from McKeganey are that drug treatment services have been very successful in recruiting drug users, that methadone has now overwhelmed the provision of other drug treatment services in Scotland and that the expansion of methadone services has occurred without clear evidence of the benefits of that provision. Whilst there remains no accurate data on the number of drug users prescribed methadone in Scotland, research undertaken by the Scottish Executive in 2005[5] estimates that the number of drug users prescribed methadone in 2004 was 19227. It is thought that that figure has increased in the period following this work and may now be closer to 22,224.[6] Since Scotland has an estimated total problem drug using population of around 51,000,[7] then on the basis that it is unlikely that more than half of the total addict population are in treatment, it would appear that virtually all problem drug users in Scotland in treatment are indeed being prescribed methadone. By contrast, Scotland has only minimal provision of residential rehabilitation services. It is these latter services that our wider research has shown to be much more closely associated with drug users becoming drug free.[8] It has been frequently stated in Scotland, and reiterated in the new drug strategy, that no one treatment suits all addicts. In reality, the situation we face within Scotland is precisely the opposite of that statement in which the vast majority of drug users seeking treatment are indeed provided with methadone. Commenting on that state of affairs in no way conflicts with the contents of our paper but is entirely congruent with our call for a mixed economy of drug treatment services.

References

1. Bloor M, McIntosh J, McKeganey N, Robertson M. 'Topping up' Methadone: an analysis of patterns of heroin use among a treatment sample of Scottish drug-users. *Public Health* 2008;**122**:1013–9.
2. Centre for Drug Misuse published reports. Available from: <http://www.gla.ac.uk/departments/drugmisuse/dorisreports/publishedreports> [Last accessed 13.01.09].
3. Key findings from the Drug Outcome Research in Scotland (DORIS) study. Available from: <http://www.gla.ac.uk/media/media_101969_en.pdf> [Last accessed 13.01.09].
4. Bloor M, Gannon M, Hay G, Jackson G, Leyland A, McKeganey N. Contribution of problem drug users' deaths to excess mortality in Scotland: secondary analysis of a cohort study. *BMJ* 2008;**337**:a478.
5. Information and Statistics Division Scotland. How many people are receiving methadone hydrochloride mixture for opiate dependence in Scotland and what are the prescribing costs per person? Scottish Executive Report. Available from: <http://www.drugmisuse.isdscotland.org/publications/local/isd_methadone.pdf>; 2005 [Last accessed 13.01.09].
6. *Review of methadone in drug treatment: prescribing information and practice*. Scottish Government. Available from: <http://www.scotland.gov.uk/Publications/2007/06/22094632/2>; 2007 [Last accessed 13.01.09].
7. Hay G, Gannon M, McKeganey N, Hutchinson S, Goldberg D. Estimating the national and local prevalence of problem drug misuse in Scotland. Glasgow: Centre for Drug Misuse Research. Available from: <www.drugmisuse.isdscotland.org/publications/local/prevreport2004.pdf>; [Last accessed 13.01.09].
8. McKeganey N, Bloor M, Robertson M, Neale J, MacDougal J. Abstinence and drug abuse treatment: results from the drug outcome research in Scotland study. *Drugs: education, prevention and policy* 2006;**13**:537–50.

M. Bloor*
J. McIntosh
N. McKeganey
M. Robertson
Centre for Drug Misuse Research, University of Glasgow, 89 Dumbarton Road, Glasgow, G11 6PW, UK
* Corresponding author.
E-mail address: m.bloor@socsci.gla.ac.uk (M. Bloor)

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Multiparous women: A key target population for smoking intervention?

Schneider *et al.*[1] used data from the German national registry to identify risk factors for smoking during pregnancy. They concluded that target groups for smoking cessation intervention include women who are young (<20 years of age), single, of low socio-economic status and, remarkably, who have had two or more pregnancies.

We were particularly interested in the latter association, since smoking has been associated with decreased fertility[2] and, interestingly, increased prevalence of twin pregnancies.[3] This last association may result from the effects of nicotine administration on hormonal pathways, thereby increasing the likelihood of a twin pregnancy; alternatively, women who have a genetic predisposition to have twins may be protected against the detrimental effects of smoking.

A recent study found that dizygotic (DZ) twinning is associated with smoking prior to the twin pregnancy.[4] Prompted by Schneider *et al.*'s paper, we returned to the original survey data collected from mothers of twins registered with the Netherlands Twin Register ($n = 19{,}357$), and looked at the distribution of smoking during pregnancy as a function of mode of conception (spontaneous versus fertility treatment). As shown in Table 1, 15.9% of the mothers with spontaneous twin pregnancies smoked during pregnancy, while this was much lower (10.6%) in mothers who had fertility treatment.

With regards to the findings by Schneider *et al.*, these data suggest at least one mechanism for the association between smoking and parity; the nulliparous group is more likely to include women who had their children following in-vitro fertilization or other fertility treatment, during which they will be strongly advised to quit smoking. In addition, given our results and the fact that increased parity is also related to a higher chance of giving birth to DZ twins, it is possible that part of the association between smoking during pregnancy and parity is due to the presence of DZ twin pregnancies in the population.

We do not know whether this information is available for the German national registry, but it would be of interest to see whether the association with parity remains after removing twin pregnancies (especially DZ) and pregnancies after fertility treatment from the analysis.[a]

Table 1
Distribution of smoking behaviour (*n*, %) in mothers of twins born after a spontaneous pregnancy or after fertility treatment.

Smoking behaviour of the mother	Spontaneous twin pregnancy	Twin pregnancy after fertility treatment
Never smoked	9235 (64.8%)	3040 (69.7%)
Smoked prior to, but not during, the twin pregnancy	2742 (19.3%)	862 (19.8%)
Smoked prior to and during the twin pregnancy	2266 (15.9%)	462 (10.6%)

Note: complete data on mode of conception and smoking were available for 18,607 biological mothers of twins.

[a] Schneider et al. have indicated that these data are available and will be the focus of a subsequent Short Communication.

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Competing interests

None declared.

References

1. Schneider S, Maul H, Freerksen N, Pötschke-Langer M. Who smokes during pregnancy? An analysis of the German Perinatal Quality Survey 2005. *Public Health* 2008;**122**:1210–6.
2. Olsen J. Cigarette smoking, tea and coffee drinking, and subfecundity. *Am J Epidemiol* 1991;**133**:734–9.
3. Hoekstra C, Zhao ZZ, Lambalk CB, Willemsen G, Martin NG, Boomsma DI, et al. Dizygotic twinning. *Human Reprod Update* 2008;**14**:37–47.
4. Hoekstra C, Willemsen G, van Beijsterveldt CEMT, Lambalk CB, Montgomery GW, Boomsma DI. Body composition, smoking, and spontaneous dizygotic twinning. *Fertil Steril* 2008 Dec 3. [Epub ahead of print].

G. Willemsen*
D.I. Boomsma
Department of Biological Psychology, VU University Amsterdam, Amsterdam, the Netherlands
* Corresponding author.
E-mail address: ahm.willemsen@psy.vu.nl (G. Willemsen)

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