = 0.024) \) [Graph 7].

Moreover, greater number of males felt that they had sufficient knowledge to educate patients about tobacco cessation as compared with females \( (0.001) \) [Graph 8].

It was also concluded that more number of females felt that new measures should be adopted to help patients to quit tobacco \( (P = 0.001) \) [Graph 9].

Some actions from the key components of a system to help tobacco users quit tobacco (Guidelines from Article 14 of WHO Framework Convention on Tobacco Control) are listed below.\(^\text{[23]}\)
Actions that establish basic infrastructure and create an environment that prompts quit attempts

**Establish system components**
- Ensure that the population is well informed about the harmful effects of tobacco products
- Strengthen or create and fund national coordination for tobacco cessation and tobacco dependence treatment, as part of the national tobacco control plan
- Develop and disseminate a national tobacco cessation strategy and national tobacco dependence treatment guidelines
- Identify and allocate sustainable funding for tobacco cessation and tobacco dependence treatment programs
- Where appropriate, ensure that health insurance or other funded health-care systems record tobacco dependence as a disease or disorder and include its treatment in services covered.

**Address the issue in health-care workers**
- Incorporate tobacco dependence and cessation into the core curriculum and continuing professional training of medical, dental, nursing, pharmacy, and other relevant undergraduate and postgraduate courses and in licensing and certifying examinations
- Train health-care workers to give brief advice according to a simple formula
- Where appropriate train workers and service providers outside the health-care sector in tobacco cessation and tobacco dependence treatment skills
- Promote tobacco cessation among health-care workers and service providers who use tobacco and offer support to them to quit if they need it.

**Integrate brief advice into existing health-care systems**
- Ensure that tobacco use is recorded in medical notes and other relevant notes at all levels of care
- Integrate brief advice into the existing primary health-care system
- Involve all relevant sectors of a country’s health-care system in providing brief advice
- Integrate brief advice into other culturally relevant settings outside the health-care sector when the opportunity or necessity arises
- Reimbursement of health-care workers’ time for tobacco cessation counseling, and the course of medications, is recommended where appropriate.

**Actions that increase the likelihood of quit attempts succeeding**

**Create capacity for tobacco cessation support and tobacco dependence treatment**
- Ensure that the population is well informed about the availability and accessibility of tobacco dependence treatment services and encourage them to make use of them
- Establish a free proactive quitline providing advice on how to quit, or if resources are scarce, start by establishing a free reactive quitline
- Ensure that effective modifications are readily available, accessible, and free or at an affordable cost
- Establish a network of specialized comprehensive tobacco dependence treatment services that meet national or applicable standards of care.[23]

**Conclusion**
Difference in viewpoint was observed on the basis of
educational groups and gender. Participants have insufficient knowledge and training for tobacco cessation. Adoption of new measures to stop tobacco consumption is the need of the hour.

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Nil.

**Conflicts of interest**
There are no conflicts of interest.

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QUESTIONNAIRE

Questionnaire 1

Education level

Undergraduate/Graduate/Postgraduate/Faculty

1. Do you agree that dentists play an important part in smoking cessation counseling?
   a. Yes  b) No

2. Is it necessary to inquire about the tobacco habits from patient?
   a. Yes  b) No

3. Do you feel the need to inform health-related issues due to tobacco consumption to your patient?
   a. Yes  b) No

4. Do you feel that tobacco cessation aids are reliable in clinical practice?
   a. Yes  b) No

5. Have you ever been a part of discussion regarding Tobacco Cessation Programs?
   a. Yes  b) No

6. Does educating the patient about tobacco use bring a monetary halt in your clinical practice?
   a. Yes  b) No

7. Does tobacco consumption by health professional impede them from giving proper education about risks of tobacco?
   a. Yes  b) No

8. Do you think awareness programs or counseling have caused a decline in the use of tobacco products?
   a. Yes  b) No

9. Are brochures, posters, and pamphlets giving information about the ill effects of tobacco consumption readily available at clinics?
   a. Yes  b) No

10. Do you feel lack of knowledge among dentists prevents them from educating the patient about tobacco cessation?
    a. Yes  b) No

11. Do you take any of the following steps for tobacco cessation like Counseling, Nicotine Replacement Therapy etc.?
    a. Yes  b) No

12. Do you think you have enough knowledge to educate patients about tobacco cessation?
    a. Yes  b) No

13. Has your counseling ever fetched you any positive response from your patient?
    a. Yes  b) No

14. Do you think the involvement of a psychiatrist/psychotherapist in severe case of dependence proves to be beneficial?
    a. Yes  b) No

15. Do you feel new measures should be adopted by patients to quit tobacco?
    a. Yes  b) No