Research Article

Some Determinant Factors (Risk and Protective Factors) for Smoking

Mohammed Abdelhakeem[2], Abd El-Nassir S Mohammed [1] and Amro ali fahmy[1]
Department of Community and Industrial Medicine, Faculty of Medicine,
Al-Azhar University, Cairo[2] and Assiut[1], Egypt

Abstract
Background: Smoking is responsible for numerous fatal or non-fatal health disorders which includes cancer of lung, larynx, stomach, liver, leukemia, chronic obstructive pulmonary disease, cardiovascular disease, vascular dementia, asthma attacks, macular degeneration and peripheral vascular disease. **Aim of the work:** This study was carried out to identify the effect of some determinants factors either influence or decrease smoking, among 242 male medical students at Al-Azhar University, Assuit branch. **Subjects and Methods:** A total of 242 male medical students were subjected to an interview sheet including socio-demographic characteristics, some determinants factors for smoking. **Results:** The study analyzed data about prevalence and determinants of smoking among 242 male medical students at Al-Azhar University, Assuit branch. The mean age of the studied sample was 20.8 ± 1.9 with a range 18 – 25 years. All of them were cigarette smokers. the prevalence of smoking among the studied group is 21.1% and the highest prevalence is among 5th year students while the lowest one is among the1st year students. Smoking is doubled at age 21 year or more compared to those less than 21 years (28% vs. 14.8%). The mean age of starting smoking is 19.2 years, ranged from 15 – 24 years. Smoking is significantly among students with small family size (28.6%) & those whose family income is enough to save from it (35.2%), compared with students with large family size (17.1%) & those whose family income is not enough to their daily needs (8.8%). Smoking is more prevalent among students whose parents are less educated and their father's jobs are non-professional. Smoking significantly increases when both parents are smokers (92.3% compared with 38.8% when only one & 8% when none of them is smoker). Presence of smokers among close colleagues is associated with significant increase in prevalence of smoking (47.1% vs. 6.5%). Presence of other smokers within the house also leads to significantly higher prevalence of smoking among students (39.4% vs. 13.5%). Smoking is significantly reduced (11.4%) among those regularly practicing sports compared to (25.8%) among those not practicing or sometimes practicing sports. **Conclusion and Recommendations** prevalence of smoking is higher among students who live away from their families, with rural place of origin, with family size less than five and those their family income is sufficient and capable to save. Parental education & occupation affect the prevalence of student smoking in a reciprocal manner. As they go up, prevalence of smoking decreases. Most of the students favor the good example i.e. doctors, parents, and teachers. Also they favor the restriction of sale of cigarettes and appreciated the importance of the role of Television in antismoking campaign and prevention of smoking in public places. Some of the students stress on the role of religious leaders in the anti-smoking campaign.
Keywords: Medical students Smokers students, family income

Introduction
Smoking is a practice in which a substance is burned and the resulting smoke breathed in to be tasted and absorbed into the bloodstream[(1)]. Smoking is responsible for numerous of fatal or non-fatal health disorders[(2)]. It has been estimated that 20% of the global population smokes tobacco[(3)] . Twenty six percent of Indians are smokers[(4)]. Globally, the prevalence of smoking is higher for men (40% in 2006) than for women (nearly 9% in 2006), and males account for 80% of all smokers (nearly 1 billion) [(5)]. Tobacco smoking habits was present in 261 (5.8%) students, among which 172 (65.9%) were male students and 89 (34.1%) were female students[(6)].

In general, a number of factors are associated with youth tobacco use such as low socioeconomic status, use and approval of tobacco use by peers or siblings, exposure to smoking in movies, lack of skills to resist influences to tobacco use, smoking by parents or guardians, accessibility, availability, and the price of tobacco products, low levels of academic achievement, and so on[7]. The college years appear to be a time of increased risk for smoking initiation and movement into regular patterns of use, while college smokers are more likely to be non-daily smokers, meaning that they smoke more in social situations[8].

Recent studies indicate that individual personal factors, cognitive factors, and coping resources may play a key role in influencing which college students will have a propensity to initiate tobacco use and then continue to smoke[9]. In addition, several demographic factors have been shown to be associated with college student smoking, such as gender, race, age, and college-educated parents[10]. There are numerous studies concerning cigarette smoking among adole-scences, high school students and college students, in the literature. Many of these recent studies concentrated on the tobacco use of college students through similar or distinctive aspects, such as characteristics, patterns, contexts and consequences of smoking[10].

Aim of the work

This study was carried out to identify the effect of some determinants factors either influence or decrease smoking, among 242 male medical students at Al-Azhar University, Assuit branch.

Subjects and Methods

The present study deals with determinants of smoking among male students at Al-Azhar Faculty of Medicine - Assuit.

Study Design

A cross-sectional study design was carried out to investigate the current topic on students of Al-Azhar University, Faculty of Medicine – Assuit branch.

Study Setting and population

This study was carried out to identify the effect of some determinants factors either influence or decrease smoking, among 242 male medical students at Al-Azhar University, Assuit branch..

Research tool

Construction and revision of the research tools takes place upon 242 questionnaire sheets. A structured questionnaire sheet used was adopted to cover the following sections: Age, academic year, residence, the place of living during the time of studying at the colleges. Father's educational level, occupation, mother's educational level, occupation, number of the family members living in the house and family's monthly income, are there a close friends and are they smoke?. Is The student's father, mother, other relatives, close friend? These data obtained through interview with the students at their lectures or practical sections or at student's accommodation.

Ethical consideration

The study was conducted after explaining the steps of the study and its objectives to the participants. Oral consent was obtained from all the participants in the study.

Data analysis

During this phase data coding, entry and analysis was accomplished with the aid of computer using Statistical Package for the Social Sciences (IBM SPSS) software package version 20. The results were represented in tabular form then interpreted. We use descriptive statistics as mean, range and standard deviations analytical statistics as chi square test. All statistical tests were considered significant at P-value of ≤ 0.05.

Results

The present study analyzed data about prevalence and determinants of smoking among 242 male medical students at Al-Azhar University, Assuit branch. The mean age of the studied sample was 20.8 ± 1.9 with a range 18 – 25 years. Fifty one students were found to be regular smokers. All of them were cigarette smokers.

All other findings of the study are presented as follows:

Table (1): Distribution of smoking status among the studied students by academic year

Academic year	Smoker		Non-smoker		Total		χ^2	P value
	no	%	No	%	No	%		
First year	8	11.4	62	88.6	70	100	8.351	0.138
2nd year	12	20.0	48	80.0	60	100		
3rd year	8	23.5	26	76.5	34	100		
4th year	6	25.0	18	75.0	24	100		
5th year	8	36.4	14	63.6	22	100		
6th year	9	28.1	23	71.9	32	100		
Total	51	21.1	191	78.9	242			

Table (1): demonstrates that the prevalence of smoking among the studied group is 21.1% and the highest prevalence is among 5th year students while the lowest one is among the1st year students.

Table (2): Distribution of smoking status among the studied students according to their age.

Age groups of the students	Smoker n = 51		Non-smoker n = 191		Total		χ^2	P value
	No	%	No	%	No	%		
Less than 21 year	19	14.8	109	85.2	128	100	6.342	0.009
Equal or more than 21 year	32	28.0	82	72.0	114	100		
Mean age of starting smoking Range	19.2 ± 2.1 (15 - 24)							

Table (2): demonstrates that the prevalence of smoking among the studied group is doubled at age 21 year or more compared to those less than 21 years (28% vs. 14.8%). The mean age of starting smoking is 19.2 years, ranged from 15 – 24 years.

Table (3): Distribution of the studied group according to their smoking status in relation to living circumstances

living circumstances		Smoker n = 51		Non-smoker n = 191		Total		χ^2	P value
		No	%	no	%	no	%		
living during study	with family	5	16.1	26	83.9	31	100	0.523	0.323
	student accommodation or with colleagues	46	21.8	165	78.2	211	100		
place of origin	Urban	12	16.1	67	83.9	79	100	2.442	0.080
	Rural	39	23.9	124	76.1	163	100		
family size of student	less than or equal five	24	28.6	60	71.4	84	100	4.348	0.029
	more than five	27	17.1	131	82.9	158	100		
family income and daily needs	not enough to daily needs	3	8.8	31	91.2	34	100	23.370	0.000
	exactly enough to the daily needs	10	10	90	90	100	100		
	sufficient and capable of saving	38	35.2	70	64.8	108	100		

Table (3): The table shows that smoking among students is significantly higher among students with small family size (28.6%) & those whose family income is enough to save from it (35.2%), compared with students with large family size (17.1%) & those whose family income is not enough to their daily needs (8.8%).

Table (4): Distribution of the studied group according to their smoking status in relation to their parents' social status.

Social status of students' parents		Smoker n = 51		Non-smoker n = 191		Total		χ^2	P value
		no	%	no	%	no	%		
Father education	Up to secondary education	32	31.4	70	68.6	102	100	11.242	0.001
	High education\above	19	13.6	121	86.4	140	100		
Father occupation	Professional	23	14.4	137	85.6	160	100	12.741	0.000
	Non professional	28	34.1	54	65.9	82	100		
Mother education	Up to secondary education	40	24.7	122	75.3	162	100	3.854	.034
	High education\above	11	13.8	69	86.3	80	100		
Mother occupation	Non professional	43	23.8	138	76.2	181	100	3.107	0.053
	Professional	8	13.1	53	86.9	61	100		

Table (4): demonstrates that smoking is significantly more prevalent among students whose parents are less educated and their parents jobs are non-professional

Table (5): Distribution of studied group regarding smoking status in relation to presence of smokers within their families and close contacts.

Smokers within their family and their contacts		Smoker n = 51		Non-smoker n = 191		total		χ^2	P value
		No	%	no	%	No	%		
Parental smoking	One of them	26	38.8	41	61.2	67	100	68.909	0.000
	Both of them	12	92.3	1	7.7	13	100		
	None of them	13	8.0	149	92.0	162	100		
Any of close colleagues smoke	Yes	41	47.1	46	52.9	87	100	55.426	0.000
	No	10	6.5	145	93.5	155	100		
Any other person smokes within home of student	Yes	28	39.4	43	60.6	71	100	20.368	0.000
	No	23	13.5	148	86.5	171	100		

Table (5): shows that prevalence of smoking significantly increases when both parents are smokers (92.3% compared with 38.8% when only one & 8% when none of them is smoker). Presence of smokers among close colleagues is associated with significant increase in prevalence of smoking (47.1% vs. 6.5%). Presence of other smokers within the house also leads to significantly higher prevalence of smoking among students (39.4% vs. 13.5%).

Table (6): Relation between smoking and practicing any sport.

Playing any kind of sports	Smoker n = 51		Non-smoker n = 191		Total		χ^2	P value
	No	%	No	%	No	%		
Yes, regular	9	11.4	70	88.6	79	100	6.610	0.007
Sometimes\ not at all	42	25.8	121	74.2	163	100		

Table (6): Shows that prevalence of smoking is significantly reduced (11.4%) among those regularly practicing sports compared to (25.8%) among those not practicing or sometimes practicing sports.

Discussion

In the present study, the highest prevalence was among 5th year students (36.4%) while the lowest one was among the 1st year students (11.4%) with a step wise increase in the prevalence from first to fifth year. This was somewhat similar to the results of study which showed that the highest prevalence was also among the 5th year students (23.3%) while the lowest prevalence was among 2nd year students (6.9%) [(11) (12)]. the increasing trend of tobacco usage during their medical education is same all over the world, as it has seen in number of studies conducted in Asian countries like China, Middle East countries like Bahrain, African and European countries as well[(13) (14) (15) (16)] This was also agreed with a study showed that the prevalence of smoking in the last year

university students was 52%, compared to 23.3% at the beginning of university study or during the first year[17]. A study showed that the mean age of initiation to cigarette smoking was found to be 14 years[18]. Our finding is reporting that the age for starting smoking was between 10 and 20 years among all ever-smokers this similar that the most common age for starting smoking was between 15 and 19 years[19]. One reason of upward trend of smoking among the medical students during their academic period was the stress and extra pressure of the studies which they face[12].

Regarding the association between smoking prevalence and living circumstances, this study revealed that the prevalence was higher among students who live away from their families (21.8%) compared to those who live with their family (16.1%). Unexpectedly, it was found that the prevalence of smoking was higher among students who live in rural area (23.9%) than that among students who live in urban area (16.1%). These finding agree with the study done by a results showed that the prevalence of smoker among students from rural areas was much higher (26.3%) compared to students from urban areas (10.4%)[12]. Another study among Chinese rural–urban migrant male workers reported much higher rates than those found in the present study, (66.8% & 56.5%) among rural and urban residents respectively[20]. Oppositely, a study found that the number of smokers with chronic diseases in rural areas is lower than that of the general population. This finding could be due to age structure and health status[21]. In this study, the prevalence of smoking was higher among students with family size less than 5 members (28.6%), compared to those whose families are more than 5 members (17.1%).this results disagree with a study reported that the prevalence of smoking was higher among students with family size more than 5 members (52.5%), compared to those whose families are less than 5 members (47.5%)[22]. The prevalence of smoking in the present study was higher among students belonging to families with high income (35.2%), compared to those students whose families' income is not enough for the daily needs (8.8%). a paradoxical relation between smoking prevalence and family income, being 25% among lowest economic group and 13.3% among those with the highest family income[12]. While, another study found that smoking prevalence in both high income and upper-middle-income countries is broadly similar, and it slightly higher in high-income countries[23]. other study showed also that the prevalence of smoking increases steadily with the rise of economic status of the family, from 26.8% among the lowest socio-economic level to 44.2% among the highest socio-economic level students. However, when they asked those who do not smoke "why you do not smoke?" only 1.9% of them answered "I cannot afford for smoking". The most prevalent answer was "I fear of the adverse effects of smoking on health" with a percentage of 35.6%, followed by "It is forbidden by Religion" in 32.8%[17]. Education level and household income of the parents had adverse effects on the smoking prevalence of students. The present study illustrated that smoking was more among students whose parents are less educated compared with highly educated parents (24.7%vs. 13.8% in case of mothers & 31.4% vs. 13.6% in case of fathers). Also, the same findings are applicable for students with parents having nonprofessional work compared to those with professional work (23.8% vs. 13.1% in case of mothers & 34.1% vs. 14.2% in case of fathers), in case of mother's education is a similar to finding by who show in their study, the educational level of mother current smoker are less educated compared with highly educated (20.3% vs. 18.8% in case of mothers) with lightly discrepancy in case of father as (19.9% vs. 23.5% in case of fathers) [24]. Also our results similar to study done by as nonprofessional work compared to those with professional work (86.1% vs. 4.2% in case of mothers & 32.8% vs. 17.5% in case of fathers) [24].

The present study illustrated that when both parents are smokers, 92.3% of their sons practice smoking. These findings go with the findings of a study implemented in 2011, showed that students with a low educational level in their families and those who engage in farm labor were more likely to smoke[25]. Oppositely, a study reported that those in rural areas with relatively high educational level parents were likely to smoke[21]. The discrepancy could be due to the fact that residents with a high educational level have more demands for social interactions through cigarette smoking[26]. It has been found that

presence of a smoker among friends or colleagues affects the prevalence of smoking among studied sample. In the present study, the prevalence of smoking was found to be 47.1% among students who have smokers within their close colleagues or friends compared with only (6.5%) of smoker students who have not smoker friends or colleagues. Also, the prevalence of smoking was higher in presence of other persons who smoke at student's home (39.4%), compared to students with no other smoker at their homes (13.5%). This was in agreement with a study which found that 80% of student smokers initiated this habit with friends[27]. Also in the study among factors for initiation of smoking, presence of a smoking friend was seen in 98.1% of cases of current cigarette smoking[28]. Also in study of Smoking among close friends was also different as 63.9% of current smokers reported that all or most of their friends were smokers compared with 24.8% and 15.8% of ex-smokers and never smokers respectively ($P < 0.001$) [29]. Also most studies have consistently shown that parental smoking is strongly associated with youth smoking[28] [30]. and results of the study of showed the positive association between the smoking status and presence of a smoker member in the family, primarily the father or the brother or both[31]. Also, the prevalence of smoking among students with positive family history of smoking was 18.6% compared to those with negative family history (9%)[12]. the influence of family members in enhancing smoking is well demonstrated[32].

In our study shows that prevalence of smoking is reduced (11.4%) among those regularly practicing sports compared to (25.8%) among those not practicing or sometimes practicing sports. This logically acceptable due to there are reversal relationship between smoking and practicing of sport ,our results can agree with a study done at all the male students in a high school in Brescia, North Italy, 29.1% practice one or more sports regularly, 70.7% practice sports occasionally or no sports at all[33].

Conclusion and Recommendation

From the results and discussion of this study, it can be concluded that: The prevalence of smoking among the studied group is found among one fifth of them (21.1%).The highest prevalence was among 5th year students (36.4%) while the lowest one (11.4%) was among the 1st year students. Prevalence of smoking is higher among students aged ≥ 21 year than those aged less than 21 years old. Prevalence of smoking is higher among students who: live away from their families, with rural place of origin, with family size less than five and those their family income is sufficient and capable to save. Parental education & occupation affect the prevalence of student smoking in a reciprocal manner. As they go up, prevalence of smoking decreases. Most of the students favor the good example i.e. doctors, parents, and teachers. Also they favor the restriction of sale of cigarettes and appreciated the importance of the role of Television in antismoking campaign and prevention of smoking in public places. Some of the students stress on the role of religious leaders in the anti-smoking campaign.

Acknowledgments

The authors would like to thank all medical students and alazhar faculty of medicine administration

References

1. Binnal, A.; Rajesh, G. and Ahmed, J. (2013): Insights into smoking and its cessation among current smokers in India. Asian Pacific Journal of Cancer Prevention. 14(5): 2811–18.
2. Sela, B.A. (2013): Time for setting a good example: physicians, quit smoking now. Editorial. Israeli Medical Association Journal. 15:379–81. http://www.ima.org.il/ FilesUpload/ IMAJ/0/60/ 30260.pdf
3. West, R. (2006): Tobacco control: present and future. British Medical Bulletin, 77(1):123–36.
4. Jayakrishnan, R.; Mathew, A. and Uutela, A. (2013): Multiple approaches and participation rate for a community based smoking cessation intervention trial in rural Kerala, India. Asian Pacific Journal of Cancer Prevention. 14(5): 2891–96.
5. Shafey, O.; Eriksen, M.; Ross, H.; & Mackay, J. (2009): The Tobacco Atlas. 3rd. *Atlanta, GA: American Cancer Society, World Lung Foundation*.
6. Yegenoglu, S.; Aslan, D.; Erdener, S. E.; Acar, A. and Bilir, N. (2006): What is behind smoking among pharmacy students: a quanti-tative and qualitative study from

Turkey? Substance use and misuse, 41(3): 405–14.
7. U.S. Department of Health and Human Services, (2000): Preventing tobacco use among young people: A report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
8. Nichter, M.; Carkoglu, A. and Lloyd-Richardson, E. (2010): The Tobacco Etiology Research Network. Smoking and drinking among college students: "It's a Package Deal. Drug and Alcohol Dependence, 106(1), 16-20.
9. Von, Ah. D.; Ebert, S.; Ngamvitroj, A.; Park, N. and Kang, D. (2005): Factors related to cigarette smoking initiation and use among college students. Tobacco Induced Diseases, 3(1), 27-40.
10. Reed, M.B.; Wang, R.; Shillington, A.M.; Clapp, J.D. and Lange, J.E. (2007): The relationship between alcohol use and cigarette smoking in a sample of undergraduate college students. Addictive Behaviors, 32, 449-464.
11. Cronk, N.J.; Harris, K.J.; Harrar, S.W.; Conway, K.; Catley, D. and Good, G.E. (2011): Analysis of smoking patterns and contexts among college student smokers. Substance Use & Misuse, 46(8), 1015-1022.
12. Babar, B.A.; Khan, S. and Kwegyir-Afful, E. (2016): Knowledge, attitude and practice regarding smoking among medical students in Pakistan. Master's Thesis, Public Health, School of Medicine, Faculty of Health Sciences, University of Eastern Finland.
13. Tessier, J. F.; Freour, P.; Belougne, D. and Crofton, J. (1992a): Smoking behavior and attitudes of medical students towards smoking and anti-smoking campaigns in nine Asian countries. The tobacco and health committee of the international union against tuberculosis and lung diseases. International journal of epidemiology, 21(2):298-304.
14. Tessier, J.F.; Freour, P.; Crofton, J.W. and Kombou, L. (1985): Smoking habits and attitudes of medical students towards smoking and anti-smoking campaigns in fourteen European countries. European Journal of Epidemiology, 5 (3):311-21.
15. Hamadeh, R.R. (1994): Smoking habits of medical students in Bahrain. Journal of smoking related disorders; 5:189-94.
16. Zhu, T.; Feng, B.; Wong, S.; Choi, W. and Zhu, S-H (2004): A comparison of smoking behaviors among medical and other college students in China. Health Promotion International, 19(2):189-96.
17. Khader, Y.S. and Alsadi, A.A. (2008): Smoking habits among university students in Jordan: prevalence and associated factors. Eastern Mediterranean Health Journal, 14(4):897-904.
18. Gemma, G. (1995): Children in Italy. In: Slama K: Proceedings of the 9th World Conference on Tobacco and Health. New York: Plenum Press, 401-5.
19. Felimban, F. and Jarallah, J. (1994): Smoking habits of secondary school boys in Riyadh, Saudi Arabia. Saudi medical journal,15:438-42.
20. Yang, T.; Wu, J.; Rockett, I.; Abdullah, A.; Beard, J. and Ye, J. (2009): Smoking patterns among Chinese rural–urban migrant workers. Public Health,123: 743–9.
21. Yang, J.; Hammond, D.; Driezen, P.; O'Connor, R.J.; Li, Q.; Yong, H.H.: Fong, G.T. and Jiang, Y. (2011): The use of cessation assistance among smokers from China: Findings from the ITC China survey. BMC Public Health, 11: 75.
22. Aslan, D.; Bilir, N.; Ozcebe, H.; Stock, C.and Kucuk, N.(2006): Prevalence and determinant of adolescent smoking in Ankara, Turkey. Turkish journal of cancer, 2006; 36(2):49–56.
23. Pankaj, J.P.; Rathore, M.S.; Saini, P. and Mangal, A. (2015): Prevalence and Associated Factors of Tobacco Smoking among Undergraduate Medical and Dental Students in Rajasthan. Int J Sci Stud, 3(4):63-7.
24. Ogawa, K.; Tanaka, T.; Nagoshi, T.; Sekiyama, H.; Arase, S. and Minai, K. (2015): Increase in the oxidized low-density lipoprotein level by smoking and the possible inhibitory effect of statin therapy in patients with cardiovascular disease: a retrospective study. BMJ Open; 5: e005455.
25. Zhang, J.; Ou, J.X. and Bai, C.X. (2011): Tobacco smoking in China: Prevalence,

disease burden, challenges and future strategies. Respirology, 16:1165–72.
26. Poureslami, I.; Nimmon, L.; Rootman, I. and Fitzgerald, M.J. (2016): Health literacy and chronic disease management: Drawing from expert knowledge to set an agenda. Health promotion international, daw003.
27. Asfar, T.; Ward, K.D. and Eissenberg, T. (2005): Comparison of patterns of use, beliefs, and attitudes related to waterpipe between beginning and established smokers. BMC Public Health, 5:19-27.
28. Thun, M,J.; Carter, B.D.; Feskanich, D.; Freedman, N.D.; Prentice, R.; Lopez, A.D.; et al. (2013) : 50-years in smoking-related mortality in the United States. The New England Journal of Medicine, 368:351-64.
29. Al-Mohamed, H. I. and Amin, T. T. (2010): Pattern and prevalence of smoking among students at King Faisal University, Al Hassa, Saudi Arabia. Eastern Mediterranean Health Journal, 16(1): 56-64.
30. Jha, P.; Rasmasunderhettig, C.; Landsman, V.; Rostorn, B.; Thun, m.; Andersson, R.N.; et al. (2013): 21st century hazards of smoking and benefits of cessation in the United States. The New England Journal of Medicine; 368:341-50.
31. Khan, F.M.; Husain, S.J.; Laeeq, A.; Awais, A.; Hussain, S.F. and Khan, J.A. (2005): Smoking prevalence, knowledge and attitudes among medical students in Karachi, Pakistan. Eastern Mediterranean health Journal; 11(5/6): 952-8.
32. Yousef, A. and Al-Turki. (2006): Smoking habits among medical students in Central Saudi Arabia. Saudi Med J, Vol. 27 (5): 700–703.
33. DiFranza, J.R. (2006): Tobacco promotion and the initiation of tobacco use: assessing the evidence for causality. Pediatrics, 117: e1237-e1248.