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Title: Support of public private partnerships in health promotion and conflicts of interest.
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ABSTRACT

Background

Public private partnerships (PPPs) to improve population health are considered a key element in the development of effective and sustainable solutions for serious health problems. However, there is little research to back the enthusiasm for these partnerships; many scientific reports on the issue are commentaries based on personal experience and authoritative opinions.

Methods

We revised the scientific literature in order to select all articles that expressed a position or recommendation on engaging in PPPs for health promotion. We classified the articles according to the authors' position regarding PPPs: strongly agree, agree, neutral, disagree and strongly disagree. We related the type of recommendation to authors' features such as institution and conflicts of interest (declared and not declared). We also recorded whether the recommendations were based on previous assessments.

Results

Of 47 papers analysed, 20 articles (42.5%) stated that PPPs are helpful in promoting health, one was neutral and 24 (51.1%) were against such collaborations. Twenty six papers (55.3%) set out conditions to assure positive outcomes of the partnerships. Evidence for or against PPPs was mentioned in 11 papers that were critical or neutral (44%) and in none of those advocating collaboration. Where conflicts were declared (27 papers), absence of conflicts was more frequent in critics than in defenders (85.7% vs 38.4%).

Conclusions

Although there is a lack of evidence to support public private partnerships for health promotion, many authors endorse this approach. The prevalence of ideas encouraging PPPs can affect the intellectual environment and influence policy decisions. Public health researchers and professionals must make a contribution in properly framing the PPP issue.

ARTICLE SUMMARY

Strengths and limitations of this study

* Our study provides information on an unexplored area, the influence on the scientific environment through editorials and commentaries supporting Public Private Partnerships between governments and corporations for health promotion.

* The study made a highly sensitive bibliographic search and screened a large sample of manuscripts.

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* However, the study was circumscribed to those engagements between governments and corporation arranged to promote health and excluded other types of Public Private Partnerships.

* The number of manuscripts finally analysed was not very large and this fact reduce the reach of our conclusions.

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INTRODUCTION

There is a growing interest in using public private partnerships (PPPs) to address health related issues. Most of the actions in global health engage in diverse arrangements that could be considered as PPPs. In provision of health care services, these hybrid partnerships have become a common approach. The range of these collaborations in purpose, design and composition is so broad that it challenges the efforts from the academic field to evaluate their merit and efficiency in improving health outcomes. There is a wave of enthusiasm that accepts that engagement in partnerships is an ineluctable path towards improvements in population health. This movement has been fuelled by several global institutions and numerous articles in lay and scientific literature. Buse, in collaboration with other authors, has made a thorough description of the origin of PPPs at the global level, weighted their risks and opportunities and has advocated for the evaluation of these so called global health governance instruments.[1-3]

Either encouraged by this fervour or working from their own agenda, some governments have introduced partnerships with corporations as a key element of health strategies. In the public health arena, partnerships with industries that manufacture commodities related to disease have been a cause of concern for some authors and rejected by others. However, these partnerships in health promotion benefit from the halo of theoretical success and respect accrued in global health by providing drugs for neglected diseases and similar endeavours.

Regardless of the potential merits of global health partnerships, the question of governments engaging with corporations considered as vectors of diseases in order to promote health is a central issue in present public health and should be the object of careful research.

When considering the role of corporations (manufacturers of beverages, food, alcohol, etc.) in public health policy, the potential capture of research is worth studying. There is reliable evidence to show how industries have altered science in order to avoid public concern on some health issues.[4] Furthermore, the setting up of organizations or research centres committed to partnerships could contribute to an increase in the number of positive articles appearing in scientific literature.

We carried out a review of articles, mainly editorials and commentaries, published in scientific journals on PPPs in order to quantify the diversity of visions and to assess the links between the authors and corporations engaged in such ventures.

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METHODS

The aim of our review was to identify opinion papers on PPPs designed to promote health by collaboration between governments and those industries whose products are related to disease. In a first step we performed a bibliographical search through PubMed in Medline with the following string using keywords from seminal papers on PPPs. Figure 1 shows the flow diagram of the bibliographic search, keywords employed and search string. We found 665 entries that we reviewed in order to refine the inclusion criteria and to detect inconsistencies between observers in article classification. One complication we encountered was making decisions on whether the papers referred to health promotion and whether the private sector partner involved was related to the causes of disease. In some cases the papers mentioned health promotion but in fact they dealt with health care provision or clinical preventive services. On the other hand, some industries were linked to the origin of disease by their negative externalities. However in some instances, as in the case of energy industries, the association was indirect. After this preliminary search and review, we refined our inclusion criteria in order to choose papers that were opinion papers (comments, editorials, viewpoints, etc.) on PPPs in which the public partner was from public administration and the private partner any business directly related to the disease that the PPP was intended to prevent. Partnerships in industries indirectly related to disease by negative externalities were excluded. We also excluded papers on PPPs whose objective was scientific research, cooperation for development, health care provision or preventive services. We discarded reports on partnerships between either governments or business with NGOs. Finally we did not include papers on the relations between public authorities and the tobacco industry as they have been extensively studied in the past and rejected as an acceptable option.

In a second step and in order to maximize sensitivity, we performed a simple search with the following terms: “public private partnership OR public private partnerships” (figure 1) that produced 2649 papers. As some well-known papers on the field were not detected through this search, we adopted a new strategy using terms from missed papers in the previous search and we found 2418 additional papers. After screening (title, key words, abstract if available and full text in case of doubt), we selected 38 papers. Finally we completed the search through citation tracking of these 38 articles and we retrieved 29 new papers, 9 of them fulfilled the inclusion criteria. The final number of papers reviewed was 47.[5-51] The search was performed in June 2015. Two papers were unavailable and therefore excluded.

The main variables drawn from the papers were: the position of the paper on PPPs (“strongly agree, agree, neutral, disagree and strongly disagree”); the full text of the comments on which the stance of the author was based; the conditions for engagement in PPPs, if any; the statement of conflict of interest; and author affiliation. In order to determine whether the author had relations with corporations involved in PPPs, either directly or through any form of partnership, we used author affiliation and statements of conflicts of interest, and finally we also performed an extensive Google search.

The initial analysis of papers (n=10) was blind and carried out by the two authors with a “fair to good” agreement. After consensus was reached, we completed an additional blind analysis (n=12) that showed good agreement and we proceeded with the remaining papers.

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Results

Forty-seven editorials or commentaries in scientific journals argued either for or against PPPs in health promotion. Twenty-four of the papers (51%) focused on PPPs in the promotion of healthy nutrition, 8 (17%) were on PPPs related to alcohol use and 15 (32%) referred to any PPPs promoting health.

One of the articles was classified as neutral, 22 (46.8%) supported PPPs (17 strongly supported partnerships) and 24 (51.1%) did not recommend engaging in partnerships (21 were strongly against). As expected there were differences in the relations of the authors with partnerships. Among advocates of PPPs, 14 (63.6%) had worked or were working in PPPs, while among critics of PPPs, the figure was 6 (25%).

No statement on conflict of interest was included in 20 of the papers (42.5%) with no differences between supporters of PPPs 10 (41.6%) and critics 9 (40.9%). When conflicts were declared (27 papers), absence of conflicts was acknowledged in 17 (63%); with a significant difference between defenders and critics of PPPs, 38.4% vs. 85.7%.

The main reasons for supporting PPPs can be categorized as follows (table 1): 1) the magnitude of the endeavour is too great and neither the public nor the private sector can address the issues alone; 2) the quality of public and private health actions increases through public-private collaboration; 3) PPPs contribute to putting health on the agenda of other actors/sectors; 4) PPP is a good instrument for the improvement of self-regulation; 5) PPPs encourage the production of healthful products by the industry. Authors critical of PPPs give as their main arguments the following (table 2): 1) profits from unhealthful products or services are irreconcilable with public health because of unavoidable conflicts of interests; 2) PPPs confer legitimacy on industries that produce unhealthful commodities; 3) regulatory capture; 4) precautionary principle and lack of evidence; 5) the objectives of PPPs contradict public health priorities.

Table 1. Advantages of Public Private Partnerships suggested by authors that support this strategy.

Threats to health cannot be tackled alone	- Growing severity of (global) public health problems. -Era of constrained health resources and prospects of further reductions in public health funding. - Public health agencies rarely have the resources needed to implement full and comprehensive programs to address the main health issues. They run the risk of becoming irrelevant in addressing the leading causes of death and disability if they do not engage with the private sector to overcome

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	the increasing gap in resources. - Effective partnerships are associated with: 1) sharing ideas, in-kind or financial resources, advocacy expertise, and specialized skills 2) accessing distribution systems 3)coordinating activities to reduce duplication of efforts 4) accessing client perspectives 5) reaching populations to conduct larger-scale and higher-risk activities than any one partner could achieve on its own. - In spite of the increasing need for public health professionals there will be a shortage of workers.
PPPs enrich the capacity, quality and reach of public health services and industries can benefit from public health service expertise.	- PPPs leverage extensive resources and diverse expertise, and have the capacity to reach millions of consumers through diverse marketing channels and media platforms. - The private sector provides important and high quality data on disease/health related practices and consumer behaviours. - Industries' emphasis on personal responsibility places them in a propitious position to promote responsible behaviours. - Industry networks provide the opportunity for vast distribution of preventive devices and educational materials. - PPPs provide new opportunities for health creation and for putting across health messages. - PPPs provide corporations with the opportunity to benefit from the expertise of public health services in promoting employees' health.
PPPs help to put health in all policies	- By putting health on the agenda of other actors/sectors, the health sector can significantly increase social momentum for health improvement. - PPPs allow for a wide ownership of health throughout society and have added a new dimension to intersectoral action for health. - PPPs work across public and private sectors, bringing in new partners and integrating solutions along the continuum of all sectors involved in particular health issues. - Private initiatives, from a large variety of industrial sectors create employment, generate income, produce a vast array of goods and services, and, in this way, are also critical to sustainable, long term food and

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	nutrition security.
PPPs improve self-regulation	- Companies and governments can work together to monitor code implementation and address alleged violations. - Government–industry partnerships have the potential to boost the efficacy of industry self-regulation. -PPPs allow government and industry to assess mutual needs and to build mutual trust that could foster the development of "best practices" codes for production and marketing. - PPPs could create shared values as a business ethos that may afford opportunities for companies to prioritize their impact on population health through core business practices.
Reducing unhealthful products and improving the quality of products	- PPPs promote sustainable business models that allow innovation in more healthful design and content of products. - Government agencies may help companies by providing them with increased sales in substitute products that will mitigate the economic effects of complying with the guidelines.

Table 2. Main arguments against Public Private Partnerships suggested by authors critic with this strategy.

Alliances between public health and the private sector whose products or services are unhealthful have inherent conflicts of interest that cannot be reconciled	- Because growth in profits is the primary goal of corporations, self-regulation and working from within are doomed to fail. - Partnerships with food and other industries are analogous to the unsuccessful collaborations with the tobacco industries in the past. - Health promotion measures are unlikely to be successful through industry-public health partner-ships when the public health aim is to reduce the consumption of products which industry manufactures or distributes.
Collaboration in health promotion confers legitimacy and credibility to industries that produce disease related products	- There is an image transfer effect of industries' connections with reputable public health organizations. - Partnerships with health sector organizations are appealing. Doing so, buys corporations credibility, ties brands to the positive emotions attributed to their partnered organization and helps buy

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	consumer loyalty
Government and regulatory capture	- Companies use the interaction to gain political and market intelligence information in order to gain political influence and/or a competitive edge. - The fear of losing financing prevents regulatory actions and enforcement. - The involvement of industries in policy making contains a potential risk to the independence and credibility of public interventions including research policy. - Public–private partnerships are simply a means for industry to co-opt public health.
Precautionary principle due to lack of evidence	- To date, self-regulation has largely failed to meet stated objectives and instead has resulted in significant pressure for public regulation. - By entering into partnerships industries promote their corporate social responsibility strategies that are intended to facilitate access to government, build trust among the public and political elites, and promote untested, voluntary solutions over binding regulation. - There is little objective evidence that public–private partnerships deliver health benefits, and many in the public health field argue that they are just a delaying tactic of the unhealthy commodity industries.
Objectives of PPPs contradict public health priorities	- There is no evidence for an alignment between public health priorities in health promotion and those of companies. For example in the field of nutrition, PPPs do not pursue the promotion of traditional food systems, shared meals and fresh and minimally processed foods, rather they promote reformulation and ready-to-heat or ready-to-eat dishes and snacks labelled as healthy.

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Regardless of the position of papers on PPPs, 26 papers (55.3%) set out requirements to assure positive outcomes of the partnerships. Some of the recommendations were general and supported the need for appropriate checks and balances in order to align the financial interests of the industry with the goals of public health. Others were very clear about the conditions for engagement with corporations and two papers gave detailed explanation of the criteria proposed.[21,29] The conditions for partnerships with industries can be grouped as following (table 3): 1) general principles, design and management of PPPs; 2) criteria for partner selection; 3) role of corporations.

Table 3. Conditions for engaging in PPPs put forward by the authors.

General principles, design and management of PPPs	- Mutual respect and trust; transparency and mutual benefit. - Adhere of foundational public health principles: human rights, ethics and equity. - Lead to significant health gains. - The health gains should be worth the effort involved in establishing and maintaining the partnership. - Establish appropriate checks and balances to align the financial interests of the industry with the goals of public health. - Do not endorse or promote products or brand names of any private corporation. - Full risk assessments needs to be undertaken before partnerships are considered and review risk mitigation and management approaches and their effectiveness. - Review evidence of public health impact of different forms of interactions and of different types of activities. - Design a governance structure that in itself takes account of and addresses the risks involved. - Provide guidance for interaction at all levels.
Criteria for partner selection, both type of industry/activity and individual companies	- The involved industry must be a suitable partner: a) are the major products and services provided by the industry health enhancing or health damaging?; b) Does the industry engage on a large scale in practices which are detrimental to health?; c) do the industry acknowledge the harmful effects of some of their products? - The involved company should meet some standards of behaviour: a) labour, health and safety conditions that the company adopt in its workplaces, particularly in the poor countries where they operate; b) the environmental commitment of the company; c) the marketing and advertising practices of the company; d) the research and development policy and

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	practice of the company; e) the regulatory compliance of the company and past activities
Role of corporations	- Governments should give priority to regulation levelling playing field before any PPPs - Corporation are welcome to participate as well as other organizations, citizens and NGOs to inform health promotion programmes and to enhance the effectivity of such programmes - Corporations do not participate in policy making - Arrangements should be done to address conflicts of interest in order to avoid any influence of corporations in normative decisions or in consultations

When assessing whether or not the statements of the authors regarding PPPs were evidence-based, we found that references to their effectiveness was the exception; only 11 articles (23%) made mention of data supporting their arguments. Reference to evidence was made only by the article considered as neutral and critics of PPPs (44%). None of the supporters of partnerships mentioned evidence of their effectiveness.

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DISCUSSION

PPPs, which emerged in the last century particularly in global health, are becoming an accepted way to implement health promotion programmes. Our study shows that there are contradictory opinions on the benefits and drawbacks of such partnerships. While most of the authors critical of this endeavour base their arguments on evidence of the effectiveness of PPPs, this is much less true of authors supportive of PPPs. Moreover, advocates of partnerships are frequently linked to PPPs or to the companies involved. Regardless of the position of the authors, the impression given by most papers is that PPPs are here to stay. Consequently, many authors offer recommendations for governments when they engage in such partnerships.

The main weakness of our study may be related to the ubiquitous use of the term PPP for a wide array of collaborations between different partners and for a broad spectrum of purposes. In fact PPPs have a positive halo of suitability derived from their application in global health where most partnerships are based on products, product development or service provision. We were interested only in those partnerships built to promote health in which the partners are on the one hand public administration and on the other corporations whose products, or some of them, can be considered as harmful. These partnerships fail to exclude products and services that jeopardize the theoretical objective of promoting health. However it has proven difficult to distinguish completely between those papers that express an opinion on those PPPs whose goal is exclusively health promotion, and those papers that offer viewpoints on PPPs with any other aims. On the other hand we think that this is a feature of the field of private public collaborations where some experience supports the general idea that partnerships are good for population health and that they should be included as one of the main strategies of public health administrations. In any case, we think that our selection of papers has been strict enough to confine the papers revised to those that analyse health promotion. It is possible that we have excluded some relevant papers; however, we have chosen specificity to ensure that we are considering articles that give an opinion on partnerships in health promotion.

Regarding conflicts of interest and relations of authors with PPPs or corporations engaged directly with PPPs, the scarcity of information provided in the papers makes it difficult to carry out a comprehensive assessment. We opted for a Google search and we were able to find sufficient information on authors and to identify their relations with corporations. However there are at least two shortcomings. First, we are unaware of any links between authors and any institution, partnership or corporation if this information is not available on Internet. Second, the potential conflicts of interest of PPP critics are more subtle; for instance, civil servants convinced that decision-making in public health belongs exclusively to the government. Consequently, our results on conflicts of interest may have failed to include all factors.

The number of papers finally included was 47, but it should be mentioned that at least three authors that were critical of PPPs have two papers in the list. One author that supported partnerships has three papers and another one two papers. We did not exclude these papers, as arguments and co-authors were not identical.

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We are not aware of any research into opinions on PPPs and therefore we cannot contrast our results with other studies. One may wonder why opinion papers on PPPs are relevant when we, in public health, tend to rely on evidence. First of all, evidence on PPPs for health promotion is scarce; although some evidence-based reports on the effectiveness of PPPs have appeared,[52-54] opinion papers still affect the intellectual environment. As Sally Macintyre has pointed out,[55] influences in policy are heterogeneous and evidence is not the main factor. The intellectual environment in which policy-makers operate receives many inputs, and consequently we believe that we need to be aware of any source of influence. Cultural capture is an example of government or regulatory capture–when government or regulatory actions serve the ends of industry-.[56] In public health policy, the decision makers' perspectives and actions are likely to be tinged by the prevalent ideas in the public space and relationship networks. A surplus of information favourable to PPPs by think tanks and the permeation in scientific journals of articles encouraging PPPs as the inevitable solution to the main public health challenges could have an impact in policy-making. This hypothesis is difficult to test and our results do not give an answer. However, we wish to underline the apparent paradox in the number of articles favourable to PPPs when evidence on their effectiveness is scarce and does not support this strategy. If we had not limited the scope of our research to health promotion, the number of favourable articles to PPPs would have been still higher, but this vision could be based on some evidence of PPPs which have been successful in the provision of services or medicines. We think that the general tide in favour of PPPs could be affecting the non-critical incorporation of this strategy in public health policy.

Many papers we revised transmit the certainty that PPPs are here to stay and hence there is a need to establish eligibility criteria. The availability of sound principles to confront any public health decision about engaging in PPPs with the private sector is sensible. However, we think that there is prerequisite for the presence of corporations at the policy decision table. Some authors are very clear on this point;[57-58] Galea and McKee point out: "It should never be the case that governments abdicate their responsibility for policy making to the corporate sector".[21] This reasonable restriction is linked to concerns about accountability which is avoided if policy decisions are transferred to PPPs. This does not constitute a veto of any interaction with corporations. On the contrary, practical policy should consider all relevant inputs to implement policies, whenever equity in democratic participation of all stakeholders is guaranteed.

Another key issue involving PPPs is related to the type of collaboration. Our results refer to partnerships for health promotion. In this area the first test proposed by Galea and McKee is wholly pertinent: "are the core products and services provided by the corporation health enhancing or health damaging?" Although some could raise doubts on the potential deleterious effects of some commodities such as some food or alcohol, the portrayal must be completed with the overall health impact of corporate practices. As has been highlighted, public health researchers should pay more attention to corporate practices as a social determinant of health.[59]

The suggestion that PPPs favour intersectoral action, given as a reason to support them, should be taken with caution. The argument invoked is that promoting health, for instance by favouring healthful diets and physical activity, requires a shared responsibility across many

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sectors, including government and industry. In public health, such sectors mean primarily non-health areas. On the other hand, of course, all stakeholders should have a voice in the process. Unfortunately, to date, industries have more opportunities and resources to reach centres of decision making compared to wide sectors of the population. Furthermore, sharing responsibility could embrace many arrangements, and PPPs for health promotion have not shown relevant positive effects in population health.

Our results show that, in spite of the scarcity of evidence on effectiveness, many comments or editorials in scientific literature are clearly favourable to partnerships for health promotion between governments and industries whose products are among the causes of major health problems. We think that this is not anecdotal but a reflection of a growing general opinion in favour of PPPs regardless of their appropriateness for population health. We agree with those authors that emphasize that the precautionary principle is fully applicable in this field as there is no evidence that the partnership of alcohol and ultra-processed food and drink industries is safe or effective. [7,43]

There can be no doubt that more evaluations of PPPs and more evidence synthesis on the effectiveness and safety of these type of collaborations is needed; however, until more sound scientific evidence is available, governments should be cautious before engaging in collaborations with industries that are responsible for the main health problems.

What is already known on this subject?

Some governments have introduced partnerships with corporations among their health promotion strategies. This approach is backed by a favourable intellectual and scientific environment.

What this study adds?

Nearly half of the commentaries or editorials published in scientific journal promote public private partnerships for promoting health. These positive opinions do not mention scientific evidence to support their statements. Advocates of engagement with corporation have frequent conflict of interest or are directly linked to partnerships.

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Contributorship statement

IHA contributed to the original design. IHA and GAZ organised and carried on the systematic literature research and the analysis of papers retrieved. IHA drafted the manuscript that was reviewed and approved by both authors**.** IHA is the guarantor for this study

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Competing Interests

We have read and understood the BMJ Group policy on declaration of interests and have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author). We declare the following interests: none.

Data sharing

Extra data is available by emailing Ildefonso Hernández-Aguado ihernandez@umh.es

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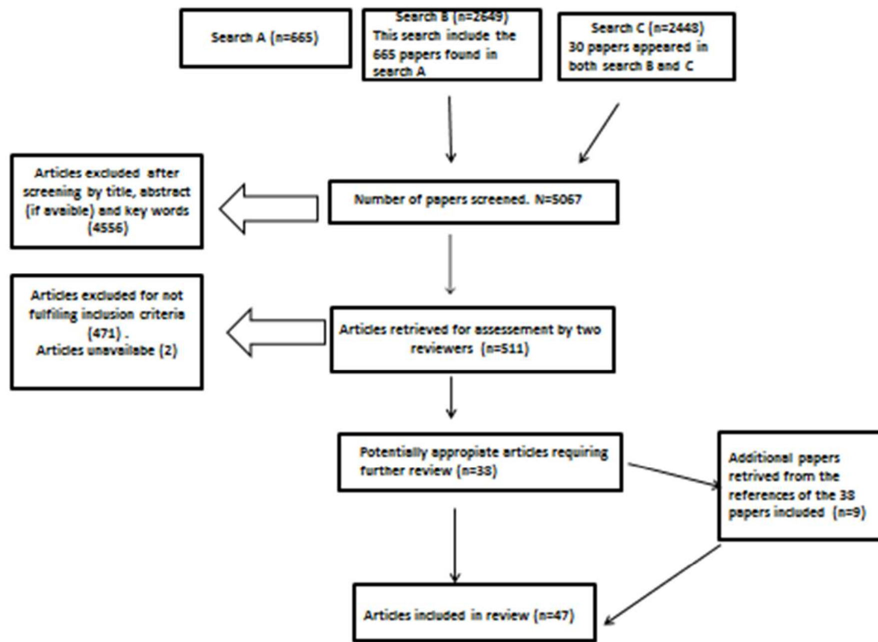
Figure 1. Flow diagram on process of identifying and screening studies for inclusion.



Search A: ("Public Health" [All Fields] OR "Health Promotion"[All Fields]) AND ("Public-Private Sector Partnerships"[All Fields] OR ("public-private sector partnerships"[MeSH Terms] OR ("public-private"[All Fields] AND "sector"[All Fields] AND "partnerships"[All Fields]) OR "public-private sector partnerships"[All Fields] OR ("public"[All Fields] AND "private"[All Fields] AND "partnerships"[All Fields]) OR "public private partnerships"[All Fields]))

Search B: public private partnership OR public private partnerships

Search C: ("Public Health"[All Fields] OR "Health Promotion"[All Fields]) AND ("Alcoholic Beverages"[All Fields] OR "Public-Private Sector Partnerships"[All Fields] OR "Public Private Partnerships"[All Fields] OR ("chronic disease"[MeSH Terms] OR ("chronic"[All Fields] AND "disease"[All Fields]) OR "chronic disease"[All Fields]) OR "Food Industry"[All Fields] OR "Private Sector"[All Fields] OR "Public Sector"[All Fields] OR "Motor Activity"[All Fields] OR "World Health"[All Fields] OR "global health"[mh] OR "Tobacco Industry "[All Fields] OR "Public Policy"[All Fields]) AND (Editorial[ptyp] OR Comment[ptyp]) AND (Comment[ptyp] OR Editorial[ptyp])

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Support of public private partnerships in health promotion and conflicts of interest.

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Title: Support of public private partnerships in health promotion and conflicts of interest.

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ABSTRACT

Objectives

Public private partnerships (PPPs) are considered a key element in the development of effective health promotion interventions. However, there is little research to back the enthusiasm for these partnerships. Our objective was to describe the diversity of visions on PPPs and to assess the links between the authors and corporations engaged in such ventures.

Methods

We reviewed the scientific literature through PubMed in order to select all articles that expressed a position or recommendation on governments and industries engaging in PPPs for health promotion. We included any opinion paper that considered agreements between governments and corporations to develop health promotion actions. Papers that dealt with health care provision or clinical preventive services and those related to tobacco industries were excluded. We classified the articles according to the authors' position regarding PPPs: strongly agree, agree, neutral, disagree and strongly disagree. We related the type of recommendation to authors' features such as institution and conflicts of interest (declared and undeclared). We also recorded whether the recommendations were based on previous assessments.

Results

Of 46 papers analysed, 21 articles (45.6%) stated that PPPs are helpful in promoting health, one was neutral and 24 (52.1%) were against such collaborations. Twenty six papers (57%) set out conditions to assure positive outcomes of the partnerships. Evidence for or against PPPs was mentioned in 11 papers that were critical or neutral (44%) and in none of those advocating collaboration. Where conflicts were declared (26 papers), absence of conflicts was more frequent in critics than in defenders (86% vs 17%).

Conclusions

Although there is a lack of evidence to support public private partnerships for health promotion, many authors endorse this approach. The prevalence of ideas encouraging PPPs can affect the intellectual environment and influence policy decisions. Public health researchers and professionals must make a contribution in properly framing the PPP issue.

ARTICLE SUMMARY

Strengths and limitations of this study

* Our study provides information on an unexplored area; the influence on the scientific environment through editorials and commentaries supporting Public Private Partnerships between governments and corporations for health promotion.

* The study made a highly sensitive bibliographical search and screened a large sample of manuscripts.

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* However, the study was circumscribed to those engagements between governments and corporations arranged to promote health and excluded other types of Public Private Partnerships.

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INTRODUCTION

There is a growing interest in using public private partnerships (PPPs) to address health related issues. Most of the actions in global health engage in diverse arrangements that could be considered as PPPs. In provision of health care services, these hybrid partnerships have become a common approach. The range of these collaborations in purpose, design and composition is so broad that it challenges the efforts from the academic field to evaluate their merit and efficiency in improving health outcomes. There is a wave of enthusiasm that accepts that engagement in partnerships is an ineluctable path towards improvements in population health. This movement has been fuelled by several global institutions and numerous articles in lay and scientific literature. Buse, in collaboration with other authors, has made a thorough description of the origin of PPPs at the global level, weighted their risks and opportunities and has advocated for the evaluation of these so called global health governance instruments.[1-3]

Either encouraged by this fervour or working from their own agenda, some governments have introduced partnerships with corporations as a key element of health strategies. Ritchner analysed in 2004 the movement towards closer interactions of United Nations agencies and the business sector with particular reference to the WHO.[4] She warned of political pressures and the tendency towards weakening rather than strengthening safeguards for public interests when building these public-private interactions. However, these partnerships in health promotion benefit from the halo of theoretical success and respect accrued in global health by providing drugs for neglected diseases and similar endeavours.

Regardless of the potential merits of global health partnerships, the question of governments engaging with corporations in order to promote health is a central issue in present public health and should be the object of careful research. The intellectual environment can be propitious to PPPs if many articles published in scientific journals assume that these agreements are a cornerstone of new public health developments. Consequently, when considering the role of corporations (manufacturers of beverages, food, alcohol, etc.) in public health policy, the potential capture of research is worth studying. There is reliable evidence to show how industries have altered science in order to avoid public concern on some health issues.[5] Furthermore, the setting up of organizations or research centres committed to partnerships could contribute to an increase in the number of positive articles appearing in scientific literature.

We carried out a review of articles, mainly editorials and commentaries, published in scientific journals on PPPs in order to quantify the diversity of visions and to assess the links between the authors and corporations engaged in such ventures.

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METHODS

The aim of our review was to identify opinion papers on PPPs designed to promote health by collaboration between governments and those industries whose products are related to disease regardless of the participation of other partners (for example NGOs). The term PPP was defined as voluntary and collaborative relationships between various parties, both state and non-state, in which all participants agree to work together to achieve a common purpose or undertake a specific task, and to share risks, responsibilities, resources, competencies and benefits. [6] The term PPP has been used to define many types of interaction that involve a range of different actors and goals. We restrict our study to those agreements whose objective is health promotion, understood as the process of enabling people to increase control over, and to improve their health.[7] Therefore we exclude PPPs whose objectives were the provision of health care or clinical preventive services, research, development or distribution of products (drugs, vaccines, etc.). We performed a bibliographical search through PubMed in Medline using keywords from seminal papers on PPPs. Figure 1 shows the flow diagram of the bibliographical search, keywords employed and search strings. In the first step, we found 665 entries that we reviewed in order to refine the inclusion criteria and to detect inconsistencies between observers in article classification. One complication we encountered was making decisions on whether the papers referred to health promotion and whether the private sector partner involved was related to the causes of disease. In some cases the papers mentioned health promotion but in fact they dealt with health care provision or clinical preventive services. On the other hand, some industries were linked to the origin of disease by their negative externalities, i.e. the cost imposed by industries on third parties such as the health costs to the population caused by endocrine disruptors derived from the chemical industry. After this preliminary search and review, we refined our inclusion criteria in order to choose articles that were opinion papers on PPPs (comments, editorials, viewpoints, etc.) in which the public partner was from public administration and the private partner any business directly related to the disease that the PPP was intended to prevent, such as producers of sweetened beverages, alcohol or foods containing high trans-unsaturated fatty acids. Partnerships in industries indirectly related to disease by negative externalities were excluded. We also excluded papers on PPPs whose objective was scientific research, cooperation for development, health care provision or preventive services. We discarded reports on partnerships between either governments or business with NGOs because governments have several capacities, such as regulatory power that can be captured or modified by industries. Partnerships between industries and NGOs do not endanger these risks. However we have not excluded papers on PPPs in which NGOs or other civil organizations have participated provided that there is at least an agreement between a public administration and an industry. Finally we did not include papers on the relations between public authorities and the tobacco industry as they have been extensively studied in the past and rejected as an acceptable option.

In a second step and in order to maximize sensitivity, we performed a simple search with the following terms: “public private partnership or public private partnerships” (figure 1) that produced 2649 papers. As some well-known papers on the field were not detected through this search, we adopted a new strategy using terms from missed papers in the previous search and we found 2418 additional papers. After screening (title, key words, abstract if available and full text in case of doubt), we selected 38 papers. Finally we completed the search through

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citation tracking of these 38 articles and we retrieved 29 new papers, 9 of which fulfilled the inclusion criteria. The final number of papers reviewed was 47.[8-53] The search was performed in June 2015. Two papers were unavailable and therefore excluded.

The main variables drawn from the papers were: the position of the paper on PPPs ("strongly agree, agree, neutral, disagree and strongly disagree"); the full text of the comments on which the stance of the author was based; the conditions for engagement in PPPs, if any; the statement of conflict of interest; and author affiliation. In order to determine whether the author had relations with corporations involved in PPPs, either directly or through any form of partnership, we used author affiliation and statements of conflicts of interest, and finally we also performed an extensive Google search.

The initial analysis of papers (n=10) was blind and carried out by the two authors who agreed on 6 papers.. After consensus on the application of inclusion criteria and assessment of the results on main variables was reached, we completed an additional blind analysis (n=12). The authors agreed on 9 papers and proceeded with the remaining articles. The final analysis of all papers included was performed by both authors.

Results

Forty-six editorials or commentaries in scientific journals argued either for or against PPPs in health promotion. Twenty-three of the papers (50%) focused on PPPs in the promotion of healthy nutrition; 8 (17%) were on PPPs related to alcohol use; and, 15 (32%) referred to PPPs which considered general rather than specific types of health promotion. Of the 28 journals which published the opinion articles on PPPs, Addiction printed 7, SCN News printed 5, and Plos Medicine printed 3. The other journals, mainly from the public health field and nutrition, published between 1 and 2.

One of the 46 articles was classified as neutral, 21 (45.6%) supported PPPs -16 strongly supported partnerships- and 24 (51.1%) did not recommend engaging in partnerships -21 were strongly against.

Most of the papers (19, or 41%) were published in public health journals, of which 10 were in favour of PPPs. Of the 11 papers published in nutrition journals, 8 supported PPPs. In the subject category of substance abuse, 5 articles out of 7 were against PPPs. The articles published in general medicine journals were mainly opposed (5 out of 6).

As expected there were differences in the relations of the authors with partnerships. Among advocates of PPPs, 13 (62%) had worked or were working in PPPs, while among critics of PPPs, the figure was 6 (25%).No statement on conflict of interest was included in 20 of the papers (43%), and there was no difference between supporters of PPPs 9 (43%) and critics 10 (42%). When a declaration of conflicts of interest was required (26 papers), absence of conflicts was acknowledged or proved in 14 (54%); with a significant difference between defenders and critics of PPPs, 17% vs. 86%.

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The main reasons for supporting PPPs can be categorized as follows (table 1): 1) the magnitude of the endeavour is too great and neither the public nor the private sector alone can address the issues; 2) the quality of public and private health actions increases through public-private collaboration; 3) PPPs contribute to putting health on the agenda of other actors/sectors; 4) A PPP is a good instrument for the improvement of self-regulation; 5) PPPs encourage the manufacture of healthful products by industry. Authors critical of PPPs give as their main arguments the following (table 2): 1) profits from unhealthful products or services are irreconcilable with public health because of unavoidable conflicts of interests; 2) PPPs confer legitimacy on industries that produce unhealthful commodities; 3) regulatory capture; 4) precautionary principle and lack of evidence; 5) the objectives of PPPs contradict public health priorities.

Table 1. Advantages of Public Private Partnerships suggested by authors that support this strategy.

Types of arguments	Quotations from reviewed papers*
Threats to health cannot be tackled by governments alone	- Considering the growing of issues severity such as childhood obesity and rising health care costs, neither the public nor the private sector can address the issues alone but must do so jointly. [12] - WHO cannot tackle the immense threats to health - such as poverty- alone and through the health system. It needs strong partnerships between public bodies, civil society and the private sector to make health everybody's business. Acting as an initiator, catalyst and honest broker for health partnerships must become a dominant function of WHO's work.[32]- Public health agencies rarely have the resources needed to implement full and comprehensive programs to address the main health issues. They run the risk of becoming irrelevant in addressing the leading causes of death and disability if they do not engage with the private sector to overcome the increasing gap in resources.[40] - Effective partnerships are associated with:[35] 1) Sharing ideas, in-kind or financial resources, advocacy expertise, and specialized skills; 2) Accessing distribution systems; 3) Coordinating activities to reduce duplication of efforts; 4) Accessing client perspectives; 5) Reaching populations to conduct larger-scale and higher-risk activities than any one partner could achieve on its own. -The following trends underscore the need to partner with the business sector: 1)The public's health has become big business; 2) There will be less money for public health programs; and 3) There is an increasing need for public health professionals but a shortage of workers.[40].
PPPs enrich the capacity, quality and reach of public health services. Industries can	- Industry-sponsored healthy lifestyle initiatives leverage extensive resources and diverse expertise, and have the capacity to reach millions of consumers through diverse marketing channels and media platforms.[34] - The private sector provides important and high quality data on

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benefit from public health service expertise.	disease/health related practices and consumer behaviours.[23] - Industries' emphasis on personal responsibility places them in a propitious position to promote responsible behaviour.[20] - The industry could allow its vast distribution resources to be used to deliver not just alcohol products but also condoms and educational materials to the drinking establishments they serve; in short, at the point of greatest vulnerability to infection due to the influence of alcohol use.[20] - Partnerships with businesses can potentially address specific cost and investment challenges; improve the efficiency and quality of service delivery through sophisticated distribution systems; and provide public sector stakeholders and NGOs with access to financial and in-kind resources, influential networks, communications expertise and technology transfer.[33] - PPPs provide new opportunities for health creation and for putting across health messages.[33] - PPPs provide corporations with the opportunity to benefit from the expertise of public health services in promoting employees' health.[40]
PPPs help to put health in all policies	- By putting health on the agenda of other actors/sectors, the health sector can significantly increase social momentum for health improvement.[32] - PPPs allow for a wide ownership of health throughout society and have added a new dimension to intersectoral action for health.[32] - PPPs work across public and private sectors, bringing in new partners and integrating solutions along the continuum of all sectors involved in particular health issues.[32] - Private initiatives, from a large variety of industrial sectors create employment, generate income, produce a vast array of goods and services, and, in this way, are also crucial to sustainable, long term food and nutrition security.[15]
PPPs improve self-regulation	- Companies and governments can work together to monitor code implementation and address alleged violations.[50] - Government–industry partnerships have the potential to boost the efficacy of industry self-regulation.[43] -PPPs allow government and industry to assess mutual needs and to build mutual trust that could foster the development of "best practices" codes for production and marketing.[53] - PPPs could create shared values as a business ethos that may afford opportunities for companies to prioritize their impact on population nutrition through core business practices.[16]
Reducing unhealthful products and improving the quality of products	- PPPs promote sustainable business models that allow innovation in more healthful design and content of products.[52] - Government agencies may help companies by providing them with increased sales in substitute products that will mitigate the economic effects of complying with the guidelines.[43]

* Some quotations have been abridged to include in the table.

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Table 2. Main arguments against Public Private Partnerships suggested by authors critical of this strategy.

Types of arguments	Quotations from reviewed papers*
Alliances between public health and the private sector whose products or services are unhealthful have inherent conflicts of interest that cannot be reconciled	- Because growth in profits is the primary goal of corporations, self-regulation and working from within are doomed to fail.[51] - Partnerships with food and other industries are analogous to the unsuccessful collaborations with the tobacco industries in the past.[45] - Health promotion measures are unlikely to be successful through industry-public health partnerships when the public health aim is to reduce the consumption of products which industry manufactures or distributes.[27] - The food industry, like all industries, plays by certain rules—it must defend its core practices against all threats, produce short-term earnings, and in so doing, sell more food. If it distorts science, creates front groups to do its bidding, compromises scientists, professional organizations, and community groups with contributions, blocks needed public health policies in the service of their goals, or engages in other tactics in ‘‘the corporate playbook’’, this is what is takes to protect business as usual.[10]
Collaboration in health promotion confers legitimacy and credibility on industries that produce disease related products. PPPs can damage the credibility of public health institutions.	- The risks involved in developing partnerships with the corporate sector are also considerable. They include the possibilities that (a) the WHO reputation will be used to sell goods and services for corporate gain, thus tarnishing WHO's reputation as an impartial holder of health values; (b) WHO's judgement on a particular product, service, or corporate practice may be compromised by financial support provided by the involved company or industry; and (c) WHO involvement with an industry or company is perceived as acceptance of unhealthy products, services, or practices.[32] - There is a real or intended image transfer effect of industries' connections with reputable scientists and public health organizations.[8] - It is time to declare a moratorium on further dialogues with industry sources until alcohol scientists and the public health community can agree to what is in their legitimate interests, and how to avoid compromising our well-earned integrity.[8] - For food industry, partnerships with health charities and health sector organizations are alluring. Doing so, buys corporations credibility, ties brands to the positive emotions attributed to their partnered organization and helps buy consumer loyalty.[21] - PPPs allow the food industry to claim that they are part of a 'solution' to a particular problem via the alliances themselves, as well as industry dollars. Being at least narratively part of a solution allows the food industry to defend against industry unfriendly legislation and discourse.[22] - Some packaging suggests that "Just by purchasing this product you are helping to give children in Africa a chance at a better life".[36]
PPPs capture institutions (UN	- Companies use the interaction to gain political and market intelligence information in order to gain political influence and/or a competitive

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Agencies, Governments, etc.), regulatory bodies and science.	edge.[49] -The WHO lacks a hard-lined conflict of interest policy, likely because of the much-needed financing that the private sector provides and the fear that enforcement will make investors hesitant.[14]. - There is a potential for major private sector donors to distort the priorities of governments and international agencies receiving funds. For example, the core budget of the WHO is much more closely aligned with disease burden than is the element composed of extra- budgetary contributions from donors, an issue that current reforms are seeking to correct.[24] - Evidence suggests that these corporate social responsibility strategies are intended to facilitate access to government, co-opt nongovernmental organizations to corporate agendas, build trust among the public and political elite and promote untested, voluntary solutions over binding regulation.[25] -. - We now have considerable evidence that food and beverage companies use similar tactics to undermine public health responses such as taxation and regulation, an unsurprising observation given the flows of people, funds, and activities between Big Tobacco and Big Food. Yet the public health response to Big Food has been minimal.[51]- There is a long history of corporate abuses, best recognised with respect to the tobacco industry although increasing recognised with the food, alcohol and pharmaceutical industries. These include revolving doors between government and industry, undeclared or underplayed conflicts of interest, measures to define and measure standards and many others.[24]
Precautionary principle due to lack of evidence	- The precautionary principle argues against public–private partnership because there is no evidence that the partnership of alcohol and ultra-processed food and drink industries is safe or effective, unless driven by the threat of government regulation.[46] - To date, self-regulation has largely failed to meet stated objectives and instead has resulted in significant pressure for public regulation.[51] - Evidence suggests that educational interventions are the least effective means of reducing alcohol-related harm, and that alcohol industry-funded educational programs are ineffective and potentially counter-productive, like their counterparts funded by the tobacco industry.[25] - Despite the common reliance on industry self-regulation and public–private partnerships, there is no evidence of their effectiveness or safety. Public regulation and market intervention are the only evidence-based mechanisms to prevent harm caused by the unhealthy commodity industries.[46] - There is little objective evidence that public–private partnerships deliver health benefits, and many in the public health field argue that they are just a delaying tactic of the unhealthy commodity industries.[46] - Today we have solid evidence that marketing increases consumption of unhealthy foods and beverages, and that a ban would be a very cost-effective measure in the fight against childhood obesity. Still, regulation has so far been forcefully counteracted by an alliance between industry and advertisers, who instead advocate partnerships with the public sector to enhance physical activity. Collaboration should be evidence

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	based.[18]
Objectives of PPPs contradict public health priorities.	- There is no evidence for an alignment between public health priorities in health promotion and those of companies. For example in the field of nutrition, PPPs do not pursue the promotion of traditional food systems, shared meals and fresh and minimally processed foods, rather they promote reformulation and ready-to-heat or ready-to-eat dishes and snacks labelled as healthy.[45,51] - These collaborations rarely establish the types of partnerships that promote the mutual exchange of ideas, resources, expertise, or access to specific populations, nor do they result in political advocacy that would benefit public health.[40] - The industry tends to shift the debate away from population at risk to the realm of individual behavior.[20]

* Some quotations have been abridged to include in the table.

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Regardless of the attitudes of papers to PPPs, 26 (57%) set out requirements to assure positive outcomes of the partnerships. Some of the recommendations were general and supported the need for appropriate checks and balances in order to align the financial interests of the industry with the goals of public health. Others were very clear about the conditions for engagement with corporations and two papers gave detailed explanation of the criteria proposed.[24,32] The conditions for partnerships with industries can be grouped as following (table 3): 1) general principles, design and management of PPPs; 2) criteria for partner selection; 3) role of corporations.

Table 3. Conditions for engaging in PPPs put forward by the authors.

Type of conditions	Quotations from papers reviewed*
General principles, design and management of PPPs	- Re-name PPPs as public-private interactions or similar, less value-laden terms, identify the category or subcategory of the interaction that best facilitates identification of conflicts of interest; and establish clear and effective institutional policies and measures that put the public interest at centre stage in all public private interactions.[49] - Partnerships should meet basic criteria:[32] - Adhere to fundamental public health principles: human rights, ethics and equity. - Lead to significant health gains. - The health gains should be worth the effort involved in establishing and maintaining the partnership. - Establish appropriate checks and balances to align the financial interests of the industry with the goals of public health.[39] - All partners should adopt systematic and trans-parent accountability processes to navigate and manage six challenges: balance private commercial interests with public health interests, manage conflicts of interest and biases, ensure that co-branded activities sup-port healthy products and healthy eating environments, comply with ethical codes of conduct, undertake due diligence to assess partnership compatibility, and monitor and evaluate partnership outcomes. There is also a need to develop accountability mechanisms that increase transparency and hold companies accountable for their marketing practices.[33] - Full risk assessments needs to be undertaken before partnerships are considered and review risk mitigation and management approaches and their effectiveness.[27] - Address the following issues: Clarify why engagement is needed – for what reason, and with what objectives, would different bodies need or want to engage with the private sector; Review evidence of public health impact of different forms of interactions and of different types of activities; Assess the risks posed by interactions, and review risk mitigation and management approaches and their effectiveness; Identify areas to unlock the potential for

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	further/future engagement on healthy eating and NCD, and areas not amenable to engagement given the inability to mitigate risks; and, Propose guidance for interaction at all levels.[28]
Criteria for partner selection, both type of industry/activity and individual companies	- The involved industry must be a suitable partner: a) are the major products and services provided by the industry health enhancing or health damaging?; b) Does the industry engage on a large scale in practices which are detrimental to health?; c) do the industry acknowledge the harmful effects of some of their products?[24] - The involved company should meet some standards of behaviour:[24] a) labour, health and safety conditions that the company adopt in its workplaces, particularly in the poor countries where they operate; b) the environmental commitment of the company; c) the marketing and advertising practices of the company; d) the research and development policy and practice of the company; e) the regulatory compliance of the company and past activities.
Role of corporations	- Governments should give priority to regulation levelling playing field before any PPPs.[12] - Corporations do not participate in policy making Unhealthy commodity industries should have no role in the formation of national or international policy for non-communicable diseases.[46] - Legitimate engagement with industry does not require that corporations be given a prominent seat at the policy-making table, but instead requires that conflicts of interest are actively managed within health policy.[26]

* Some quotations have been abridged to include in the table.

When assessing whether or not the statements of the authors regarding PPPs were evidence-based, we found that references to their effectiveness was the exception; only 11 articles (23%) made mention of data supporting their arguments. Reference to evidence was made only by the articles considered as neutral or critical of PPPs (44%). None of the supporters of partnerships mentioned evidence of their effectiveness.

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DISCUSSION

PPPs, which emerged in the last century particularly in global health, are becoming an accepted way to implement health promotion programs. Our study shows that there are contradictory opinions on the benefits and drawbacks of such partnerships. While most of the authors critical of this endeavour base their arguments on evidence of the effectiveness of PPPs, this is much less true of authors supportive of PPPs. Moreover, advocates of partnerships are frequently linked to PPPs or to the companies involved. Regardless of the position of the authors, the impression given by most papers is that PPPs are here to stay. Consequently, many authors offer recommendations for governments when they engage in such partnerships. The main weakness of our study may be related to the ubiquitous use of the term PPP for a wide array of collaborations between different partners and for a broad spectrum of purposes. In fact PPPs have a positive halo of suitability derived from their application in global health where most partnerships are based on products, product development or service provision. We were interested only in those partnerships built to promote health in which the partners are on the one hand public administration and on the other corporations whose products, or some of them, can be considered as harmful. These partnerships fail to exclude products and services that jeopardize the theoretical objective of promoting health. However it has proven difficult to distinguish completely between those papers that express an opinion on those PPPs whose goal is exclusively health promotion, and those papers that offer viewpoints on PPPs with any other aims. On the other hand we think that this is a feature of the field of private public collaborations where some experience supports the general idea that partnerships are good for population health and that they should be included as one of the main strategies of public health administrations. In any case, we think that our selection of papers has been strict enough to confine the papers revised to those that analyse health promotion. It is possible that we have excluded some relevant papers; however, we have chosen specificity to ensure that we are considering articles that give an opinion on partnerships in health promotion.

Regarding conflicts of interest and relations of authors with PPPs or corporations engaged directly with PPPs, the scarcity of information provided in the papers makes it difficult to carry out a comprehensive assessment. We opted for a Google search and we were able to find sufficient information on authors and to identify their relations with corporations. However there are at least two shortcomings. First, we are unaware of any links between authors and any institution, partnership or corporation if this information is not available on Internet. Second, the potential conflicts of interest of PPP critics are more subtle; for instance, civil servants convinced that decision-making in public health belongs exclusively to the government. Consequently, our results on conflicts of interest may have failed to include all factors.

The number of papers finally included was 47, but it should be mentioned that at least three authors that were critical of PPPs have two papers in the list. One author that supported partnerships has three papers and another one two papers. We did not exclude these papers, as arguments and co-authors were not identical.

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We are not aware of any research into opinions on PPPs and therefore we cannot contrast our results with other studies. One may wonder why opinion papers on PPPs are relevant when we, in public health, tend to rely on evidence. First of all, evidence on PPPs for health promotion is scarce; although some evidence-based reports on the effectiveness of PPPs have appeared,[54-57] opinion papers still affect the intellectual environment. As Sally Macintyre has pointed out,[58] influences in policy are heterogeneous and evidence is not the main factor. The intellectual environment in which policy-makers operate receives many inputs, and consequently we believe that we need to be aware of any source of influence. Cultural capture is an example of government or regulatory capture–when government or regulatory actions serve the ends of industry-.[59] In public health policy, the decision makers' perspectives and actions are likely to be tinged by the prevalent ideas in the public space and relationship networks. A surplus of information favourable to PPPs by think-tanks and the permeation in scientific journals of articles encouraging PPPs as the inevitable solution to the main public health challenges could have an impact in policy-making. This hypothesis is difficult to test and our results do not give an answer. However, we wish to underline the apparent paradox in the number of articles favourable to PPPs when evidence on their effectiveness is scarce and does not support this strategy. If we had not limited the scope of our research to health promotion, the number of favourable articles to PPPs would have been still higher, but this vision could be based on some evidence of PPPs which have been successful in the provision of services or medicines. We think that the general tide in favour of PPPs could be affecting the non-critical incorporation of this strategy in public health policy.

Why does the scientific environment portray an overoptimistic view of PPPs as shown in our results? The decision of some governments, multilateral institutions and regulatory agencies to engage with non-state for-profit actors could be a cause and effect of this favourable environment to PPPs. In fact, the role of the United Nations Agencies might have been relevant. As Buse described so well, [1] in the late 1970s and early 1980s, as neoliberal ideologies influenced public policy and attitudes, relationships began to change and influential international organizations acknowledged and championed a greater role for the private sector. During the nineties, there was a clear development of PPPs in the United Nations, including the World Health Organizations, whose causes and landmarks have been well described by Ritcher, [4]. In 1990, Gro Harlem Brundtland , the Director General of the World Health Organization from 1998 to 2003, had already supported the need for partnerships between all actors as the only acceptable formula to address global challenges. She was also extremely clear on that issue when addressing the Fifty-fifth World Health Assembly: "Only through new and innovative partnerships can we make a difference. And the evidence shows we are. Whether we like it or not, we are dependent on the partners ... to bridge the gap and achieve health for all."[49] Several governments around the world, the European Union and such relevant agencies as the Centres for Disease Control and Prevention have been also promoting partnerships with the private sector.[4,18, 32,40]. Two issues are worth highlighting. First, the claim that partnerships are a strategy based on evidence; and second, the confusion that can arise because of the indiscriminate use of the term partnerships to label any type of interaction between governments and industry.

In terms of the former, such claims are striking, as to date, we lack adequate evidence to recommend or reject PPPs. There are certainly some evaluations on the effects of PPPs as

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above mentioned; [54-57] however, it is too early to conclude that partnerships with the private sector are a healthy alternative to compulsory approaches. Our results show that advocates of PPPs seldom mention any evidence to endorse their opinions. Authors critical of partnerships refer more often to evidence. The policy implication of the above mentioned evaluations and of our own results is that more assessments of PPPs and more evidence synthesis on the effectiveness and safety of these types of collaborations are needed. Nevertheless, until more sound scientific evidence is available, governments should be cautious before engaging in collaboration with industries that are responsible for the main health problems.

Regarding the latter -the identification of partnerships-, we agree with the authors that call for clarification in the use of this term.[4, 9] The concept of partnership has been used inaccurately to refer to any relationship, including governments, multilateral institutions and industries. This fact could sow confusion on the roles and obligations of the different actors in collaborations. Partnership implies that the actors involved have the same status which contributes to the trend of giving voice to corporations at the policy table. Ritcher suggests renaming PPPs as public-private interactions or using less value-laden terms that identify the category or subcategory of the interaction that best facilitates identification of conflicts of interest. She also recommends clear and effective institutional policies and measures that put the public interest at centre stage in all public-private interactions. [4] The clear identification of any interaction of governments with industry might prevent non-evidence based collaboration and allow the application of appropriate criteria when interaction with industry or any other stakeholder is required.

In fact, the availability of sound principles would be valuable in interactions with private corporations. However, we think that there is a requisite regarding the presence of corporations at the policy decision table. Some authors are very clear on this point;[60-61] Galea and McKee point out: "It should never be the case that governments abdicate their responsibility for policy making to the corporate sector".[24] This reasonable restriction is linked to concerns about accountability which is avoided if policy decisions are transferred to PPPs. This does not constitute a veto of any interaction with corporations. On the contrary, practical policy should consider all relevant inputs to implement policies, whenever equity in democratic participation of all stakeholders is guaranteed.

Our results refer to partnerships for health promotion. In this area the first test proposed by Galea and McKee is wholly pertinent: "are the core products and services provided by the corporation health enhancing or health damaging?" Although some could raise doubts on the potential deleterious effects of some commodities such as some food or alcohol, the portrayal must be completed with the overall health impact of corporate practices. As has been highlighted, public health researchers should pay more attention to corporate practices as a social determinant of health.[62]

The suggestion that PPPs favour intersectoral action, given as a reason to support them, should be taken with caution. The argument invoked is that promoting health, for instance by favouring healthful diets and physical activity, requires a shared responsibility across many sectors, including government and industry. In public health, such sectors mean primarily non-

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health areas. On the other hand, of course, all stakeholders should have a voice in the process. Unfortunately, to date, industries have more opportunities and resources to reach centres of decision making compared to wide sectors of the population. Furthermore, sharing responsibility could embrace many arrangements, and PPPs for health promotion have not shown relevant positive effects in population health.

In conclusion, our results show that, in spite of the scarcity of evidence on effectiveness, many comments or editorials in scientific literature are clearly favourable to partnerships for health promotion between governments and industries whose products are among the causes of major health problems. We think that this is not anecdotal but a reflection of a growing general opinion in favour of PPPs regardless of their appropriateness for population health. The critics of the recent WHO position reflect the tension on this relevant global health question.[63] In our view, this is a form of intellectual –scientific- capture. We agree with those authors that emphasize that the precautionary principle is fully applicable in this field as there is no evidence that the partnership of alcohol and ultra-processed food and drink industries is safe or effective. [10, 46]

What is already known on this subject?

Some governments have introduced partnerships with corporations among their health promotion strategies. This approach is backed by a favourable intellectual and scientific environment.

What this study adds?

Nearly half of the commentaries or editorials published in scientific journal promote public private partnerships for promoting health. These positive opinions do not mention scientific evidence to support their statements. Advocates of engagement with corporation have frequent conflict of interest or are directly linked to partnerships.

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Contributorship statement

IHA contributed to the original design. IHA and GAZ organised and carried on the systematic literature research and the analysis of papers retrieved. IHA drafted the manuscript that was reviewed and approved by both authors**.** IHA is the guarantor for this study

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Competing Interests

We have read and understood the BMJ Group policy on declaration of interests and have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author). We declare the following interests: none.

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Data sharing

No additional data available.

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Legend figure 1:

Figure 1. Flow diagram on process of identifying and screening studies for inclusion.

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Footnote figure 1:

Search A: ("Public Health" [All Fields] OR "Health Promotion"[All Fields]) AND ("Public-Private Sector Partnerships"[All Fields] OR ("public-private sector partnerships"[MeSH Terms] OR ("public-private"[All Fields] AND "sector"[All Fields] AND "partnerships"[All Fields]) OR "public-private sector partnerships"[All Fields] OR ("public"[All Fields] AND "private"[All Fields] AND "partnerships"[All Fields]) OR "public private partnerships"[All Fields]))

Search B: public private partnership OR public private partnerships

Search C: ("Public Health"[All Fields] OR "Health Promotion"[All Fields]) AND ("Alcoholic Beverages"[All Fields] OR "Public-Private Sector Partnerships"[All Fields] OR "Public Private Partnerships"[All Fields] OR ("chronic disease"[MeSH Terms] OR ("chronic"[All Fields] AND "disease"[All Fields]) OR "chronic disease"[All Fields]) OR "Food Industry"[All Fields] OR "Private Sector"[All Fields] OR "Public Sector"[All Fields] OR "Motor Activity"[All Fields] OR "World Health"[All Fields] OR "global health"[mh] OR "Tobacco Industry "[All Fields] OR "Public Policy"[All Fields]) AND (Editorial[ptyp] OR Comment[ptyp]) AND (Comment[ptyp] OR Editorial[ptyp])

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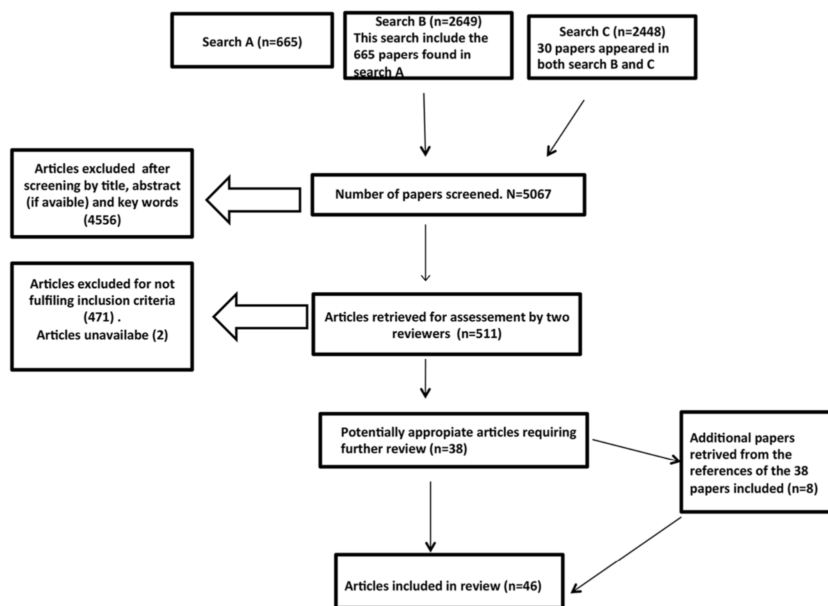

Figure 1. Flow diagram on process of identifying and screening studies for inclusion.
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ABSTRACT

Objectives

Public private partnerships (PPPs) are considered a key element in the development of effective health promotion. However, there is little research to back the enthusiasm for these partnerships. Our objective was to describe the diversity of visions on PPPs and to assess the links between the authors and corporations engaged in such ventures.

Methods

We reviewed the scientific literature through PubMed in order to select all articles that expressed a position or recommendation on governments and industries engaging in PPPs for health promotion. We included any opinion paper that considered agreements between governments and corporations to develop health promotion. Papers that dealt with health care provision or clinical preventive services and those related to tobacco industries were excluded. We classified the articles according to the authors' position regarding PPPs: *strongly agree, agree, neutral, disagree and strongly disagree*. We related the type of recommendation to authors' features such as institution and conflicts of interest. We also recorded whether the recommendations were based on previous assessments.

Results

Of 46 papers analysed, 21 articles (45.6%) stated that PPPs are helpful in promoting health, one was neutral and 24 (52.1%) were against such collaborations. 26 papers (57%) set out conditions to assure positive outcomes of the partnerships. Evidence for or against PPPs was mentioned in 11 papers that were critical or neutral (44%) but not in any of those that advocated collaboration. Where conflicts were declared (26 papers), absence of conflicts was more frequent in critics than in supporters (86% vs 17%).

Conclusions

Although there is a lack of evidence to support public private partnerships for health promotion, many authors endorse this approach. The prevalence of ideas encouraging PPPs can affect the intellectual environment and influence policy decisions. Public health researchers and professionals must make a contribution in properly framing the PPP issue.

ARTICLE SUMMARY

Strengths and limitations of this study

* Our study provides information on an unexplored area; the influence on the scientific environment through editorials and commentaries supporting Public Private Partnerships between governments and corporations for health promotion.

* The study made a highly sensitive bibliographical search and screened a large sample of manuscripts.

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* However, the study was circumscribed to those engagements between governments and corporations arranged to promote health and excluded other types of Public Private Partnerships.

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INTRODUCTION

There is a growing interest in using public private partnerships (PPPs) to address health related issues. Most of the actions in global health engage in diverse arrangements that could be considered as PPPs[1]. In provision of health care services, these hybrid partnerships have become a common approach. The range of the collaborations in purpose, design and composition is so broad that it challenges the efforts from the academic field to evaluate their merit and efficiency in improving health outcomes. There is a wave of enthusiasm that accepts that engagement in partnerships is an ineluctable path towards improvements in population health. This movement has been fuelled by several global institutions and numerous articles in lay and scientific literature. Buse, in collaboration with other authors, has made a thorough description of the origin of PPPs at the global level, weighted their risks and opportunities, and has advocated for the evaluation of these so called global health governance instruments.[1-3]

Either encouraged by this fervour or working from their own agenda, some governments have introduced partnerships with corporations as a key element of health strategies. Ritchner analysed in 2004 the movement towards closer interactions of United Nations agencies and the business sector with particular reference to the WHO.[4] She warned of political pressures and the tendency towards weakening rather than strengthening safeguards for public interests when building these public-private interactions. However, these partnerships in health promotion benefit from the halo of theoretical success and respect accrued in global health by providing drugs for neglected diseases and similar endeavours.

Regardless of the potential merits of global health partnerships, the question of governments engaging with corporations in order to promote health is a central issue in present public health and should be the object of careful research. The intellectual environment can be propitious to PPPs if many articles published in scientific journals assume that these agreements are a cornerstone of new public health developments. Consequently, when considering the role of corporations (manufacturers of beverages, food, alcohol, etc.) in public health policy, the potential capture of research is worth studying. There is reliable evidence to show how industries have altered science in order to avoid public concern on some health issues.[5] Furthermore, the setting up of organizations or research centres committed to partnerships could contribute to an increase in the number of positive articles appearing in scientific literature.

A review was performed of articles (mainly editorials and commentaries on PPPs published in scientific journals) in order to quantify the diversity of views and to assess the links between the authors and corporations engaged in such ventures.

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METHODS

The aim of our review was to identify opinion papers on PPPs designed to promote health by collaboration between governments and those industries and whose products are related to disease regardless of the participation of other partners (for example NGOs). The term PPP was defined as voluntary and collaborative relationships between various parties, both state and non-state, in which all participants agree to work together to achieve a common purpose or undertake a specific task, and to share risks, responsibilities, resources, competencies and benefits. [6] The term PPP has been used to define many types of interaction that involve a range of different actors and goals. We restricted our study to those agreements whose objective was health promotion, understood as the process of enabling people to increase control over, and to improve their health.[7] Therefore we excluded PPPs whose objectives were the provision of health care or clinical preventive services, research, development or distribution of products (drugs, vaccines, etc.). We performed a bibliographical search through PubMed in Medline using keywords from seminal papers on PPPs. Figure 1 shows the flow diagram of the bibliographical search, keywords employed and search strings. In the first step, we found 665 entries that we reviewed in order to refine the inclusion criteria and to detect inconsistencies between observers in article classification. One complication we encountered was making decisions on whether the papers referred to health promotion and whether the private sector partner involved was related to the causes of disease. In some cases the papers mentioned health promotion but in fact they dealt with health care provision or clinical preventive services. On the other hand, some industries were linked to the origin of disease by their negative externalities, i.e. the cost imposed by industries on third parties such as the health costs to the population caused by endocrine disruptors derived from the chemical industry. After this preliminary search and review, we refined our inclusion criteria in order to choose articles that were opinion papers on PPPs (comments, editorials, viewpoints, etc.) in which the public partner was from public administration and the private partner any business directly related to the disease that the PPP was intended to prevent, such as producers of sweetened beverages, alcohol or foods containing high trans-unsaturated fatty acids. Partnerships in industries indirectly related to disease by negative externalities were excluded. We also excluded papers on PPPs whose objective was scientific research, cooperation for development, health care provision or preventive services. We discarded reports on partnerships between either governments or business with NGOs because governments have several capacities, such as regulatory power that can be captured or modified by industries. Partnerships between industries and NGOs do not endanger these risks. However we have not excluded papers on PPPs in which NGOs or other civil organizations have participated provided that there is at least an agreement between a public administration and an industry. Finally we did not include papers on the relations between public authorities and the tobacco industry as they have been extensively studied in the past and rejected as an acceptable option.

In a second step, and in order to maximize sensitivity, we performed a simple search with the following terms: “public private partnership or public private partnerships” (figure 1) that produced 2649 papers. As some well-known papers on the field were not detected through this search, we adopted a new strategy using terms from missed papers in the previous search and we found 2418 additional papers. After screening (title, key words, abstract if available and full text in case of doubt), we selected 38 papers. Finally we completed the search through

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citation tracking of these 38 articles and we retrieved 29 new papers, 9 of which fulfilled the inclusion criteria. The final number of papers reviewed was 47.[8-53] The search was performed in June 2015. Two papers were unavailable and therefore excluded.

The main variables drawn from the papers were: the position of the paper on PPPs ("strongly agree, agree, neutral, disagree and strongly disagree"); the full text of the comments on which the stance of the author was based; the conditions for engagement in PPPs, if any; the statement of conflict of interest; and author affiliation. In order to determine whether the author had relations with corporations involved in PPPs, either directly or through any form of partnership, we used author affiliation and statements of conflicts of interest, and finally we also performed an extensive Google search.

The initial analysis of papers (n=10) was blind and carried out by the two authors who agreed on 6 papers. After consensus on the application of inclusion criteria and assessment of the results on main variables was reached, we completed an additional blind analysis (n=12). The authors agreed on 9 papers and proceeded with the remaining articles. The final analysis of all the papers included was performed by both authors.

Results

Forty-six editorials or commentaries in scientific journals argued either for or against PPPs in health promotion. Twenty-three of the papers (50%) focused on PPPs in the promotion of healthy nutrition; 8 (17%) were on PPPs related to alcohol use; and, 15 (32%) referred to PPPs which considered general rather than specific types of health promotion. Of the 28 journals which published the opinion articles on PPPs, *Addiction* printed 7, *SCN News* printed 5, and *Plos Medicine* printed 3. The other journals, mainly from the public health field and nutrition, published between 1 and 2.

One of the 46 articles was classified as neutral, 21 (45.6%) supported PPPs -16 strongly supported partnerships- and 24 (51.1%) did not recommend engaging in partnerships -21 were strongly against.

Most of the papers (19, or 41%) were published in public health journals, of which 10 were in favour of PPPs. Of the 11 papers published in nutrition journals, 8 supported PPPs. In the subject category of substance abuse, 5 articles out of 7 were against PPPs. The articles published in general medicine journals were mainly opposed (5 out of 6).

As expected, there were differences in the relations of the authors with partnerships. Among advocates of PPPs, 13 (62%) had worked or were working in PPPs, while among critics of PPPs, the figure was 6 (25%).No statement on conflict of interest was included in 20 of the papers (43%), and there was no difference between supporters of PPPs (9 - 43%) and critics (10 - 42%). When a declaration of conflicts of interest was required (26 papers), absence of conflicts was acknowledged or proved in 14 (54%); with a significant difference between defenders and critics of PPPs, 17% vs. 86%.

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The main reasons for supporting PPPs can be categorized as follows (table 1): 1) the magnitude of the endeavour is too great and neither the public nor the private sector alone can address the issues; 2) the quality of public and private health actions increases through public-private collaboration; 3) PPPs contribute to putting health on the agenda of other actors/sectors; 4) A PPP is a good instrument for the improvement of self-regulation; 5) PPPs encourage the manufacture of healthful products by industry.

Authors critical of PPPs give as their main arguments the following (table 2): 1) profits from unhealthful products or services are irreconcilable with public health because of unavoidable conflicts of interests; 2) PPPs confer legitimacy on industries that produce unhealthful commodities; 3) regulatory capture; 4) precautionary principle and lack of evidence; 5) the objectives of PPPs contradict public health priorities.

Table 1. Advantages of Public Private Partnerships suggested by authors that support this strategy.

Types of arguments	Quotations from reviewed papers*
Threats to health cannot be tackled by governments alone	- Considering the growing severity of issues such as childhood obesity and rising health care costs, neither the public nor the private sector can address the issues alone but must do so jointly. [12] - The WHO cannot tackle the immense threats to health - such as poverty- alone and through the health system. It needs strong partnerships between public bodies, civil society and the private sector to make health everybody's business. Acting as an initiator, catalyst and honest broker for health partnerships must become a dominant function of the WHO's work.[32]- Public health agencies rarely have the resources needed to implement full and comprehensive programs to address the main health issues. They run the risk of becoming irrelevant in addressing the leading causes of death and disability if they do not engage with the private sector to overcome the increasing gap in resources.[40] - Effective partnerships are associated with:[35] 1) Sharing ideas, in-kind or financial resources, advocacy expertise, and specialized skills; 2) Accessing distribution systems; 3) Coordinating activities to reduce duplication of efforts; 4) Accessing client perspectives; 5) Reaching populations to conduct larger-scale and higher-risk activities than any one partner could achieve on its own. -The following trends underscore the need to partner with the business sector: 1)The public's health has become big business; 2) There will be less money for public health programs; and 3) There is an increasing need for public health professionals but a shortage of workers.[40].
PPPs enrich the capacity, quality and reach of public health services.	- Industry-sponsored healthy lifestyle initiatives leverage extensive resources and diverse expertise, and have the capacity to reach millions of consumers through diverse marketing channels and media platforms.[34]

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Industries can benefit from public health service expertise.	- The private sector provides important and high quality data on disease/health related practices and consumer behaviours.[23] - Industries' emphasis on personal responsibility places them in a propitious position to promote responsible behaviour.[20] - Industry could allow its vast distribution resources to be used to deliver not just alcohol products but also condoms and educational materials to the drinking establishments they serve; in short, at the point of greatest vulnerability to infection due to the influence of alcohol use.[20] - Partnerships with businesses can potentially address specific cost and investment challenges; improve the efficiency and quality of service delivery through sophisticated distribution systems; and provide public sector stakeholders and NGOs with access to financial and in-kind resources, influential networks, communications expertise and technology transfer.[33] - PPPs provide new opportunities for health creation and for putting across health messages.[33] - PPPs provide corporations with the opportunity to benefit from the expertise of public health services in promoting employees' health.[40]
PPPs help to put health in all policies	- By putting health on the agenda of other actors/sectors, the health sector can significantly increase social momentum for health improvement.[32] - PPPs allow for a wide ownership of health throughout society and have added a new dimension to intersectoral action for health.[32] - PPPs work across public and private sectors, bringing in new partners and integrating solutions along the continuum of all sectors involved in particular health issues.[32] - Private initiatives, from a large variety of industrial sectors create employment, generate income, produce a vast array of goods and services, and, in this way, are also crucial to sustainable, long term food and nutrition security.[15]
PPPs improve self-regulation	- Companies and governments can work together to monitor code implementation and address alleged violations.[50] - Government–industry partnerships have the potential to boost the efficacy of industry self-regulation.[43] -PPPs allow government and industry to assess mutual needs and to build mutual trust that could foster the development of "best practices" codes for production and marketing.[53] - PPPs could create shared values as a business ethos that may afford opportunities for companies to prioritize their impact on population nutrition through core business practices.[16]
Reducing unhealthful products and improving the quality of products	- PPPs promote sustainable business models that allow innovation in more healthful design and content of products.[52] - Government agencies may help companies by providing them with increased sales in substitute products that will mitigate the economic effects of complying with the guidelines.[43]

* Some quotations have been abridged for inclusion in the table.

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Table 2. Main arguments against Public Private Partnerships suggested by authors critical of this strategy.

Types of arguments	Quotations from reviewed papers*
Alliances between public health and the private sector whose products or services are unhealthful have inherent conflicts of interest that cannot be reconciled	- Because growth in profits is the primary goal of corporations, self-regulation and working from within are doomed to fail.[51] - Partnerships with food and other industries are analogous to the unsuccessful collaborations with the tobacco industries in the past.[45] - Health promotion measures are unlikely to be successful through industry-public health partnerships when the public health aim is to reduce the consumption of products which industry manufactures or distributes.[27] - The food industry, like all industries, plays by certain rules—it must defend its core practices against all threats, produce short-term earnings, and in so doing, sell more food. If it distorts science, creates front groups to do its bidding, compromises scientists, professional organizations, and community groups with contributions, blocks needed public health policies in the service of their goals, or engages in other tactics in ‘‘the corporate playbook’’, this is what is takes to protect business as usual.[10]
Collaboration in health promotion confers legitimacy and credibility on industries that produce disease related products. PPPs can damage the credibility of public health institutions.	- The risks involved in developing partnerships with the corporate sector are also considerable. They include the possibilities that (a) the WHO reputation will be used to sell goods and services for corporate gain, thus tarnishing the WHO's reputation as an impartial holder of health values; (b) the WHO's judgement on a particular product, service, or corporate practice may be compromised by financial support provided by the involved company or industry; and (c) WHO involvement with an industry or company is perceived as acceptance of unhealthy products, services, or practices.[32] - There is a real or intended image transfer effect of industries' connections with reputable scientists and public health organizations.[8] - It is time to declare a moratorium on further dialogues with industry sources until alcohol scientists and the public health community can agree to what is in their legitimate interests, and how to avoid compromising our well-earned integrity.[8] - For the food industry, partnerships with health charities and health sector organizations are alluring.They buy corporations credibility, ties brands to the positive emotions attributed to their partnered organization and helps buy consumer loyalty.[21] - PPPs allow the food industry to claim that they are part of a 'solution' to a particular problem via the alliances themselves, as well as industry dollars. Being at least narratively part of a solution allows the food industry to defend against industry unfriendly legislation and discourse.[22] - Some packaging suggests that "Just by purchasing this product you are helping to give children in Africa a chance at a better life".[36]
PPPs capture institutions (UN	- Companies use the interaction to gain political and market intelligence information in order to gain political influence and/or a competitive

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Agencies, Governments, etc.), regulatory bodies, and science.	edge.[49] -The WHO lacks a hard-line conflict of interest policy, probablu because of the much-needed financing that the private sector provides and the fear that enforcement will make investors hesitant.[14]. - There is a potential for major private sector donors to distort the priorities of governments and international agencies receiving funds. For example, the core budget of the WHO is much more closely aligned with disease burden than is the element composed of extra- budgetary contributions from donors, an issue that current reforms are seeking to correct.[24] - Evidence suggests that these corporate social responsibility strategies are intended to facilitate access to government, co-opt-nongovernmental organizations to corporate agendas, build trust among the public and political elite and promote untested, voluntary solutions over binding regulation.[25] -. - We now have considerable evidence that food and beverage companies use similar tactics to undermine public health responses such as taxation and regulation; an unsurprising observation given the flows of people, funds, and activities between Big Tobacco and Big Food. Yet the public health response to Big Food has been minimal.[51]-There is a long history of corporate abuses, best recognized in relation to the tobacco industry although increasingly so with the food, alcohol, and pharmaceutical industries. These include revolving doors between government and industry, undeclared or underplayed conflicts of interest, measures to define and measure standards and many others.[24]
Precautionary principle due to lack of evidence	- The precautionary principle argues against public–private partnership because there is no evidence that the partnership of alcohol and ultra-processed food and drink industries is safe or effective, unless driven by the threat of government regulation.[46] - To date, self-regulation has largely failed to meet stated objectives and instead has resulted in significant pressure for public regulation.[51] - Evidence suggests that educational interventions are the least effective means of reducing alcohol-related harm, and that alcohol industry-funded educational programs are ineffective and potentially counter-productive, like their counterparts funded by the tobacco industry.[25] - Despite the common reliance on industry self-regulation and public–private partnerships, there is no evidence of their effectiveness or safety. Public regulation and market intervention are the only evidence-based mechanisms to prevent harm caused by the unhealthy commodity industries.[46] - There is little objective evidence that public–private partnerships deliver health benefits, and many in the public health field argue that they are just a delaying tactic of the unhealthy commodity industries.[46] - Today we have solid evidence that marketing increases consumption of unhealthy foods and beverages, and that a ban would be a very cost-effective measure in the fight against childhood obesity. Still, regulation has so far been forcefully counteracted by an alliance between industry and advertisers, who instead advocate partnerships with the public sector to enhance physical activity. Collaboration should be evidence

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	based.[18]
Objectives of PPPs contradict public health priorities.	- There is no evidence for an alignment between public health priorities in health promotion and those of companies. For example in the field of nutrition, PPPs do not pursue the promotion of traditional food systems, shared meals and fresh and minimally processed foods, rather they promote reformulation and ready-to-heat or ready-to-eat dishes and snacks labelled as healthy.[45,51] - These collaborations rarely establish the types of partnerships that promote the mutual exchange of ideas, resources, expertise, or access to specific populations, nor do they result in political advocacy that would benefit public health.[40] - The industry tends to shift the debate away from population at risk to the realm of individual behavior.[20]

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Regardless of the attitudes of papers to PPPs, 26 (57%) set out requirements to assure positive outcomes of the partnerships. Some of the recommendations were general and supported the need for appropriate checks and balances in order to align the financial interests of the industry with the goals of public health. Others were very clear about the conditions for engagement with corporations and two papers gave detailed explanation of the criteria proposed.[24,32] The conditions for partnerships with industries can be grouped as following (table 3): 1) general principles, design and management of PPPs; 2) criteria for partner selection; 3) role of corporations.

Table 3. Conditions for engaging in PPPs put forward by the authors.

Type of conditions	Quotations from papers reviewed*

General principles, design and management of PPPs	- Re-name PPPs as public-private interactions or use similar, less value-laden terms, identify the category or subcategory of the interaction that best facilitates identification of conflicts of interest; and establish clear and effective institutional policies and measures that put the public interest at centre stage in all public private interactions.[49]
	- Partnerships should meet basic criteria:[32]
	  - They should adhere to fundamental public health principles: human rights, ethics and equity.
	  - They should lead to significant health gains.
	  - The health gains should be worth the effort involved in establishing and maintaining the partnership.
	- They should establish appropriate checks and balances to align the financial interests of the industry with the goals of public health.[39]
	- All partners should adopt systematic and trans-parent accountability processes to navigate and manage six challenges: balance private commercial interests with public health interests, manage conflicts of interest and biases, ensure that co-branded activities support healthy products and healthy eating environments, comply with ethical codes of conduct, undertake due diligence to assess partnership compatibility, and monitor and evaluate partnership outcomes. There is also a need to develop accountability mechanisms that increase transparency and hold companies accountable for their marketing practices.[33]
	- Full risk assessments need to be undertaken before partnerships are considered and should review risk mitigation and management approaches and their effectiveness.[27]
	
	- The following issues should be addressed: Clarify why engagement is needed – for what reason, and with what objectives, would different bodies need or want to engage with the private sector?; Review evidence of public health impact of different forms of interactions and of different types of activities; Assess the risks posed by interactions, and review risk mitigation and management approaches and

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	their effectiveness; Identify areas to unlock the potential for further/future engagement on healthy eating and NCD, and areas not amenable to engagement given the inability to mitigate risks and; Propose guidance for interaction at all levels.[28]
Criteria for partner selection, both type of industry/activity and individual companies	- The industry involved must be a suitable partner: a) are the major products and services provided by the industry health enhancing or health damaging?; b) does the industry engage on a large scale in practices which are detrimental to health?; c) does the industry acknowledge the harmful effects of some of their products?[24] - The company involved should meet some standards of behaviour:[24] a) labour, health and safety conditions that the company adopt in its workplaces, particularly in the poor countries where they operate; b) the environmental commitment of the company; c) the marketing and advertising practices of the company; d) the research and development policy and practice of the company; e) the regulatory compliance of the company and past activities.
Role of corporations	- Governments should give priority to regulation of level playing fields before any PPPs.[12] - Corporations do not participate in policy making. Unhealthy commodity industries should have no role in the formation of national or international policy for non-communicable diseases.[46] - Legitimate engagement with industry does not require that corporations be given a prominent seat at the policy-making table, but instead requires that conflicts of interest are actively managed within health policy.[26]

* Some quotations have been abridged for inclusion in the table.

When assessing whether or not the statements of the authors regarding PPPs were evidence-based, we found that references to their effectiveness was the exception; only 11 articles (23%) made mention of data supporting their arguments. Reference to evidence was made only by the articles considered as neutral or critical of PPPs (44%). None of the supporters of partnerships mentioned evidence of their effectiveness.

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DISCUSSION

PPPs, which emerged in the last century, particularly in global health, are becoming an accepted way to implement health promotion programs. Our study shows that there are contradictory opinions on the benefits and drawbacks of such partnerships. While most of the authors critical of this endeavour base their arguments on evidence of the effectiveness (or lack of effectiveness) of PPPs, this is much less true of authors supportive of PPPs. Moreover, advocates of partnerships are frequently linked to PPPs or to the companies involved. Regardless of the position of the authors, the impression given by most papers is that PPPs are here to stay. Consequently, many authors offer recommendations for governments when they engage in such partnerships. The main weakness of our study may be related to the ubiquitous use of the term PPP for a wide array of collaborations between different partners and for a broad spectrum of purposes. In fact PPPs have a positive halo of suitability derived from their application in global health where most partnerships are based on products, product development or service provision. We were interested only in those partnerships built to promote health in which the partners are on the one hand public administration and on the other corporations whose products, or some of them, can be considered as harmful. These partnerships fail to exclude products and services that jeopardize the theoretical objective of promoting health. However it has proven difficult to distinguish completely between those papers that express an opinion on those PPPs whose goal is exclusively health promotion, and those papers that offer viewpoints on PPPs with any other aims. On the other hand we think that this is a feature of the field of private public collaborations where some experience supports the general idea that partnerships are good for population health and that they should be included as one of the main strategies of public health administrations. In any case, we think that our selection of papers has been strict enough to confine the papers revised to those that analyse health promotion. It is possible that we have excluded some relevant papers; however, we have chosen specificity to ensure that we are considering articles that give an opinion on partnerships in health promotion.

Regarding conflicts of interest and relations of authors with PPPs or corporations engaged directly with PPPs, the scarcity of information provided in the papers makes it difficult to carry out a comprehensive assessment. We opted for a Google search and we were able to find sufficient information on authors and to identify their relations with corporations. However there are at least two shortcomings. First, we are unaware of any links between authors and any institution, partnership or corporation if this information is not available on Internet. Second, the potential conflicts of interest of PPP critics are more subtle; for instance, civil servants convinced that decision-making in public health belongs exclusively to the government. Consequently, our results on conflicts of interest may have failed to include all factors.

The number of papers finally included was 47, but it should be mentioned that at least three authors that were critical of PPPs have two papers in the list. One author that supported partnerships has three papers and another one has two papers. We did not exclude these papers, as arguments and co-authors were not identical.

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We are not aware of any research into opinions on PPPs and therefore we cannot contrast our results with other studies. One may wonder why opinion papers on PPPs are relevant when we, in public health, tend to rely on evidence. First of all, evidence on PPPs for health promotion is scarce; although some evidence-based reports on the effectiveness of PPPs have appeared,[54-57] opinion papers still affect the intellectual environment. As Sally Macintyre has pointed out,[58] influences in policy are heterogeneous and evidence is not the main factor. The intellectual environment in which policy-makers operate receives many inputs, and consequently we believe that we need to be aware of any source of influence. Cultural capture is an example of government or regulatory capture–when government or regulatory actions serve the ends of industry-.[59] In public health policy, the decision makers' perspectives and actions are likely to be tinged by the prevalent ideas in the public space and relationship networks. A surplus of information favourable to PPPs by think-tanks and the permeation in scientific journals of articles encouraging PPPs as the inevitable solution to the main public health challenges could have an impact in policy-making. This hypothesis is difficult to test and our results do not provide an answer. However, we wish to underline the apparent paradox in the number of articles favourable to PPPs when evidence on their effectiveness is scarce and does not support this strategy. If we had not limited the scope of our research to health promotion, the number of favourable articles to PPPs would have been still higher, but this vision could be based on some evidence of PPPs which have been successful in the provision of services or medicines. We think that the general tide in favour of PPPs could be affecting the non-critical incorporation of this strategy in public health policy.

Why does the scientific environment portray an overoptimistic view of PPPs as shown in our results? The decision of some governments, multilateral institutions and regulatory agencies to engage with non-state for-profit actors could be a cause and effect of this environment favourable to PPPs. In fact, the role of the United Nations Agencies might have been relevant. As Buse described so well, [1] in the late 1970s and early 1980s, as neoliberal ideologies influenced public policy and attitudes, relationships began to change and influential international organizations acknowledged and championed a greater role for the private sector. During the nineties, there was a clear development of PPPs in the United Nations, including the World Health Organization, whose causes and landmarks have been well described by Ritcher, [4]. In 1990, Gro Harlem Brundtland (Director General of the World Health Organization from 1998 to 2003) had already supported the need for partnerships between all actors as the only acceptable formula to address global challenges. She was also extremely clear on the issue when addressing the Fifty-fifth World Health Assembly: "Only through new and innovative partnerships can we make a difference. And the evidence shows we are. Whether we like it or not, we are dependent on the partners ... to bridge the gap and achieve health for all."[49] Several governments around the world, the European Union and such relevant agencies as the Centres for Disease Control and Prevention have been also promoting partnerships with the private sector.[4,18, 32,40]. Two issues are worth highlighting. First, the claim that partnerships are a strategy based on evidence; and second, the confusion that can arise because of the indiscriminate use of the term partnerships to label any type of interaction between governments and industry.

In terms of the former, such claims are strikingas, to date, we lack adequate evidence to recommend or reject PPPs. There are certainly some evaluations on the effects of PPPs as

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mentioned above; [54-57] however, it is too early to conclude that partnerships with the private sector are a healthy alternative to compulsory approaches. Our results show that advocates of PPPs seldom mention any evidence to endorse their opinions. Authors critical of partnerships refer more often to evidence. The policy implication of the above mentioned evaluations and of our own results is that more assessments of PPPs and more evidence synthesis on the effectiveness and safety of these types of collaborations are needed. Nevertheless, until more sound scientific evidence is available, governments should be cautious before engaging in collaboration with industries that are responsible for the main health problems.

Regarding the latter -the identification of partnerships-, we agree with those authors that call for clarification in the use of this term.[4, 9] The concept of partnership has been used inaccurately to refer to any relationship, including governments, multilateral institutions and industries. This fact could sow confusion on the roles and obligations of the different actors in collaborations. Partnership implies that the actors involved have the same status which contributes to the trend of giving voice to corporations at the policy table. Ritcher suggests renaming PPPs as public-private interactions or using less value-laden terms that identify the category or subcategory of the interaction that best facilitates identification of conflicts of interest. She also recommends clear and effective institutional policies and measures that put the public interest at centre stage in all public-private interactions. [4] The clear identification of any interaction of governments with industry might prevent non-evidence based collaboration and allow the application of appropriate criteria when interaction with industry or any other stakeholder is required.

In fact, the availability of sound principles would be valuable in interactions with private corporations. However, we think that there is a requisite regarding the presence of corporations at the policy decision table. Some authors are very clear on this point;[60-61] Galea and McKee point out: "It should never be the case that governments abdicate their responsibility for policy making to the corporate sector".[24] This reasonable restriction is linked to concerns about accountability which is avoided if policy decisions are transferred to PPPs. This does not constitute a veto of any interaction with corporations. On the contrary, practical policy should consider all relevant inputs, whenever equity in democratic participation of all stakeholders is guaranteed.

Our results refer to partnerships for health promotion. In this area the first test proposed by Galea and McKee is wholly pertinent: "are the core products and services provided by the corporation health enhancing or health damaging?" Although some could raise doubts on the potential deleterious effects of some commodities such as some food or alcohol, the portrayal must be completed with the overall health impact of corporate practices. As has been highlighted, public health researchers should pay more attention to corporate practices as a social determinant of health.[62]

The suggestion that PPPs favour intersectoral action, given as a reason to support them, should be taken with caution. The argument invoked is that promoting health, for instance by favouring healthful diets and physical activity, requires a shared responsibility across many sectors, including government and industry. In public health, such sectors mean primarily non-

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health areas. On the other hand, of course, all stakeholders should have a voice in the process. Unfortunately, to date, industries have more opportunities and resources to reach centres of decision making compared to wide sectors of the population. Furthermore, sharing responsibility could embrace many arrangements, and PPPs for health promotion have not shown relevant positive effects in population health.

In conclusion, our results show that, in spite of the scarcity of evidence on effectiveness, many comments or editorials in scientific literature are clearly favourable to partnerships for health promotion between governments and industries whose products are among the causes of major health problems. We think that this is not anecdotal but a reflection of a growing general opinion in favour of PPPs regardless of their appropriateness for population health. The critics of the recent WHO position reflect the tension on this relevant global health question.[63] In our view, this is a form of intellectual –scientific- capture. We agree with those authors that emphasize that the precautionary principle is fully applicable in this field as there is no evidence that the partnership of alcohol and ultra-processed food and drink industries is safe or effective. [10, 46]

What is already known on this subject?

Some governments have introduced partnerships with corporations among their health promotion strategies. This approach is backed by a favourable intellectual and scientific environment.

What does this study add?

Nearly half of the commentaries or editorials published in scientific journal support public private partnerships for promoting health. These positive opinions do not provide scientific evidence to back their statements. Advocates of engagement with corporations have frequent conflict of interest or are directly linked to partnerships.

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Contributorship statement

IHA contributed to the original design. IHA and GAZ organised and carried on the systematic literature research and the analysis of papers retrieved. IHA drafted the manuscript that was reviewed and approved by both authors**.** IHA is the guarantor for this study

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Competing Interests

We have read and understood the BMJ Group policy on declaration of interests and have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author). We declare the following interests: none.

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Data sharing

No additional data available.

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Legend figure 1:

Figure 1. Flow diagram on process of identifying and screening studies for inclusion.

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Footnote figure 1:

Search A: ("Public Health" [All Fields] OR "Health Promotion"[All Fields]) AND ("Public-Private Sector Partnerships"[All Fields] OR ("public-private sector partnerships"[MeSH Terms] OR ("public-private"[All Fields] AND "sector"[All Fields] AND "partnerships"[All Fields]) OR "public-private sector partnerships"[All Fields] OR ("public"[All Fields] AND "private"[All Fields] AND "partnerships"[All Fields]) OR "public private partnerships"[All Fields]))

Search B: public private partnership OR public private partnerships

Search C: ("Public Health"[All Fields] OR "Health Promotion"[All Fields]) AND ("Alcoholic Beverages"[All Fields] OR "Public-Private Sector Partnerships"[All Fields] OR "Public Private Partnerships"[All Fields] OR ("chronic disease"[MeSH Terms] OR ("chronic"[All Fields] AND "disease"[All Fields]) OR "chronic disease"[All Fields]) OR "Food Industry"[All Fields] OR "Private Sector"[All Fields] OR "Public Sector"[All Fields] OR "Motor Activity"[All Fields] OR "World Health"[All Fields] OR "global health"[mh] OR "Tobacco Industry "[All Fields] OR "Public Policy"[All Fields]) AND (Editorial[ptyp] OR Comment[ptyp]) AND (Comment[ptyp] OR Editorial[ptyp])

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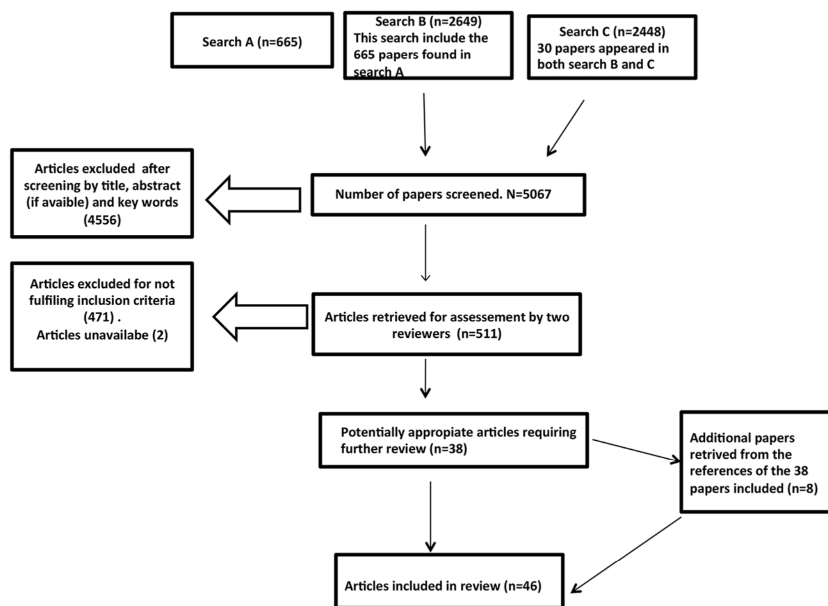

Figure 1. Flow diagram on process of identifying and screening studies for inclusion.
In the text of the paper we have included a footnote for this figure (page 23)
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