Reviewer's report

Title: Predictors of Premature Mortality in Swedish Drug Abusers: A Prospective Longitudinal Study 1970 - 2006

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Reviewer: Heinrich Kufner

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General remark
The topic is interesting for the addiction field, the data base is clearly defined, but not comprehensive and the methodological approach to analyse predictors of drug related mortality is convincing regarding statistical methods. Besides the strengths of the study three major points and several minor points for revision are described in the following.

Major revision
1. During the long follow-up period many episodes e.g. treatment episodes or life events e.g. death of relatives or friends may have occurred in the life period of the patients which could influence drug-related mortality and could modify the impact of the analysed predictors in different ways (see Flynn et al 2003). Of course, in case of deaths the dead drug addicts cannot be asked any more about their treatment episodes, but there are other sources of getting data from relatives or friends or from health insurance companies or other documentation systems. If there are no such data available this should be discussed at least as limitations of the study. If there are data, then it must be argumented for not having included these data in the study.

2. The data of ICD diagnoses were filed at discharge (page 6) and it may be assumed that there are other data at discharge available e.g. dropout of treatment which is presumably in general one of the best predictors of treatment outcome and may be a predictor for drug-related deaths, too (Simpson DD et al.) This issue is not discussed. If data about premature discharge are available they should be included in the analyses, if not this should be discussed, at least.

3. The sample is rather heterogeneous regarding different types of drugs and different dependencies. Especially, the small group of alcoholics with 2% deaths may be different as to treatment outcome and as to the long term course of the patients including spontaneous remission (see Klingemann & Sobell, 2007). Although different drugs as predictors are analysed the group of chronic alcoholics with 5% related to the total sample is small. Again, the heterogeneity should be discussed, at least, regarding the impact on results.

Minor revisions
4. How long had patients stayed in treatment? (page 4)
4. In table 1 not only percentages, but also absolute frequencies should be presented.

5. For easier reading of the tables, the definitions mentioned in the text (e.g. mixed abuse) could be presented in the legend, too.

6. In table 2 only the Beta’s are represented, at page 12 risks are mentioned not clearly defined. In epidemiological studies it is usual to apply the OR (=Exp(B) mentioned at page 11) to characterize the effect of predictors or to use other risk coefficients if available. Therefore, in table 2 the OR should be included.

7. The abbreviation CS in table 2 and figure 2 may be substituted by the full name of the substance group.

8. The authors say (page 15) that the study sample is similar to a national case finding study in that area. Usually, the rate of alcoholics in the European countries is clearly larger than that of drug addicts, which is not the case in the study sample. There should be some explanation for the stated similarity.