Reviewer's report

Title: Assessment of the magnitude and determinants of abortion among Wolaita Sodo female university students, Wolaita zone, Ethiopia.

Version: 2 Date: 9 July 2013

Reviewer: Holger Unger

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The authors present the results of a descriptive cross-sectional study assessing the magnitude and determinants of abortion among female university students in the Wolaita zone, Ethiopia. Given the high number of maternal deaths in Ethiopia overall, and in view of unsafe abortions contributing 32% to maternal deaths in the country, such research is clearly of importance.

The authors collected a large amount of data yielding potentially important information that may contribute towards shaping national and international policy and strategy addressing the high burden of maternal morbidity and mortality in low-income countries.

In order to prepare for publication the paper requires significant editing, restructuring and re-review. Nevertheless, I believe this research is very worthwhile to be published in BMC Womens’ Health once changes have been made.

Minor essential revisions

1. The paper is too long: introduction, results and discussion chapters need to be written more succinctly. The introduction contains a lot of interesting background data but this could be summarised further, both in the ‘burden’ and ‘determinants’ sections (Personally, I would not use sub-headings in the introduction, just separate content by paragraphs). The results section could be trimmed down – there is a lot of data here but not all of it may be needed to get your message across. The discussion chapter sometimes repeats data already presented in the results section – this needs to be avoided.

2. The flow and presentation of results in the paper does not reflect the title (first magnitude/burden, then determinants). Personally, I would start the results section with presenting the abortion rates you observed, and characteristics of these abortions, and then explore risk factors, knowledge of legal situation, and wider context (sexual debut, condom use etc). Think about the structure a) How many?, b) Who?, c) Why? Etc.

3. It is really important to state the number of women who experienced abortion in your cohort (n=32/493) early on in the paper (first thing in your results section). When assessing for potential risk factors in a case-control fashion, the small sample size may introduce bias and increase statistical error (needs to be
discussed as a limitation).

4. Introduction: The first sentence needs to be referenced. The use of ‘on the other hand’ in the third sentence is not appropriate – I suggest deleting it. Consider restructuring the first paragraph – a) situation worldwide, b) situation in sub-Saharan Africa overall, then situation in Ethiopia. The same applies when reviewing abortion/burden thereof. This section needs to be summarised significantly – select the most important figures and present them, and ‘just’ reference the rest - those interested can read up the primary reference(s). Include a couple of sentences that briefly and succinctly summarise the legal situation regarding abortion in Ethiopia so that the ‘scene is set’ for the reader right from the start. Make it very clear why this study was needed, given there are already quite a few, and university students may not necessarily be at highest risk, compared to other groups of women in the country (rural, illiterate etc).

5. Methods: I am not entirely sure excluding all those participants who did not provide complete answers (n=21) is the correct thing to do, unless they contained no data at all – you may introduce some bias here (those who are not completing all questions may do so for a reason and may indeed by ‘high-risk’). It might be better dealing with missing data afterwards. The rate of abortion used in your sample size calculation (20%) is significantly higher than the one you found in your cohort (6.5%) and the one you cited in the abstract (2.3%). How does this affect your analysis? There are too many sub-headings in the Methods section. Variables used in your analyses could be summarised and included in the data analysis section – how did you chose the variables you looked at univariately, and how did you decide which ones to include in the multivariate mode (e.g. stepwise regression analysis etc)? You are stating that you were using two research methodologies – qualitative (by questionnaire) and quantitative (by FGD and key informant interviews). It is unclear which of results originate from quantitatively or qualitatively collected data. In fact, it seems that the majority of data presented came from the questionnaires. If you are using data from your qualitative part of the study you need to describe qualitative research methodology in more detail (was this data analysed by content analysis, grounded theory, how were participants - e.g. key informants – recruited, etc etc), and highlight it in the results section (e.g. by using quotes). This is really important.

Your initial study design is cross-sectional and explorative, but you are then doing post-hoc case-control work to determine risk factors for getting an abortion (and for intercourse and contraceptive use). This might be worth mentioning in your methods section.

6. Results. As mentioned earlier, you may wish to consider restructuring this: How many had abortions (name rate here, not only in abstract), what type etc, then look at risk factors for abortions (basically table 3 – I am surprised you did not include religious affiliation in this analysis – it may be important), then explore other things such as knowledge of legal situation in Ethiopia in the whole cohort (interesting!), attitudes towards pregnancy and abortion, methods of prevention etc. Once you presented this data it might then be worth discussing the fact that
when looking at your cohort not many women actually had their sexual debut yet and if they did $1/3$ or so ended up having an abortion – that is shocking and needs urgent intervention.

Table 1 – I do not understand why you have $n=897$ for pocket money. Also, it seems you were missing data for some variables e.g. age etc. – I suggest you create a separated identifier for ‘missing data’ for each variable and present percentages for the total sample set ($n=493$).

Figure 2 – $n=11$. Is this correct? It seems that total number is 26. What is ‘Embway’?

Table 3 – there is a typo there, I think it is meant to say abortion yes/no, not ‘ever had sex’ which is what you looked at in table 2. Table 3 does not seem to be referenced in the main text.

Table 4 – remove the duplicate ‘in case of rape’

For your main outcome measure (abortion versus no abortion) consider stating results of your univariate analysis (significant ones) and subsequently state which ones remained significantly associated with the outcome in your multivariate logistic regression analysis.

7. Discussion.

Try and summarise this a little more, and structure it according to the results. Avoid repeating results already presented in the paper. Include areas of future research (e.g. what do young men at university know about contraception etc.)

8. Recommendation: (include this at the end of your discussion). Awareness work seems very important too (condom use, other methods of family planning, etc). How many women in your cohort would actually have fulfilled the criteria for a legal abortion by Ethiopian legal standards – perhaps not so many, in which case strengthening access to, and supply of, places that provide safe termination of pregnancy is important, but prevention of unwanted pregnancy, and lobbying the government to amend legislation may be equally important. Given the relatively high use of hormonal emergency contraception it seems that there hormonal EC AND abortion may be perceived as ‘acceptable’ means of family planning – this needs addressed. Alcohol use has been found a potential risk factor for abortion/unwanted pregnancy in the first place. In addition to reducing alcohol intake etc it might be worth targeting stores/bars as a main point for condom distribution, health awareness, etc. We may not be able to stop young people to drink, and engage in sexual activity early, but we may be able to convince them to take control by using condoms or hormonal contraception. What role have Ethiopian men have to play? How much control do Ethiopian women truly have over their reproductive lives? It is really important that men are included in the fight to reduce unwanted pregnancy, unsafe abortion and maternal mortality (future research).

Other comments:
Use one tense through (e.g. past tense)
Grammar problems - language editing required
Editing work (e.g page 6 first sentence – ‘lack of interest interested’) etc.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests