

Awareness of patients with multiple sclerosis in Saudi Arabia regarding the relationship between smoking and multiple sclerosis

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ABSTRACT

الأهداف: قياس وعي مرضى التصلب المتعدد في المملكة العربية السعودية تجاه العلاقة بين التدخين ومرض التصلب المتعدد.

المنهجية: هي دراسة مستعرضة وصفية تم إجراؤها في عام 2018م على 162 مريضاً الذين كانوا يحضرون مشفى من الدرجة الثالثة في جدة، المملكة العربية السعودية. تم جمع البيانات من خلال استبيان ذاتي الإدارة ومقابلات هاتفية. تحليل البيانات تم من خلال الحزمة الإحصائية للعلوم الاجتماعية (SPSS) نسخة 21 باستخدام اختبار مربع كاي.

النتائج: مجموع 162 مريض أجابوا على الاستبيان. من كل العينة، 56 كانوا مدخنين حالياً، 41 منهم كانوا ذكوراً. تسعة وثلاثون من المرضى كانت لديهم محاولات سابقة لترك التدخين، و64.1% كانت قراراتهم لترك التدخين ذاتية. الأطباء قاموا بتقديم المشورة لـ 52.7% من المدخنين الحاليين بخصوص تأثير التدخين على تدهور المرض.

الخلاصة: النتائج تظهر أن هنالك نقص في مستوى الوعي لدى المرضى بالرغم من خطورة التدخين على مرضى التصلب المتعدد. بالتالي، البرامج التعليمية والحملات التوعوية ستزيد وعي المرضى وتسد هذه الثغرة لديهم. كما أنه يجب على المؤسسات الصحية ومقدمي الرعاية الصحية أن يأخذوا هذه المشكلة بعين الاعتبار عند تقديم المشورة للمريض.

Objectives: To assess the awareness of patients with multiple sclerosis about the relationship between smoking and multiple sclerosis in Saudi Arabia.

Methods: A descriptive cross-sectional study was carried out in 2018 for 162 patients who are attending a tertiary hospital in Jeddah, Kingdom of Saudi Arabia. Self-administered questionnaire and telephone-based interview were used to collect the data. The Analysis was carried out through a statistical package for the social sciences (SPSS) software version 21 by using chi-square.

Results: A total of 162 patients responded to the questionnaire (response rate, 58.1%). Among the respondents, 56 were current smokers, and 41 of them were males. Thirty-nine patients had a previous cessation attempt, and in 64.1% of the cases, it was mainly a self-made decision. Doctors counseled only 52.7% of the active smokers regarding the effect of smoking on the progression of their disease.

Conclusion: Results indicate that there is a low level of awareness regarding the risk of smoking on multiple sclerosis. Therefore, educational programs and campaigns would be beneficial to fulfill the gap. Moreover, Health institutions and health care workers should take this issue into account when counseling the patient.

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Multiple sclerosis (MS) is a neurodegenerative, inflammatory, demyelinating disease of the central nervous system that has an increasing incidence.¹⁻² It is one of world's most common neurologic disorders with a prevalence of 30.1 cases affected per 100 000 population worldwide.³ Epidemiological studies have shown that MS has a high prevalence on the Arabian Gulf region.²

Multiple Sclerosis usually starts between the ages of 20 and 50.⁴ After trauma, the most common cause of neurological disability in young individuals is MS and it leads to a personal, social, and economic public health burden.⁵ The medical costs of MS care rank second after congestive heart failure, with an estimated cost of \$8528 to \$54,244 per patient per year.¹ Multiple sclerosis has 4 clinical categories: primary progressive MS (PPMS), secondary progressive MS (SPMS), relapsing-remitting MS (RRMS), and progressive relapsing MS (PRMS). Almost 85% of patients present with RRMS.⁶

Multiple Sclerosis is a disease of an unknown cause, but it is believed that it is a multifactorial disease that can be due to genetic susceptibility and environmental factors; both of these play a valuable role in the pathogenesis of the disease.⁷⁻⁸ One of the environmental factors that can play a role in the progression of MS is smoking.⁹ Worldwide in 2015, 1 in 19 female and 1 in 4 male, smoked cigarettes daily.¹⁰ Furthermore, a cross sectional study has shown that individuals with MS smoke more than the general population.⁹

A British Cohort Study that was accomplished in 2017 that assessed the effect of smoking cessation on the degree of disability of MS patients found that MS patients who had smoke-free years had decreased risk of disability. In addition, non-smokers had a decreased risk of disability in comparison with current smokers.¹¹ Not only cigarette smoking can affect, passive smoking also plays a role as it was found in a case-control study in Iran 2016 where their results notably related MS to Having ever smoked Water-pipe (odds ratio (OR)=1.77 (1.36–2.31), tobacco OR=1.69 (1.24–2.31), or even being exposed to passive smoking OR=1.85 (1.48–2.32).¹² Furthermore, the association between smoking and MS progression has been researched in a 2015 Swedish cross-sectional study, which concluded that after diagnosis with MS, each added year of smoking increased the likelihood of disease transition to SPMS by 4.7%.¹³ In addition, smoking does not only cause acceleration of the disease; it also increases the mortality. An American study in 2015 that examined the effect of smoking and other lifestyle factors on the mortality of MS patients showed that baseline smoking was associated with higher mortality.¹⁴ There is a serious lack of information about the knowledge of, attitude to

and awareness of smoking-related issues in MS patients. Therefore, this study aims to assess the awareness of any link between smoking and MS in patients with multiple sclerosis at King Abdulaziz University Hospital (KAUH), Jeddah, Kingdom of Saudi Arabia.

Methods. A cross-sectional descriptive study was conducted in 2018 at KAUH, Jeddah, Kingdom of Saudi Arabia. Patients who were diagnosed to have MS of all types of all ages, both genders, and Saudis or non-Saudis were included. The study was approved by the institutional review board (IRB) of King Abdul-Aziz University (KAU). Some data were collected by well-trained medical students through telephone-based interviews using phone numbers from the medical records securely and confidentially. The remaining data were collected through a self-administered questionnaire for patients who attended the MS clinics. The questionnaire was reviewed by 2 consultant neurologists who were experts in the management of MS, and was prepared in multiple-choice question (MCQ) format with an average time allowance of 20 minutes for each person. It was formulated in Arabic and English. Verbal or written consent was obtained from respondents after clarifying the purpose of the study.

The questionnaire was composed of 4 sections: The first and second sections consisted of demographic data and information about the clinical status of the patient's disease which includes age, gender, income, education level, course of the disease, and duration of it. The third section consisted of questions in respect of their smoking status at the time of diagnosis, their current smoking status and if any smoking cessation attempt has been made and who advised them about cessation. The fourth section consisted of questions in regard to their knowledge about the relationship between smoking and MS. They were questioned if they considered smoking as a risk factor for MS. In addition, they were asked if they were counseled about the impact of smoking in the progression of the disease by their doctors, and about their opinions as if they think that patients with MS do not have to stop smoking as the disease will progress anyhow.

The center for disease control and prevention definitions' for current smoker, ex-smoker and never smoker were adopted. Current smoker: is an adult who smokes at the present time and who has smoked 100 cigarettes in his\her life. Ex-smoker: is an adult who had quit smoking at the time of interview in whom has smoked greater than 100 cigarettes in his\her life. Never smoker: is an adult who has smoked less than 100 cigarettes in his\her life or who has never smoked.¹⁵

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Limitations were expected to be present in the data collection process such as: missing or change in phone numbers of the patients, refusal of the responders to participate in the study and communication issues. Data was entered into Microsoft Excel 2015 and analysis of the data was carried through the statistical package for the social sciences (SPSS) software version 21 using the chi-squared test with a p -value<0.05 considered significant.

Results. Of the 279 patients invited to participate in this study, only 162 filled in the questionnaire, representing a response rate of 58.1%. Of these, 88 (54.3%) were females. Patients in the 31-40 years age bracket were the most represented, comprising 40.7% of the total sample. The highest educational level

encountered was a bachelor's degree/diploma (69.1%). Clinically, respondents had different types of MS, but approximately 64.8% did not know what type of MS they were diagnosed with (Table1).

The sample consisted of 56 active smokers (34.6%), 19 ex-smokers (11.7%) ex-smokers, and 87 patients who had never smoked (53.7%). Of the 56 active smokers, 41 were males. Additionally, the analysis revealed a significant relationship between the male gender and current smoking status ($\chi^2=52.435$, $p=0.001$). Conversely, there was no significant relation between age and current smoking status ($\chi^2=7.414$, $p=0.116$).

Among the 39 patients who had attempted to give up smoking, 64.1% responded that their smoking cessation was mainly a self-made decision. Other patients took the decision to quit smoking based on the advice of a neurologist (4.9%), another physician (2.5%), or friends (0.6%) or from information read on the internet/social media (0.6%).

Close to half of the MS patients ($n=75$, 46.3%) did not know whether smoking was a risk factor for MS. Fifty-two patients (32.1%) did not agree that smoking was a risk factor, whereas 31 (19.1%) agreed that it was a risk factor for MS. Four patients (2.5%) failed to respond to this question. More details are given in Table 2 based on smoking status.

Of the 39 patients who had previous attempts at smoking cessation, 7 (17.9%) thought that smoking was a risk factor for MS, 17 (43.6%) thought that it was not, and 15 (38.5%) did not know. However, there was no significant relationship between smoking cessation and knowledge of smoking as a risk factor for MS ($\chi^2=1.547$, $p=0.461$). Among patients who had never attempted to quit smoking, 2 (8.7%) thought smoking was a risk factor for MS, 9 (39.1%) thought it was not a risk factor, and 12 (52.2%) did not know.

When active smokers were asked if they had been counseled by their doctor regarding the effect of smoking on the progression of the disease, approximately half

Table 1 - Demographic characteristics of the patients (n = 162).

Variables	n (%)
<i>Gender</i>	
Female	88 (54.3)
Male	74 (45.7)
<i>Age (years)</i>	
≤ 30	63 (38.9)
31–40	66 (40.7)
> 40	32 (19.8)
Missing	1 (0.6)
<i>Educational level</i>	
Illiterate	1 (0.6)
Primary School	2 (1.2)
Intermediate	3 (1.9)
Secondary school (High school)	34 (21)
Bachelor or diploma	112 (69.1)
Postgraduate (Master, PhD)	10 (6.2)
<i>Income</i>	
More than expenditures (High)	31 (19.1)
Equal to expenditures (Medium)	103 (63.6)
Less than expenditures (Low)	28 (17.3)
<i>Disease course</i>	
Relapsing-remitting	43 (26.5)
Primary progressive	6 (3.7)
Secondary progressive	5 (3.1)
Patient does not know	105 (64.8)
Missing	3 (1.9)
<i>Disease duration</i>	
<6 months	6 (3.7)
6 months to <2 years	29 (17.9)
2 - 5 years	44 (27.2)
>5 years	82 (50.6)
Missing	1 (0.6)

Table 2 - Summary of responses to the question “Do you think smoking is a risk factor for multiple sclerosis?*

Variables	Smoking Status [†]			P-value
	Current Smoker	Ex-Smoker	Never-Smoker	
Yes	5 (8.9)	10 (52.6)	16 (19.3)	0.001
No	25 (44.6)	2 (10.5)	25 (30.1)	
Does not know	26 (46.4)	7 (36.8)	42 (50.6)	

*Data are presented as frequency (percent within the smoking status) unless otherwise specific. [†]Number missing=4

Table 3 - Summary of responses to the question “Do you think patients with multiple sclerosis do not have to stop smoking as the disease will get worse in any case?”*

Smoking Status	Yes	No	P-value
Current smoker	18 (11.5)	37 (23.7)	0.409
Ex-smoker	7 (4.5)	12 (7.7)	
Never-smoker	20 (12.8)	62 (39.7)	
Total†	45 (28.8)	111 (71.2)	

*Data are presented as frequency (percent) unless otherwise specific. †Number missing=6.

of them (n=29, 52.7%) responded that they had been counseled by the doctor who managed their MS.

As shown in Table 3, 111 patients (71.2%) did not agree with the statement “smokers do not have to stop smoking as their disease will get worse in any case”. However, there was no significant relationship between current smoking status and patients’ perception of the effect of smoking cessation on MS progression (chi- $\chi^2=1.789$, $p=0.409$).

Of those who had a previous smoking cessation attempt (n=39), 11 (28.2%) thought that smokers did not need to stop smoking as their disease would get worse anyway, while 28 (71.8%) did not agree with this statement. Conversely, 15 (65.2%) out of 23 patients who had never attempted to quit smoking thought it was not necessary for smokers to quit smoking because their disease would get worse in any case.

Discussion. This study attempted to assess the extent of awareness of the relationship between smoking and their disease in patients with multiple sclerosis (MS). If the awareness can be identified, then an action plan can be put in place to address such an issue. The results of this study proved that there is a higher proportion of male smokers with MS than female smokers with MS. A recent study revealed that the prevalence of smoking among female Saudi residents was 3.9% while it was 32.5% in male residents, which means that males are eight times more likely to use tobacco than females.¹⁶ The male predominance is a worldwide finding, as a 2015 global study found that the prevalence of daily tobacco smoking was only 5.4% in women, compared with 25% in men.¹⁰ This gender-related variation could be due to a combination of several factors including the physiological effects of ovarian hormones, and cultural, and behavioral influences.¹⁷ From a sociology viewpoint, smoking is probably more acceptable in men, based on the traditional portrayal of women as the primary childcare providers. In this context, the possibility of teratogenic effects leading to congenital disorders in the offspring as well as the danger of infants being affected

via breastfeeding might be seen as deterrents to the smoking habit in women.¹⁸

A research that has conducted in the United Kingdom confirmed that the highest percentage of current smokers was in Secondary progressive multiple sclerosis group.¹¹ In the present study, an association between the course of the disease and smoking status could not be identified as most of the respondents in this study did not know the classification of their disease. Moreover, around half of the participants did not know whether smoking was a risk factor for MS or not and 32.1% did not agree that smoking can cause MS. All of these results highlight the notion that patients in our population had poor knowledge about their disease. In fact, this lack of awareness of MS was found to be a general problem encountered in Saudi Arabia.¹⁹⁻²⁰ This emphasizes the importance of providing better education to these patients.

To expand on this, 8.9% of active smokers, 52.6% of ex-smokers, and 19.3% of patients who had never smoked knew that smoking was a risk factor of MS. Nevertheless, patients who had ever attempted to quit smoking were again asked the same question and 43.6% of them thought that smoking was not a risk factor for MS. These conflicting results cannot be easily explained; hence further research aimed at reaching a conclusion on this point is warranted, the results of which might help improve strategies to educate patients with MS.

As previously mentioned smoking cessation contributes significantly to reduction of the level of progression and the degree of disability in MS.¹¹ Therefore, we studied the factors that might affect the patient’s decision to attempt to give up smoking and we found that the majority of patients who attempted to stop smoking made this decision autonomously. One study suggested that the diagnosis of MS influenced some to consider quitting whereas they were not considering quitting before the diagnosis.²¹ Other patients in the present study were considering attempting smoking cessation according to advice from neurologists, other physicians, friends and the internet.

This finding was not expected as it was assumed that the majority of them would be influenced by advice from a physician. Health professionals have a remarkable role to help patients quit smoking by affording advices about smoking danger: yet, there were lots of obstacles such as lack follow-up resources and training which could prevent that. However, A recent study emphasized that there were lots of opportunities that have been lost.²²⁻²³

According to this study, approximately half of the patients were not counseled by their doctors about the role of smoking in the progression of the disease. The clinical guideline emphasized the importance of referring smokers in general to a specially trained physician.²⁴ Research into patients' perceptions of doctors' advice to quit smoking revealed why some patients had not been counseled by their physician, and the fact that physicians feel that there is not enough time during their shifts to have this conversation about cessation. A criticism of this inference is that it takes only a few minutes to provide this advice.²⁵ In spite of the fact that any advice regarding giving up smoking may not always result in concerted efforts to quit, it may have a supplementary effect in addition to other measures.

Although, the notion that "stopping smoking was pointless as the disease would get worse anyhow" was not a universal belief, almost a quarter of the sample considered this to be true. Some people went as far as believing that the advantages of smoking outweigh the dangers.²⁶ Even when a disease is caused by smoking, they still have the desire to continue. The need to make several attempts at quitting and the potential frustration of not continuing the habit might be additional deterrents.²⁷

The present study is novel in that it looks at the patient's perspective regarding the relationship between smoking and MS. However, some difficulties were encountered during this research, as some patients refused to participate and most of the patients were followed up at a tertiary center with an MS specialist so the results may not be appropriate to the wider patient population who may be monitored by a general neurologist. In addition, most parts of the questionnaire were self-administered, and in retrospect, it is felt that a better option would have been a telephone-based questionnaire in order to avoid misunderstanding by patients.

In conclusion, our results indicate that there is a low level awareness regarding the risk of smoking on the progression of MS. In view of this deficiency, educational programs and campaigns aimed at filling this gap would be beneficial. Health institutions and

health care workers should take this issue into account. Further research regarding the potential impact of education is needed to overcome the shortage. All of these would raise the level of awareness and improve knowledge within the MS patient community.

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Statistics

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