**Reviewer's report**

**Title:** Development of a framework for the co-production and prototyping of public health interventions

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**Reviewer:** Dennis Gorman

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The paper by Hawkins et al. [1] describes the process used to develop a peer-led drug prevention program for 13 to 14 year-olds. My comments focus on the issue as to whether this is a complex public health intervention, as claimed by the authors. In addressing this, I will pose two questions: (a) Is the development process described by Hawkins et al. complex? (b) Is the intervention that is the outcome of this process complex? I conclude with some observations about the potential effect of conflict of interest in the project.

Although the term complex has everyday uses, within the scientific community it refers to specific types of natural and social systems. Complex systems exhibit the following characteristics to varying degrees: they are comprised of many elements, these elements are often heterogeneous and interact with one another, the interactions produce emergent effects that can differ from the individual effects, these effects unfold in a non-linear manner, there is feedback across time and this may be positive or negative, the way in which a system develops is history-dependent, different systems will develop in different ways to interventions based on their initial conditions, and systems react to attempts to change them and these reactions can make matters worse rather than better [2,3].

How complex is the development process described by Hawkins et al.? It is stated by Hawkins et al. that a "three stage multi-method framework" was used to "co-produce the content, resources, and delivery methods for the +Frank and Frank Friends interventions" (1, p. 8). Various terms are used that make the process sound complicated (if not complex): for example, "co-production of intervention content" (1, p. 10), "prototyping" (1, p. 8), "co-operative enquiry" (1, p. 9), "stakeholder consultation" (1, p. 9), and "unstructured consultations" (1, p. 10). Very often these terms just describe everyday ways of going about one's business. For example, surely everything that is not produced by one person is "co-produced"? If this is so, most everything produced by most institutions and businesses is "co-produced". This, in and of itself, does not constitute a complex phenomenon.
In addition, the activities and procedures involved in each of the three stages described by Hawkins et al. were relatively simple and standard practices. Stage 1 involved a literature review, focus groups with 47 young people, interviews with five members of the ASSIST delivery team, observation of the delivery of ASSIST, and a number of informal discussions with adolescents and health professionals. Stage 2 simply involved five meetings of the Public Health Wales ASSIST delivery team reviewing the material collected in Stage 1. Stage 3 comprised the lead author of the ASSIST randomized controlled trial and the lead trainer of DECHIPHer Impact (the company that licenses ASSIST) reviewing the draft manuals and other materials produced in Stage 2, and some trial runs of the program. While these may be worthy and worthwhile activities, and may be time-consuming and require some skill to implement, they are fairly run-of-the-mill procedures used by organizations to produce manuals and documents and policies and procedures. They are in no way unique to the production of public health interventions. They also do not display the characteristics of complexity described above.

How complex is the intervention? The intervention to be developed from the co-production process described by Hawkins et al. is comprised of two peer-led programs: ASSIST+Frank, and Frank Friends. The interventions are peer-based, delivered in school (year 8 or year 9), and involve the identification and training of peer supporters who then (over a period of about 10 weeks) informally engage fellow students in conversations about smoking and drug use. Thus, from a socio-ecological perspective, the interventions are limited in scope, affecting only the interpersonal level or microsystem. There appears to be no attempt to introduce organizational or community-level change, or involve families, or develop and implement local policies. Accordingly, the potential for complex interactions between heterogeneous elements of a system is totally lacking.

Also, while, as noted by the authors, there are relatively few peer-led drug prevention programs, most of the widely used school-based drug prevention programs target alcohol tobacco, marijuana and other illicit drugs (e.g., Life Skills Training, the Strengthening Families Program 10-14, Project TND, Project ALERT). So there is nothing especially complex about adapting ASSIST to include other drugs, especially as the source material for this adaption (Talk to Frank) appears to have already been decided before the co-production process was initiated. This is not to say there is not some serious thought to be put into this, and that it might involve the commitment of time and energy by a number of people, but it is not inherently complex.

Although the actual content of the ASSIST+ Frank or stand-alone Frank Friends programs is not described by Hawkins et al., there is some emphasis on the need for peer supporters to be armed with accurate information. I was especially stuck by the discussion of the association between smoking and erectile dysfunction [1, p. 16] and the comments of two of the ASSIST Delivery Team pertaining to this that are cited. Young boys, it appears, are especially attentive to the fact that smoking can affect one's ability to have an erection. This appears to harken back to the
discredited fear-based knowledge programs of the 1960s and 1970s that sought to instil fear in adolescents by invoking the threat of some real but distant health problem. For while there is certainly credible scientific evidence demonstrating an association between smoking and erectile dysfunction, cumulative dose exposures appears to be important [4] and therefore this may not be a condition that those in there early teens are likely to experience. Evaluations of the old fear-based drug prevention programs showed them to be ineffective at best and harmful at worse [5,6]. The fact that the interventions proposed by Hawkins et al. would have 13 and 14 year-olds conducting these discussions of smoking and erectile dysfunction with other 13 and 14 year-old is especially concerning.

Conflict of Interest and Allegiance. The literature review conducted as part of Stage 1 found that the ASSIST intervention was effective, and this effectiveness is said to have informed the development of +Frank and Frank Friends (1, p. 3). Drs. Campbell and Moore declare their involvement with the non-profit (DECIHPHer Impact) that licenses and supports the delivery of the ASSIST program. Specifically, they note in the conflict of interest declaration (1, p. 25) that the fees they have received from DECIHPHer Impact are "modest". Beyond this one must also consider the possibility that their allegiance to ASSIST might also constitute a form of conflict of interest. Researcher allegiance is present when the author of a paper has been involved in the development and dissemination of an intervention, irrespective of whether or not this involves any financial rewards [7]. Dr. Campbell and Dr. Moore were authors of the Lancet paper describing the evaluation of the ASSIST program [8]. Dr. Campbell is also an author of the meta-analysis that in mentioned in the current manuscript as having identified ASSIST as an effective program [9]. The DECIHPHer Impact webpage states that both Dr. Campbell and Dr. Moore founded this organization (in addition to being prior directors as stated in 1, p. 25). The webpage also still lists Dr. Campbell as a member of the DECIHPHer Impact board (http://www.decipher-impact.com/meet-the-board-2/). These associations are sufficient to establish that two of the authors have an allegiance to the ASSIST program. As with any type of conflict of interest, allegiance to an intervention does not imply the presence of bias in the research one conducts in relation to that intervention. However, it may be prudent to introduce some simple safeguards against the introduction of confirmation bias into the current study. The authors’ statement of willingness to share their data with other researchers [1, p. 25] is very encouraging in this regard. Other measures they might wish to consider include conducting blind analyses of their data or involving a skeptic in their research team [10].

References


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