Reviewer's report

Title: Prevalence, trends, patterns and associations of analgesic use in Germany

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Reviewer: Jean Taforeau

Reviewer's report:

Major compulsory

Background
76 There is no other source of drug use of information than population based surveys?

Methods
130 How can you than know that for instance aspirin was taken as analgesic rather than as a mean to prevent cardiovascular problems
141 How did you select the characteristics supposed to be associated with analgesic use and to be included in the analysis/models?
145 How was SES level measured? Why are you using education as well?
159 Did you take seasonality of drug use into account?
173 You have tested separated models for OTC and prescribed drugs … there may be an interaction between the use of the one and the other!
173 Did you verify the proportion of the variance in medicinal drug use that is explained by the factors include in the model? … There may be a lot of other factors that you didn’t include!

Table 3
Why did you select low SES as reference while you select medium education as reference?
What the added value of the unadjusted OR?
You are using logistic regression to compare categories two by two … why didn’t use other methods for instance to verify if there is a real gradient in function of the SES or the education?

Table 4
Adjusted OR: for what variable is it adjusted for? Just age and gender?
Why some variables that were in table 3 have been dropped in table 4 (education for instance)?
Why the outcome variable ‘use of both OTC and prescribed” has been dropped?

236 Multivariate logistic analysis: which variables have been included? Which are in the model?
Table 5
Is this table useful?
Have all the possible interactions been tested?
Why is there a difference between table 4 and table 5, for instance for gender: OR = 1.28 in table 4 and 1.30 in table 5 … same question for other characteristics
What do you mean by interaction analysis?
Why don’t you show only the interaction term and the p value?
What do you decide / conclude when the interaction is statistically significative?

Discussion
278-281 prescription data for insurance … this part is unclear to me
Is it not possible to compare use of medicinal drugs based on survey data and based on reimbursement / insurance data?
289 increase in arthritis: why did you not include chronic conditions in the analysis / model
A limitation of your study / survey is that you don’t have any idea about the number of DDD’s (daily doses) used by the person! Someone who took on pill of aspirin during the week is considered the same way that someone who took 6 pills per day during all the week!

Conclusions
364 how can the use of analgesic drugs and moreover their side effects at the population level be decreased? Is the decrease of chronic conditions not the higher priority?

Minor compulsory
159 did you take seasonality of drug use into account?

Results
189 is the difference in medicine use between 1998 and 2008 statistically significant?
191 is the difference in medicine use between 1998 and 2008 statistically significant for OTC in subgroups of population?
199 is the difference in medicine use statistically significant between the categories (of education, …)?

Discussion
282 does the fact that some drugs switch from prescription to OTC status explain the increase of OTC products? But OTC are not reimbursed by health insurance?
Can you verify that those specific OTC used in used in 2008 were used as prescribed in 1998?
287 could we say that the increase in the use of OTC is a sign an increase of the self-medication?
315 I understand the (elderly) people in institution are not included in the survey; do you think that use of analgesics is higher among those people (like it is the case for psychotropic drugs)?

325 Why do the women 30-44 years old use more OTC's?

330 Low SES people use more prescribed analgesics ... is it not the same for all medical drugs in general? Inversely high SES people take more OTC products in general: why is it not the case here?

333 Can you explain why:

• Smokers use more analgesic drugs
• Obese people use more prescribed analgesic drugs
• People practising intense physical activity use less analgesics?

350 Not clear if in GNHIES98 and DEGS1 information of drug use was self-reported or was based on scanning of the packaging. What do you mean by CAPI: is it solely the use of a computer during the interview to collect the self-reported information? Or does it mean that the interviewer is verifying the packaging himself to enter the information in the computer?

What do you mean by “central pharmacy number”? Is it also available for OTC? For preparation made by the pharmacist? For plant based products?

Discretionary

Methods

113 Is the ATC code mentioned on the package?

Results

204 Consumption of more than one medicine: results are not shown?

Discussion

272-278 Same survey in DK is mentioned two times?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I have no competing interests in relation to the present paper