

- Ten Member States do not even grant access to emergency care; 12 grant access to emergency care, while 5 grant access to more extensive care.
- The obligations as regards health care outlined by the human rights standards are met only partially, or not at all, in the majority of Member States.
- Differences do not seem to relate to system of financing or volume of irregular migration, but rather to categories of undocumented migrants and strategies for controlling migration.
- European health policy makers should consider the role of human rights standards within the basic norms and institutions of the welfare state in relation to the issue of irregular migration.

References

- Vogel D. Size of irregular migration. *Clandestino Research Project. Comparative policy brief*. Athens: ELIAMEP, 2009. Available at: <http://tinyurl.com/6j2adxu> (27 January 2011, date last accessed).
- Düvell F. Foreword. In: Lund Thomsen T, Bak Jorgensen M, Meret S, et al, editors. *Irregular Migration in a Scandinavian Perspective*. Maastricht: Shaker Publishing, 2010: 3–8.
- Cholewinski R. *Study on Obstacles to Effective Access of Irregular Migrants to Minimum Social Rights*. Strasbourg: Council of Europe Publishing, 2005.
- Pace P. *Migration and the Right to Health: A Review of European Community Law and Council of Europe Instruments*. International Migration Law Nr. 12. International Organization of Migration (IOM), 2007.
- Platform for International Cooperation on Undocumented Migrants. Undocumented migrants have rights!. *An Overview of the International Human Rights Framework*. Brussels: PICUM, 2007.
- UN International Covenant on Economic, Social, and Cultural Rights (ICESCR). New York: United Nations, 1966. Available at: <http://www2.ohchr.org/english/law/cescr.htm> (27 January 2011, date last accessed), 1966.
- Backman G, Hunt P, Rajat Khosla, et al. Health systems and the right to health: an assessment of 194 countries. *The Lancet* 2008;372:2047–85.
- Committee on Economic, Social and Cultural Rights. The right to the highest attainable standard of health: 11/08/2000. E/C.12/2000/4. CESCR General Comment 14. Twenty-second session Geneva, 25 April–12 May 2000 Agenda Item 3. Available at: <http://www.unhcr.ch/tbs/doc.nsf/8e9c603f486cdf83802566f8003870e7/40d009901358b0e2c1256915005090be?OpenDocument#24>. (27 January 2011, date last accessed).
- Council of Europe Parliamentary Assembly Resolution 1509. Human rights of irregular migrants. 2006. Available at: <http://assembly.coe.int/main.asp?Link=/documents/adoptedtext/ta06/eres1509.htm> (27 January 2011, date last accessed).
- Dworkin R. *Taking Rights Seriously*. London: Duckworth, 1977.
- European Commission. Quality in and equality of access to healthcare services (HealthQUEST). DG for employment, social affairs and equal opportunities. 2008. Available at: http://www.euro.centre.org/data/1237457784_41597.pdf (27 January 2011, date last accessed).
- Thomson S, Foubister T, Mossialos E. Financing health care in the European Union. Regional Office for Europe, 2009. Available at: http://www.euro.who.int/_data/assets/pdf_file/0009/98307/E92469.pdf (27 January 2011, date last accessed).
- Leisinger L. Government and the life course. In: Mortimer JT, Shanahan MJ, editors. *Handbook of the Life Course*. New York: Springer, 2004: 205–25.
- Castles S, Miller MJ. *The Age of Migration. International Population Movements in the Modern World*, 3rd edn. Houndmills: Palgrave Macmillan, 2003.
- International Centre for Migration Policy Development. REGINE, Regularisations in Europe. Study on practices in the area of regularisation of illegally staying third-country nationals in the Member States of the EU. Final Report. Vienna: International Centre for Migration Policy Development (ICMPD), 2009. Available at: http://research.icmpd.org/fileadmin/Research-Website/Project_material/REGINE/Regine_report_january_2009_en.pdf (27 January 2011, date last accessed).
- Wörz M, Foubister T. Mapping health services access - national and cross-border issues (HealthACCESS – Phase I). Summary Report, 2006. Available at: http://www.ehma.org/files/HA_Summary_Report_01_02_06.pdf (27 January 2011, date last accessed).
- Platform for International Cooperation on Undocumented Migrants. *Access to health care for undocumented migrants in Europe*. Brussels: PICUM, Available at: <http://www.picum.org/sites/default/files/data/Access%20to%20Health%20Care%20for%20Undocumented%20Migrants.pdf> (27 January 2011, date last accessed).
- Médecins du Monde. Access to healthcare for undocumented migrants in 11 European countries 2008. Survey Report. Médecins du Monde Observatory on access to healthcare, September 2009. Available at: http://hal.archives-ouvertes.fr/docs/00/41/99/71/PDF/Rapport_UK_final_couv.pdf (27 January 2011, date last accessed).
- HUMA-network. Access to healthcare for undocumented migrants and asylum seekers in 10 EU countries. Health for undocumented migrants and asylum seekers, HUMA-network 2009. Available at: <http://www.huma-network.org/Publications-Resources/Our-publications> (27 January 2011, date last accessed).
- Björngren Cuadra C, Cattacin S. Policies on health care for undocumented migrants in the EU27: towards a comparative framework. Summary Report. Nowhereland. 2010. Available at: <http://files.nowhereland.info/698.pdf> (27 January 2011, date last accessed).
- Doomernik J, Jandl M, editors. *Modes of migration regulation and control in Europe*. IMISCOE Reports. Amsterdam University Press, 2008.
- Brochmann G. The mechanisms of control. In: Brochmann G, Hammar T, editors. *Mechanism of Immigration Control: A Comparative Analysis of European Regulation Policy*. Oxford, New York: Berg, 1999: 1–27.
- Kohli M. Retirement and the moral economy: an historical interpretation of the German case. *J Aging Stud* 1987;1–2:125–44.
- Thompson EP. The moral economy of the English crowd in the 18th century. *Past and Present* 1971;50:76–163.

European Journal of Public Health, Vol. 22, No. 2, 271–273

© The Author 2011. Published by Oxford University Press on behalf of the European Public Health Association. All rights reserved.
doi:10.1093/eurpub/ckr009 Advance Access published on 15 February 2011

Short Report

Selected risk factors associated with pulmonary tuberculosis among Saharia tribe of Madhya Pradesh, central India

Vikas G. Rao¹, P.G. Gopi², Jyothi Bhat¹, Rajiv Yadav¹, N. Selvakumar², Douglas F. Wares³

- 1 Regional Medical Research Centre for Tribals (RMRCT), Indian Council of Medical Research, Jabalpur 482 003, MP, India
- 2 Tuberculosis Research Centre, Indian Council of Medical Research, Chennai 600031, India
- 3 Office of the World Health Organization Representative to India, New Delhi, India

Correspondence: Dr V.G. Rao, Regional Medical Research Centre for Tribals, Indian Council of Medical Research, Nagpur Road, P.O. Garha, Jabalpur 482 003, MP, India, tel: +91 761 2370800/2672447, fax: +91 761 2672835, e-mail: drvgrao@rediffmail.com

Tuberculosis (TB) is a major public health problem among the Saharia, a marginalized tribal group in Madhya Pradesh state, central India. However, there is no information on the risk factors associated with the development of TB disease in this community. A cross-sectional TB prevalence survey was conducted among the Saharia residing in Sheopur district of Madhya Pradesh. Information on tobacco smoking and alcohol consumption was collected from all the individuals. Persons aged ≥ 45 years, males, smokers and alcohol consumers had higher risks of developing TB disease. There is an urgent need to develop and implement culturally appropriate awareness raising activities to target smoking and alcohol consumption to support the efforts to control TB in this community.

Introduction

Tuberculosis (TB) remains a major public health problem both globally and in India. It is predominantly a disease of the disadvantaged and marginalized populations, particularly the poor and hard to reach groups. Three tribal groups in the central Indian state of Madhya Pradesh, because of their relative socio-economic backwardness, isolation and neglect in the past, are termed as 'primitive'. The Saharia tribes are one of the three tribal groups. A recent study conducted among the Saharia found a very high prevalence of TB disease among the population (1518/100 000 population).¹ However, there is no information from this community on the risk factors that are associated with the development of TB disease. This article provides information on the association of tobacco smoking and alcohol consumption with pulmonary TB disease among this primitive tribal population.

Methods

A cross-sectional TB disease prevalence survey was conducted among the Saharia tribal community of Sheopur district, Madhya Pradesh (MP), central India, from November 2007 to March 2008. A total of 9538 individuals aged ≥ 15 years, from a randomly selected sample of villages in the district, were screened for chest symptoms relating to TB disease. Two sputum samples (one spot and one early morning) were collected from all eligible individuals and were examined by Ziehl-Neelsen smear microscopy and solid media culture methods for *Mycobacterium tuberculosis*.

Information on tobacco smoking and consumption of alcohol was collected from all individuals. They were asked about their current and previous history of tobacco smoking as well as alcohol consumption. All information was recorded using a pre-tested and a pre-coded questionnaire. Informed written consent was obtained from all individuals included in the survey. The study was approved by the ethics committee of the Regional Medical Research Centre for Tribals, Indian Council of Medical Research, Jabalpur, MP, central India.

Data analysis

Data on the prevalence of exposure and disease for the present study were obtained by comparing disease occurrence between exposed and non-exposed groups. The prevalence odds ratio (POR) was used as the effect measure. The POR was calculated by measuring the ratio of the prevalence odds of the exposed and non-exposed groups for each risk factor. It was obtained by univariate analysis using SPSS 13.0 software (SPSS Inc., Chicago, IL, USA).

Results

Of the total 9538 subjects, 4544 (47.6%) were males and 4994 (52.4%) females. The overall prevalence of tobacco smoking and alcohol consumption was found to be 34.3 and 12.9%, respectively. The prevalence of pulmonary TB significantly increased with age from 984/100 000 (95% CI: 758–1210) in the 15- to 44-year old age group to 2745/100 000 (95% CI: 2066–3425) in the ≥ 45 year olds age group. Males had a significantly higher prevalence (2113/100 000, 95% CI: 1695–2531) than females (741/100 000, 95% CI: 503–979). The prevalence of pulmonary TB was significantly higher among smokers (1958/100 000) as compared to non-smokers (1101/100 000) ($P < 0.001$). A similar difference was also found among those who had consumed alcohol in the preceding year (2202/100 000) as compared to those who had not consumed any alcohol

in the preceding year (1275/100 000) ($P < 0.05$). The prevalence was also significantly higher among those who both smoked tobacco and consumed alcohol (2334/100 000, 95% CI: 1447–3221) than those who did not have these habits (1104/100 000, 95% CI: 843–1365). The proportion of males who smoked tobacco or consumed alcohol (63.7 and 26.0%) were significantly higher ($P < 0.001$) than among females (7.5 and 0.9%).

Table 1 shows the POR for age, sex, tobacco smoking and alcohol consumption. Persons aged ≥ 45 years had 2.8 times higher risk of developing TB disease than persons aged 15–44 years, males a 2.9 times higher risk than females, smokers a 1.8 times higher risk than non-smokers and those who consumed alcohol a 1.7 times higher risk than those who did not consume alcohol. Persons who both smoked and consumed alcohol had a 2.1 times higher risk of developing TB disease than those without these habits.

Discussion

In view of the documented high prevalence of TB disease among this primitive tribal group,¹ understanding the factors that influence the TB situation are of importance for the planning and implementation of appropriately targeted TB control activities. Studies investigating the risk factors for TB disease have been conducted in a variety of settings in India; however, none have been conducted in a tribal population.^{2,3} The present study found a significantly higher prevalence of tobacco smoking and consumption of alcohol among this ethnic group as compared with the prevalence in the general population of MP [tobacco smoking: 34.3 vs. 11.9% ($P < 0.001$); alcohol consumption: 12.9 vs. 10.3% ($P < 0.001$)].⁴

Previous studies in India have shown clearly that the prevalence of pulmonary TB disease is significantly higher among males than females, and that disease prevalence increases with age.^{5–7} The findings of the present study are consistent with those of these earlier studies. The significantly higher prevalence observed in males could be due to the fact that men are more exposed to the wider world as compared with women (especially in rural areas), with resultant greater social interactions with other people and greater risk of exposure to persons with TB disease, and thus having a higher chance of becoming infected with TB. The higher prevalence of tobacco smoking and alcohol consumption among males, as

Table 1 POR (95% CI) of pulmonary TB for selected risk factors

	TB cases	Non-cases	POR
Age (years)			
15–44	72	7244	1.0
≥ 45	61	2161	2.8 (2.0–3.9)
Sex			
Female	37	4957	1.0
Male	96	4448	2.9 (1.9–4.2)
Tobacco smoking			
Non-smoker	69	6200	1.0
Smoker	64	3205	1.8 (1.3–2.5)
Alcohol consumption			
Non-consumers	106	8206	1.0
Alcohol consumers	27	1199	1.7 (1.1–2.6)
Tobacco smoking and alcohol consumption			
Non-smoker and non-alcohol consumers	68	6089	1.0
Smoker and alcohol consumers	26	1088	2.1 (1.3–3.3)

observed in the present study, could also be additional factors for the higher risk of TB disease observed among males. Our study shows that smokers have a higher risk of developing TB disease than non-smokers, and is in agreement with the studies conducted in varying areas of the world.^{3,8} The mechanisms are likely to involve both structural changes affecting lung function and altered immune response.⁹ The present study also found that persons with a history of consuming alcohol in the preceding year had a 1.7 times higher risk of developing TB disease than those who had not consumed alcohol during the preceding year. Other researchers have also reported similar findings in different settings.⁸ This may be explained by the significant inhibitory effect of alcohol on cell-mediated immunity.¹⁰

Conclusion

Tobacco smoking and alcohol consumption appear to be significantly associated with the development of pulmonary TB disease in this marginalized population. There is an urgent need to develop and implement culturally appropriate targeted awareness raising activities in order to support efforts to control TB in the population.

Limitations

While interpreting the study results, various limitations of the study need to be considered. The potential role of other risk factors were not investigated. While assessing the effects of the selected risk factors, the confounding effects of other potential risk factors could not be controlled for. This may have resulted in either an overestimation or underestimation of the true effects of those selected risk factors that were investigated.

Acknowledgements

The authors are grateful to Dr Neeru Singh, Director, RMRCT, Jabalpur, Dr PR Narayanan, Former Director, TRC, Chennai and Dr AP Dash, Former Director, RMRCT, Jabalpur for their encouragement and support throughout the study. The contributions of the State Tuberculosis Officer, the WHO/RNTCP consultants and district health authorities of Madhya Pradesh are gratefully acknowledged. Thanks are also due to the staff involved in the study. The assistance provided by Mr Shailendra Jain and Mr Narayan Soni for the entry and verification of the data is acknowledged.

Funding

This work was supported in part by the World Health Organization (WHO), with financial assistance provided by the United States Agency

for International Development under the Collaborative Model DOTS Project with WHO.

Conflicts of interest: None declared.

Key points

- TB is a major public health problem among the Saharia, a primitive marginalized tribe of MP state in central India.
- However, there is no information on the risk factors for developing TB disease in this marginalized population.
- Significantly higher prevalence levels of TB disease were observed among those who smoked tobacco and/or consumed alcohol.
- These results provide vital information on selected risk factors associated with pulmonary TB disease in this population.
- The study findings highlight the need for the development of appropriate targeted awareness raising activities among this community to support TB control efforts.

References

- 1 Rao VG, Gopi PG, Bhat J, et al. Pulmonary tuberculosis: a public health problem amongst Saharia, a primitive tribe of Madhya Pradesh, central India. *Int J Infect Dis* 2010;14:e713–16.
- 2 Maurya V, Vijayan VK, Shah A. Smoking and tuberculosis: an association overlooked. *Int J Tuberc Lung Dis* 2002;6:942–51.
- 3 Kolappan C, Gopi PG. Tobacco smoking and pulmonary tuberculosis. *Thorax* 2002;57:964–66.
- 4 International Institute for Population Sciences (IIPS) and Macro International. *National Family Health Survey (NFHS-3), India, 2005–06: Madhya Pradesh*. Mumbai: IIPS, 2008.
- 5 Subramani R, Radhakrishna S, Frieden TR, et al. Rapid decline in prevalence of pulmonary tuberculosis after DOTS implementation in a rural area of South India. *Int J Tuberc Lung Dis* 2008;12:916–20.
- 6 Balasubramanian R, Garg R, Santha T, et al. Gender disparities in tuberculosis: report from a rural DOTS programme in south India. *Int J Tuberc Lung Dis* 2004;8:323–32.
- 7 Tuberculosis Research Centre. Trends in the prevalence and incidence of tuberculosis in South India. *Int J Tuberc Lung Dis* 2001;5:142–57.
- 8 Buskin SE, Gale JL, Weiss NS, Nolan CM. Tuberculosis risk factors in adults in King County, Washington, 1988 through 1990. *Am J Public Health* 1994;84:1750–56.
- 9 Arcavi L, Benowitz NL. Cigarette smoking and infection. *Arch Intern Med* 2004;164:2206–16.
- 10 Jacobson JM. Alcoholism and tuberculosis. *Alcohol Health Res* 1992; 16:39–45.

.....
European Journal of Public Health, Vol. 22, No. 2, 273–278

© The Author 2010. Published by Oxford University Press on behalf of the European Public Health Association. All rights reserved.
doi:10.1093/eurpub/ckp232 Advance Access published on 27 January 2010

How do gamblers start gambling: identifying behavioural markers for high-risk internet gambling

Julia Braverman^{1,2}, Howard J. Shaffer^{1,2}

1 Division on Addictions, Cambridge Health Alliance, Cambridge, MA, USA
2 Harvard Medical School, Boston, MA, USA

Correspondence: Julia Braverman, Division on Addictions, 101 Station Landing, Second Floor, Medford, MA 02155, USA, tel: 781-306-8618, fax: 781-306-8629, e-mail: jbraverman@challiance.org