

Attitudes of Public Health Academics toward Receiving Funds from for-Profit Corporations: A Systematic Review

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With dwindling support from governments toward universities, university–industry partnerships have increased. Ethical concerns over such partnerships have been documented, are particularly relevant when an institution receives money from a corporation whose products do harm and are intensified for academic public health institutions whose missions include promoting well-being. Academics in medicine and nutrition have often failed to recognize the potential conflicts of industry-sponsored research. It is unclear if research to date has explored attitudes of public health academics toward accepting such funds. The objective of this research was to review systematically the attitudes of public health academics with respect to accepting funds from for-profit corporations. Four electronic databases were searched as well as the archives of the Chronicles of Higher Education. The search strategy was based on four main domains: for-profit organizations, funding, public health and academia. This search resulted in a total of 4017 articles reviewed. No articles were found that investigated the attitudes of public health academics toward accepting funds from industry. The lack of articles addressing public health academicians' perspective toward accepting industry funds is striking. Research regarding this topic can guide development of policies that minimize the negative consequences of industry funding.

Background

With dwindling support from governments toward universities (Poyago-Theotoky *et al.*, 2002), there has been a substantial increase in university–industry partnerships over the last two decades (Cho *et al.*, 2000), including support of research (Warner & Gluck, 2003; Oyebisi *et al.*, 1996; D'Este & Patel, 2007). For example, The University College Dublin's Geary Institute was awarded a grant of 1.5 million Euros from Diageo Ireland—the world's biggest producer and distributor of alcoholic beverages—for a 3-year study examining the relationship between youth hazardous drinking and health risk behaviors (Babor, 2006). Harvard School of Public Health accepted a \$150,000 donation from Anheuser-Busch Cos for doctoral student scholarships (Helliker and Ellison, 2005). Ethical concerns over such partnerships have been documented, and include

the undermining of research as well as the eroding of public trust (Cho *et al.*, 2000). These concerns particularly are relevant when an institution receives money for the purpose of 'doing good' from a corporation whose products do harm (Stuckler *et al.*, 2011) and are particularly intensified for academic public health institutions and programs whose missions include promoting health and well-being.

The concerns are justified by findings that industry-funded research (compared to non-industry funded research) is less likely to be disseminated or published when resulting in negative findings (Okike *et al.*, 2008). There is also correlational evidence from three meta-analyses that industry-funded research is more likely to result in pro-industry findings (Bekelman *et al.*, 2003; Lexchin *et al.*, 2003; Lesser *et al.*, 2007). Particularly in relation to public health, Lesser *et al.* (2007) found that 0 per cent of nutrition interventions

funded by industry had conclusions unfavorable to the industry, as opposed to 32 per cent of those not funded by industry. In addition, negative findings tend to be under-reported when sponsored by industry. For instance, among 74 US Food and Drug Administration-registered studies of anti-depressant medication, 51 per cent were judged to have positive outcomes, and 97 per cent of these were published (Turner *et al.*, 2008). Of the remaining 36 studies with negative or equivocal findings, 22 (61 per cent) were not published and, even more worrying, 11 (31 per cent) were published as positive. This suggests an under-reporting of industry-funded negative findings in the published literature.

The importance of investigating academic and clinical faculty members' attitudes with regard to industry funding was noted in a recent viewpoint that stated that 'nutrition researchers, journals, and professional societies . . . often fail to realize that food industry funding may affect their work and its credibility' (Nestle, 2016: 13). A systematic review of attitudes of academic and clinical researchers toward financial ties in research reveals that academic-industry partnership may pose a threat to research integrity and might influence investigator choice of research topic (Glaser and Bero, 2005). In addition, faculty attitude toward industry funding was associated with funding source: those that had received support from industry were less likely to report perceptions that industry funding affected research agendas and more likely to report *favorable* impacts on research integrity from this type of support (Glaser and Bero, 2005). The studies included in this review were cross-sectional and therefore it is unclear which came first, the attitude or the behavior. However, health behavior theories suggest attitudes to be precursors of behavior.

Despite the possible conflict between the missions of public health and that of some industries, it is unclear if research to date has explored attitudes of public health academics toward accepting industry funds. This systematic review aimed to fill this gap, by setting out to find and summarize this research.

Method

Search Strategy

Four electronic databases were searched: one health-related database (Medline), one education database (ERIC) and two business databases (Business Search Complete and ProQuest). In addition, the archives of the Chronicles of Higher Education were searched

because this journal specifically addresses university research, practice and education.

The search strategy was based on four main domains: (i) for-profit organizations, (ii) funding, (iii) public health and (iv) academia. Figure 1 shows the search strategy. The search encompassed a time frame of 1 January 1996 till the third week of November 2015; 1996 was chosen as a lower limit cut-off, as the potential negative impact of industry involvement in research became recognized in the early 1990s. The strategy included both indexed terms and free-text terms. These were chosen in consultation with the Medical Librarian at the American University of Beirut and a member of the research team.

For Medline, that uses Medical Subject Headings (MeSH), all possible MeSH terms for each domain were exhausted (Figure 1). For the remaining four databases and the 'Chronicle' that do not employ the MeSH method, a Boolean search was used whereby the terms chosen were consistent with the above domains (Figure 1).

Eligibility and Exclusion Criteria

The inclusion criteria for this systematic review included the following:

- Type of articles: journal articles
- Type of studies: survey studies and qualitative studies
- Type of participants: public health academicians from any country
- Type of measurement: attitude toward accepting funds from for-profit corporations

Studies were excluded if they were not in English, and if they were published prior to 1996 in Medline. 'Year' restriction was also applied to the remaining three databases and the 'Chronicle' archives.

Article Selection

The process for article selection consisted of two screening phases: (i) title and abstract screening and (ii) full-text screening.

Two research assistants (S.M. and H.A.) as well as the corresponding author (R.A.) screened the title and abstracts of citations identified by the search independently. If the title seemed somewhat relevant, its abstract was read. Nine articles were included for full-text review after title and abstract review. All were excluded after reading the full text. Reasons for exclusion included that they were not related to public health

Database: Ovid MEDLINE(R) without Revisions <1996 to November Week 3 2015>

Search Strategy:

-
- 1 contract services/ or fund raising/ or exp financial support/ or exp financing, organized/ or gift giving/ or contracts/ (150283)
 - 2 research support as topic/ or "fellowships and scholarships"/ (17301)
 - 3 Training Support/ (2595)
 - 4 (grant* or subsid* or support* or fund* or aid* or financ* or contribut* or gift* or contract* or fellowship* or scholarship* or traineeship* or philanthrop* or sponsor* or agreement*).ti,ab,sh. (1903741)
 - 5 or/1-4 (1996434)
 - 6 Professional Corporations/ (403)
 - 7 commerce/ or public-private sector partnerships/ or exp industry/ (178018)
 - 8 Foundations/ (2853)
 - 9 Private Sector/ (7055)
 - 10 exp Organizations/ (224742)
 - 11 interinstitutional relations/ (7220)
 - 12 Consumer Organizations/ (534)
 - 13 (organi?at* or business* or corporat* or industr* or compan* or institut*).ti,ab,sh. (596286)
 - 14 ((public or private or manufact* or tertiary or interinstitution* or inter-institution*) adj2 (sector* or partnership* or cooperat* or enterprise or relation* or partner-ship*)).ti,ab,sh. (12001)
 - 15 or/6-14 (904567)
 - 16 exp faculty/ or exp universities/ (36659)
 - 17 exp Schools/ (51004)
 - 18 (institute* or academ* or facult* or school*).ti,ab,sh. (308296)
 - 19 Academies/ or Institutes/ (7081)
 - 20 or/16-19 (320995)
 - 21 Public Health/ (38831)
 - 22 ((public or community) adj health).ti,ab,sh. (109667)
 - 23 or/21-22 (129563)
 - 24 Schools, Public Health/ (463)
 - 25 5 and 15 and 24 (95)
 - 26 5 and 15 and 20 and 23 (3215)
 - 27 25 or 26 (3225)
 - 28 limit 27 to english language (2850)

Figure 1. Reproducible search strategy.

Database: Ovid MEDLINE(R) without Revisions <1996 to November Week 3 2015>.

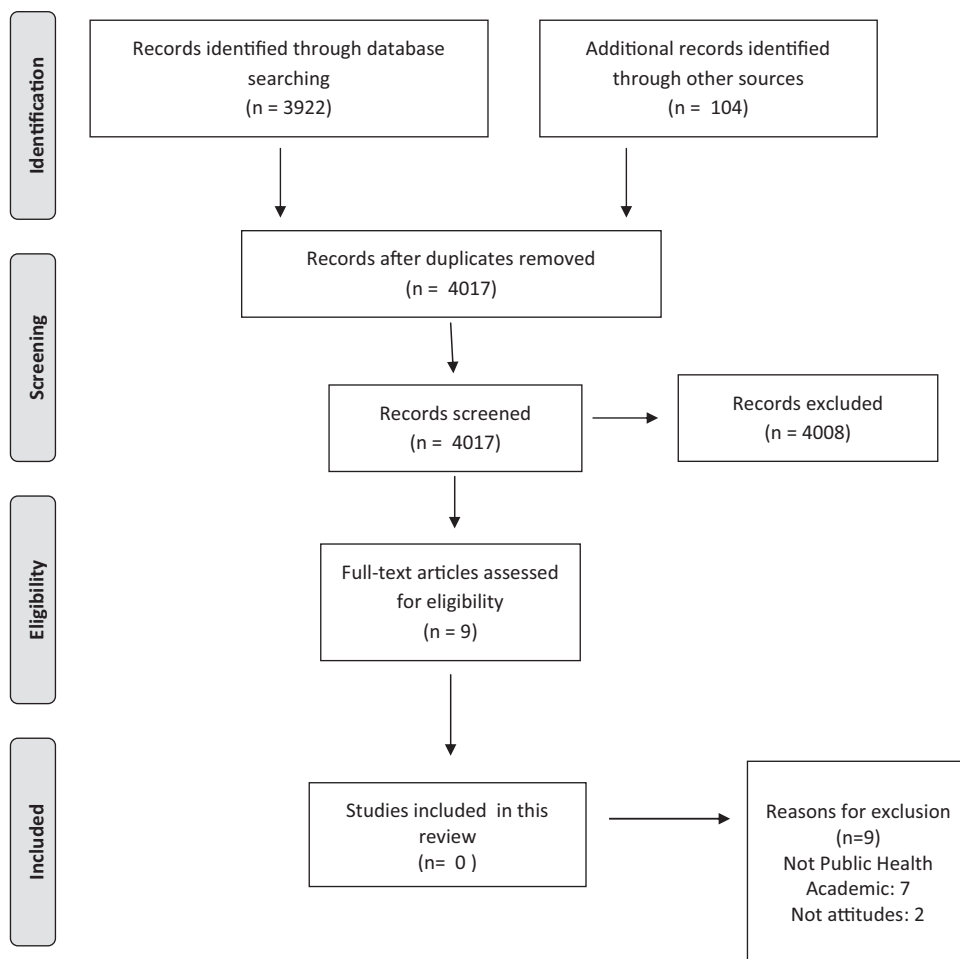


Figure 2. Systematic review flow chart.

academics (Bubela, 2006; Abrams, 2007; Barr, 2007; Greco and Diniz, 2008; Caceres and Mendoza, 2009; Easton, 2009; Ager and Zarowsky, 2015), or that they did not tackle their attitudes (Babor, 2006; Els and Kunyk, 2007) (Figure 2).

Results

This search resulted in a total of 4017 articles reviewed after removing duplicates with 2850 from Medline, 3 from Business Source Complete, 1065 from ProQuest, 4 from ERIC and 104 from the Chronicles of Higher Education.

No articles were found that investigated the attitudes of public health academics toward accepting funds from industry.

Discussion

Systematic reviews aid research by providing a compilation of available knowledge on a certain topic and by directing future research. Systematic reviews that yield no eligible results, sometimes termed ‘empty reviews’, are as important as reviews in which results are found: ‘empty reviews’ highlight literature gaps (Lang *et al.*, 2007). Reviews may be empty due to the specificity of the research question (Yaffe *et al.*, 2012), and that specificity may help to explain the findings of this review. The research question is by no means a new or unconventional topic. However, no research to date specifically has assessed attitudes of public health academics to industry funding despite the critical relevance of this issue.

The lack of articles may be a result of a failure to recognize the potential conflicts of interest with

industry-sponsored research. This failure may be linked to a perception that any negative repercussions from such relationships would be conscious (Glaser & Bero, 2005): ‘Researchers appear to believe that if individuals are open and do not engage in obvious misconduct, no harm will come’ (Glaser & Bero, 2005: 561). However, commitment to ethical behavior does not eliminate a subconscious bias that is exploited by industry through application of techniques of social psychology and industry practices (Sah and Fugh-Berman, 2013). Awareness of vulnerability to bias is a critical component of resisting influence (Sah and Fugh-Berman, 2013). Guided by evidence that attitude toward academic–industry partnerships influences behavior (Glaser and Bero, 2005; Nestle, 2016), research documenting attitudes of public health academics toward accepting funds from for-profit corporations are urgently needed—particularly concerning those industries whose products harm health. Documenting these attitudes may stimulate dialogue around these issues, enhance awareness of the possible negative consequences and promote the development of policies to govern the receipt of such funds (Cohen *et al.*, 2009).

Conclusion

This systematic review has pointed to the need for research that investigates attitudes of public health academics toward accepting funds from industry. Results would reveal the current range of attitudes and infer behaviors. This information would guide public health academic and practice institutions, as well as regulators and professional organizations toward the formulation of a plan of action to minimize the negative consequences of such funding, including education, enhanced awareness and policy development. In line with the effects described above of industry funding on results of research, funding sources for this research should only include those completely independent of industry.

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Conflict of Interest

None declared.

References

- Abrams, S. E. (2007). Nursing the Community, a Look Back at the 1984 Dialogue between Virginia A. Henderson and Sherry L. Shamansky. *Public Health Nursing*, **24**, 382–386.
- Ager, A. and Zarowsky, C. (2015). Balancing the Personal, Local, Institutional, and Global: Multiple Case Study and Multidimensional Scaling Analysis of African Experiences in Addressing Complexity and Political Economy in Health Research Capacity Strengthening. *Health Research Policy and Systems*, **13**, 5.
- Babor, T. F. (2006). Diageo, University College Dublin and the Integrity of Alcohol Science: it's Time to Draw the Line between Public Health and Public Relations. *Addiction*, **101**, 1375–1377.
- Barr, D. A. (2007). Ethics in Public Health Research: A Research Protocol to Evaluate the Effectiveness. *American Journal of Public Health*, **97**, 19–25.
- Bekelman, J. E., Li, Y., and Gross, C. P. (2003). Scope and Impact of Financial Conflicts of Interest in Biomedical Research: A Systematic Review. *JAMA*, **289**, 454–465.
- Bubela, T. (2006). Science Communication in Transition: Genomics Hype, Public Engagement, Education and Commercialization Pressures. *Clinical Genetics*, **70**, 445–450.
- Caceres, C. F. and Mendoza, W. (2009). Globalized Research and “National Science”: The Case of Peru. *American Journal of Public Health*, **99**, 1792–1798.
- Cho, M. K., Shohara, R., Schissel, A., and Rennie, D. (2000). Policies on Faculty Conflicts of Interest at US Universities. *JAMA*, **284**, 2203–2208.
- Cohen, J. E., Zeller, M., Eissenberg, T., Parascandola, M., O’Keefe, R., Planinac, L., and Leischow, S.

- (2009). Criteria for Evaluating Tobacco Control Research Funding Programs and Their Application to Models that Include Financial Support from the Tobacco Industry. *Tobacco Control*, **18**, 228–234.
- D'Este, P. and Patel, P. (2007). University–industry Linkages in the UK: What are the Factors Underlying the Variety of Interactions with Industry? *Research Policy*, **36**, 1295–1313.
- Easton, A. (2009). Public-private Partnerships and Public Health Practice in the 21st Century: Looking Back at the Experience of the Steps Program. *Preventing Chronic Disease*, **6**, A38.
- Els, C. and Kunyk, D. (2007). Canada: First Public Health School Rejects Tobacco Funds. *Tobacco Control*, **16**, 223.
- Glaser, B. E. and Bero, L. A. (2005). Attitudes of Academic and Clinical Researchers Toward Financial Ties in Research: A Systematic Review. *Science and Engineering Ethics*, **11**, 553–573.
- Greco, D. and Diniz, N. M. (2008). Conflicts of Interest in Research Involving Human Beings. *International Journal of Bioethics*, **19**, 143–154.
- Helliker, K. and Ellison, S. (2005). Anheuser Wants World to Know Beer Is Healthy. Retrieved January 29, 2016, available from: <http://www.wsj.com/articles/SB113408661160817882> [accessed 10 August 2016].
- Lang, A., Edwards, N., and Fleischer, A. (2007). Empty Systematic Reviews: Hidden Perils and Lessons Learned. *Journal of Clinical Epidemiology*, **60**, 595–597.
- Lesser, L. I., Ebbeling, C. B., Goozner, M., Wypij, D., and Ludwig, D. S. (2007). Relationship Between Funding Source and Conclusion Among Nutrition-related Scientific Articles. *PLoS Medicine*, **4**, 41–46.
- Lexchin, J., Bero, L. A., Djulbegovic, B., and Clark, O. (2003). Pharmaceutical Industry Sponsorship and Research Outcome and Quality: Systematic Review. *BMJ*, **326**, 1167–1170.
- Nestle, M. (2016). Corporate Funding of Food and Nutrition Research: Science or Marketing. *JAMA Internal Medicine*, **176**, 13–14.
- Okike, K., Kocher, M. S., Mehlman, C. T., and Bhandari, M. (2008). Industry-sponsored Research. *Injury*, **39**, 666–680.
- Oyebisi, T. O., Ilori, M. O., and Nassar, M. L. (1996). Industry-academic Relations: An Assessment of the Linkages between a University and Some Enterprises in Nigeria. *Technovation*, **16**, 203–215.
- Poyago-Theotoky, J., Beath, J., and Siegel, D. S. (2002). Universities and Fundamental Research: Reflections on the Growth of University–industry Partnerships. *Oxford Review of Economic Policy*, **18**, 10–21.
- Sah, S. and Fugh-Berman, A. (2013). Physicians under the Influence: Social Psychology and Industry Marketing Strategies. *The Journal of Law, Medicine and Ethics*, **41**, 665–672.
- Stuckler, D., Basu, S., and McKee, M. (2011). Global Health Philanthropy and Institutional Relationships: How Should Conflicts of Interest be Addressed? *PLoS Medicine*, **8**, 1–10.
- Turner, E. H., Matthews, A. M., Linardatos, E., Tell, R. A., and Rosenthal, R. (2008). Selective Publication of Antidepressant Trials and its Influence on Apparent Efficacy. *New England Journal of Medicine*, **358**, 252–260.
- Warner, T. D. and Gluck, J. P. (2003). What Do We Really Know About Conflicts of Interest in Biomedical Research? *Psychopharmacology*, **171**, 36–46.
- Yaffe, J., Montgomery, P., Hopewell, S., and Shepard, L. D. (2012). Empty Reviews: A Description and Consideration of Cochrane Systematic Reviews with no Included Studies. *PLoS One*, **7**, 1–7.