Reviewer's report

Title: Life Context of Pharmacological Academic Performance Enhancement among University Students - a Qualitative Approach

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Reviewer: Jayne Lucke

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This paper examines the experiences of 18 healthy university students reporting the non-medical use of prescription and illicit stimulants for academic performance. The stated aim of examining this type of “cognitive enhancement” in a broader context is of value. Furthermore, the evidence-base required to inform policy and practice in this area is weak so empirical research is welcomed. Unfortunately the data analysis and presentation of the paper fails to meet the worthy goal and consequently doesn’t advance the field adequately to justify publication.

1. The authors have published in this field (and specifically, from this data) before and consequently will be familiar with the debates surrounding cognitive enhancement in the bioethics literature. Unfortunately this depth of knowledge is not reflected in the background of the paper. To warrant publication the background section should clearly articulate the state of the field, which particular gaps the paper addresses, and how it will advance the field. Related to this issue:

a. The background provides a broad description of various issues relating to the debate around cognitive enhancement such as: limited scientific evidence to support improvements in cognitive ability, concerns about safety and side effects, range of definitions, prevalence estimates. However, the focus should be more specifically on what is known about motivations for non-medical use of stimulant. The background should build a stronger case for examining such use within a broader context. Too much ground is covered in a superficial manner without adequately justifying the rationale for the study that was conducted.

b. Another example can be found half way down page 5 where the case is put that such stimulant use for academic purposes might not be expected to be prevalent given the limited pro-cognitive effects, sizeable side effects and illegality. The assumption that students would be fully aware of these issues, when many others are not is naive (e.g. the first sentence of the paper notes the considerable media attention generated over the past few years). Much media attention has been overly positive, and could lead to the impression that “smart drugs” are effective.

2. The distinction between prescription and illicit stimulants is an important one that needs more attention in the background. There are important differences in the legal consequences, methods of acquisition, costs, and health risks that
should be acknowledged.

3. The referencing need to be done more carefully. Use carefully chosen references for specific points, rather than multiple references for general statements.

4. The analysis is descriptive, and consequently does not get to the heart of the question of why students use stimulants and how their use in academic environments can be viewed in the broader context. For example, in the results Category 1 examines context – it appears that there is a common theme in this category: that students are using the stimulants to “get things done”. What those things are depends on what the student wants to do, whether that is getting through academic work, composing music, playing computer games, etc. The underlying motivation would appear to be the same. The other motivation appears to be “feeling good/having fun” which overlaps with the motivation to “get things done” when the students want to “feel good while getting things done”. More nuanced exploration of these motivations would add to the value of the paper and enhance the goal of exploring the context of student use of stimulants.

5. Another aspect of the analysis that could be further developed is the way that students appear to be using stimulants when they haven’t prepared for exams or done adequate work in time. An interesting ethical question is whether the use of stimulants could be seen as a way of bringing disorganized or unmotivated students up to a level of achievement that is similar to well-organized motivated students. What is the evidence for this, and what are the implications? A related question is to what extent students are self-medicating for symptoms of depression? Is stimulant use for study a marker for poor mental health?

6. One participant developed addictive behaviour (p13). It would be interesting to know more about the context of this. Given the qualitative nature of the study a more detailed exploration of the circumstances of this addiction could open fruitful avenues of enquiry in further studies.

7. The study is based on a small sample of 18 students. While the smallness of the sample is not a problem in itself for qualitative research, the potential limits to generalizability should be discussed more specifically, i.e. what types of students may have been missed because of the direct recruitment of students who have used stimulants for study. The recruitment strategy may have resulted in a bias towards students who viewed their use in a particular way (i.e. they were happy to be identified as users, and happy to discuss their use in a research study). The implications for the interpretation of the findings should also be discussed.

8. One specific source of bias that should be directly addressed is the exclusion of students with a current physicians’ prescription of psychoactive medication. This excludes students who might have obtained a prescription for the purposes of academic work by faking or exaggerating symptoms of a disorder. The literature suggests that this may be one way that students attempt to gain a legitimate prescription (albeit for an illegitimate use), or alternatively may be related to experiencing milder symptoms of a legitimate disorder such as ADHD.
In-depth examination of these complex, overlapping issues is outside the scope of the paper, but the implications for the nature of the sample and the interpretation of the results should be discussed.

9. Overall there needs to be a much stronger case presented regarding: What does this paper contribute that is not already known? How do the findings add to knowledge, and advance the field?

10. What are the implications for future research? What do we need to know and how should we go about finding out? For example, why do students NOT use drugs to enhance their performance, and what strategies do good students use instead? This could be an important question to be addressed by future research about the broader context of student drug use.

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

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests