



Conflicts of Interest in Public Health and Nutrition: A Content Analysis of a Ghanaian Newspaper and Policy Documents

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ABSTRACT

Background: Conflicts of interest as defined by the United States National Academy of Medicine are “circumstances that create a risk that professional judgments or actions regarding a primary interest will be unduly influenced by a secondary interest”. We aimed to determine the frequency of reportage of COI in nutrition and public health articles published in a top Ghanaian newspaper and two policy documents.

Methods: The study employed a content analysis research approach to review stories, articles, features, news, among others from the top Ghanaian public and private newspapers over a one-year period. The study selected and reviewed hardcopies of print newspaper articles from the most frequently read state-funded paper published from January to December 2019. This review was guided by the data driven policy analysis framework and the key words used in the search included: conflict of interest, public health, nutrition, Ghana, preventive health, research, disclosure. The study also identified elements of COI reported in the National Nutrition Policy (NNP) and the Ghana Public Health Act (GPHA) policy documents. We also analyzed public health and nutrition research articles and documents referenced in the NNP. The study employed the constructed week sampling method for selecting articles. Data for the newspaper review was extracted with the aid of a coding sheet which included date of publication, total number of stories, total number of public health and nutrition stories. Within that, we also looked at what constituted COI in the NNP and GPHA policy documents.

Discussion: Findings from this showed that there are a low coverage and reportage of health topics as well as COIs in the Daily Graphic. The majority of referenced materials used in the development of the NNP and GPHA document had undisclosed COI.

KEYWORDS

Conflicts of Interest (COI),
Newspaper, Policy documents

ARTICLE HISTORY

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Introduction

The United States National Academy of Medicine (formerly known as the Institute of Medicine) defines conflict of interest as “circumstances that create a risk that professional judgments or actions regarding a primary interest will be unduly influenced by a secondary interest” (1). This secondary interest can lead to bias in an individual or institution professionally executing action or mandate as expected. Conflict of interest (COI) can affect so many aspects of a study including

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the design and eventual publication of results (2, 3). There are two main types of COI: financial and non-financial. Non-financial COIs are regarded as difficult to detect as compared to financial but they can occur at both the individual and institutional level (4). Conflicts of commitment and career advancement are common examples of both institutional and individual COI in research (5). COI in research is important to understand because researchers are required to be objective, truthful and honest, and COI can make researchers act otherwise (5). As outlined in the four main research ethical principles, researchers who conduct studies involving human subjects/participants are ethically required to safeguard the interests and welfare of all participants. However, most researchers do not act according to these principles, particularly when they have ethical dilemmas (6).

The prevalence of COI in nutrition and public health research, publications or reporting has gained attention, recently, as systematic reviews (SRs) and meta-analyses on the subject have revealed considerable ethical concerns (7-9). An editorial on COI in nutrition research indicated that COI in nutritional sciences requires attention and careful analysis, considering its potential negative impact on the development of dietary guidelines and population health (8). Financial conflicts of interest have been found to cause bias in reporting the linkage of consuming sugar sweetened beverages with weight gain or obesity (10). Similarly, sponsorship for publications, article processing costs and authors' financial conflicts of interest introduced bias, affecting the outcomes of reviews on the effect of artificially sweetened beverage on weight gain (7). Countries such as Canada, Bosnia, Turkey, Serbia and some USA states have established a potential link between COI and public policy formulation, and have subsequently put in some legislation measures and frameworks to help deal with COIs (11). Creation of an environment that promotes recognition of COI and the need to build capacity, to prevent COI has also been recommended (11).

In Ghana, research in the public sector is conducted by universities, research institutions and departments (12, 13). The universities and research institutions are also involved in the development of guidelines and implementation of policies on public health and nutrition in Ghana (14, 15). The recent policy on the combined use of the maternal and child health handbook was spearheaded by the Ghana Health Service (GHS) research institutions (15-17). These institutions have also been involved in other public health and nutrition-related policies and guidelines such as adolescent reproductive health, physical activity, and vitamin A supplementation, among others (18-20). These institutions were also involved in the development of the most recent Ghana National Nutrition Policy and the Ghana Public Health Act (21, 22)

The National Nutrition Policy (NNP) was developed with the aim of focusing on the factors that have improved nutrition in Ghana. This policy was also intended to help scale up evidence-based nutrition research in Ghana (21). The Ghana Public Health Act (GPHA) was put in place to help address health issues and diseases in the country (22). The two policy documents are key to addressing public health and nutrition research in Ghana, and COI are to be duly reported in them. Articles about conflicts of interest are also published in newspapers (23). The media remains one of the most prominent avenues for publishing and advocacy in Ghana (23). However, it does not sufficiently cover all issues of public health interest, and public health often receives less coverage compared with other issues, such as politics and sports (23). One of the reasons for this is that, the newspapers are sold to generate revenue for the newspaper companies. In order to meet this target, a greater focus of the paper is placed on advertisements and other more popular issues such as politics and sports (23).

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Although, newspapers and policy documents serve as avenues for reporting conflicts of interest, not much is known about the COIs declared in these policy documents and newspapers in Ghana. We aimed to review the GPHA and NNP for elements of COI in public health and nutrition research articles. In so doing, we also looked at COI in the articles used to develop the NNP and how it was reported. Additionally, we documented the different kinds of COI within public health and nutrition reported in the press. The public health and nutrition issues of interest in this study included issues on HIV, communicable and non-communicable diseases, among others.

Primary Objectives

1. To identify elements of COI in the NNP and GPHA policy documents
2. To identify elements of COI in research articles and reports cited in the GPHA and NNP policy
3. To determine frequency of reportage of nutrition- and public health-related COI in a selected Ghanaian newspaper over a one-year period

Methods

Study Design

The study employed a content analysis research approach to review stories, articles, features, news, among others from the most frequently read Ghanaian public newspaper: the Daily Graphic and also identified COIs disclosed or indicated in the NNP and GPHA documents. This was done over a one-year period from January to December 2019 using hard copies of the printed Daily Graphic newspapers. Content analysis has been found to be a useful research approach in analyzing media messages (24, 25). Content analysis is the systematic, objective, quantitative analysis of characteristics and a summative approach to it allows for word counts as well as interpretation of the contents of the selected newspapers and policy documents (24, 25).

Data Review

Articles on public health and nutrition in the newspaper editions were first considered and then COIs were identified in these selected articles. To determine whether an article mentioned or discussed COI, the content was independently reviewed and classified by two independent coders, KKA and KAP. A careful review of articles helped identify issues of COI, the various kinds of COI, the frequency of reporting on these, and what actions had been taken to address the COI. This review was guided by the data driven policy analysis framework which outlines various steps for policy analysis, and it is divided into phases ranging from definition to analysis of the problem (26). This study also retrieved and examined public health and nutrition research articles and documents cited and referenced in the NNP and GPHA policy documents in order to identify elements of COI declared or undeclared, and their potential implications on nutrition policies and actions in Ghana.

Sample and Sampling Technique for Newspaper Review

The study employed the constructed week sampling method for selecting articles from the newspaper. This method of sampling is known to reduce the possibility of over-counting or under-counting certain days of the week (27). A single constructed week allows a reliable estimation of content of newspaper editions (27). In this study, the news articles, features, prominence among others were sampled from a collection of articles and organized by the days

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of the week. Articles were grouped according to the days of week and samples drawn from each batch for the analysis (Figure 1).

Figure 1; Calendar showing the constructed week sampling used in selection of newspaper editions from January to December 2019



Data Extraction

Data for the newspaper review was extracted with the aid of a coding sheet which included date of publication, total number of stories, total number of public health and nutrition stories, total number of COI stories, total number of COI stories on public health nutrition, identified COI issues from public health nutrition stories, the part of the paper that usually carries stories of COI (prominence), keynote speakers and gender of the authors who wrote the stories. A separate coding sheet was also employed for extraction of data from the policy documents. Following the validation of the coding sheet, which was done by two independent coders, research articles and documents cited in the NNP were reviewed for data on whether COI was declared or undeclared, the type of COI declared, and potential impact on policies and actions. We also looked at what constitutes COI in the NNP and GHPA policy documents, whether or not there were any reporting mechanism for COI, and what corrective measures had been put in place.

Data analysis

Data for the newspaper review was first entered into Excel and imported to STATA version 14 for analysis. Descriptive frequencies were presented for counts of stories in each measure. Guided by a thematic content analysis of the stories, key issues of COI were identified and enumerated from stories on health issues. The thematic content analysis was done manually. Preliminary codes were assigned to the data to describe the data content. Quotes with the same or similar meaning were given the same theme.

Key issues of COI were also identified and enumerated from the nutrition and public health research articles and documents used in the development of the NNP and GHPA policy documents.

Results

Newspaper Review

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A total of 34 Graphic Newspaper editions from January to December, 2019 were reviewed (Figure 1). The total number of articles in these newspaper editions aside from advertisements ranged from a minimum of 26 to a maximum of 75. The average number of articles published in these newspapers was 48 (Table 1). All 34-newspaper edition had a minimum of one article related to health. There were 1,588 stories in the 34 newspaper editions and 105 (6.5%) out of that were health related (Table 2). The maximum number of health-related articles in a single newspaper edition was 10. The health articles were mainly presented in the newspapers as straight news (89%). Few of them were also presented as stories, features, or letters to the editor. The majority of the health articles were presented in the middle or centre of the newspaper with very few near the front and back pages. A greater percentage of the health articles were written by men (57%) as compared to women (43%). The key speakers in the newspapers were mostly health practitioners (Table 3). A good percentage (34%) of the key note speakers were also private individuals from NGOs (Table 3). On average there were three health articles reported in each newspaper. These health articles covered various topics ranging from communicable and non-communicable diseases to environmental health. Environmental health stories were the most frequently reported in the newspaper followed by non-communicable diseases (NCDs) and communicable diseases (Table 2).

Table 1: Summary of Key Findings from Daily Graphic Newspaper

No.	Extracted Data	Summarized Findings
1	Date of review	January - December, 2019
2	Total number of newspaper editions reviewed	34
3	Average number of articles in each newspaper edition	48
4	Total number of stories in the 34 newspapers	1,558
5	Total number of public health and nutrition stories	105
6	Total number of COI stories in public health nutrition articles	6
7	Types of identified COI issues from public health and nutrition	Financial and non-financial stories
8	The part of the paper that usually carries stories of COI (prominence)	middle/centre of the paper
9	Gender of Authors (Health Articles)	57% males and 43% females)

Table 2: Topics Covered by Health Articles in Daily Graphic

Health Topic	Frequency	Percentage
Non-communicable Disease	20	19
Communicable Disease	13	12
Environmental Health	20	19
Maternal Neonatal and Child Health	6	6
Sexual and Reproductive Health	14	13
Mental Health	3	3
Other	25	24
HIV	4	4
Total	105	100

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Table 3: Key Note Speakers in Health Articles

Key Note Speaker	Frequency (n=103)	Percentage
Health Practitioners	48	48
President/Vice President	1	1
Private Individual/Institution	34	34
Minister	3	3
Students	1	1
Other State Personnel	11	11
Member of Parliament	2	2
Traditional Ruler	3	3
Total	103	100

Conflict of Interest in Newspapers

Themes

Six of the health articles in the newspaper had conflicts of interest. Two main themes emerged: financial and non-financial conflicts of interest. These two themes had sub-themes which described the type of COI further as illustrated in Table 3.

Table 4: Themes and Sub-themes in Newspaper Articles

Theme	Sub-Themes
Non-Financial	Dual role of Union for International Cancer Control president Dual role of breast cancer advocate Role of malaria advocate Use of Eximbank to promote environmental health and at the same time achieve 1 district, 1 factory project HIV advocate and sale of spiritual water as a cure for HIV
Financial	Money from MP fund used for other purposes

Non-Financial COI

Narrative One

The president of the Union for International Cancer Control visited the country to mark the world cancer day. She met with high level national authorities including the first lady of the country in order to strengthen their commitment and funding of cancer services. Ideally, she should have had deliberations primarily with stakeholders in Ghana's health service. Her dual position as the Princess of Jordan enabled her to meet with these national authorities even though this came at the expense of meeting renowned cancer scientists and researchers in Ghana (28).

Narrative Two

An advocate for breast cancer decided to donate towards the fight against breast cancer in the country. However, although this was a worthy cause, the donation also brought to the forefront the existence of a breast cancer hospital which was owned by the breast cancer advocate who made the donation. The breast cancer advocate used the platform to promote his hospital (29).

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Narrative Three

A malaria advocate pushed for the treatment of malaria in pharmacies contrary to existing policies. The current policy only allows pharmacies to sell malaria drugs and test for malaria using rapid diagnostic tests (RDTs). The malaria advocate's stance was clearly influenced by his involvement in issues related to malaria. The malaria advocate took advantage of a forum to address health issues and used it to push for his demands on treatment for malaria in pharmacies (30).

Narrative Four

Eximbank was established by the government of Ghana as a bank to promote environmental health. Further readings showed that the bank was also established in order for the government to achieve its one district, one factory agenda. The bank is therefore being advocated as a political achievement by the government instead of promoting environmental health as originally planned (31)

Narrative Five

An HIV advocate took undue advantage of his position to promote his own treatment for HIV. The treatment was classified as spiritual water for HIV. This is not a recognized means of managing HIV and the advocate only ended up duping unsuspecting HIV patients (32).

Financial COI

Narrative Six:

A member of parliament (MP) was using the funds from the common fund to also promote his political agenda. Although some of the money from the common fund was used for the benefit of the community, the items were presented in such a way that it enhanced his reputation as a politician. The recent items presented to the community included an ambulance which was labelled as a gift from the MP instead of acknowledging that the MP common fund was used to facilitate its purchase (33).

Policy Documents

The NNP and GPHA were reviewed. For the GPHA, no references were cited in the document. However, in the document itself, section 86 (page 45) outlined clear guidelines for disclosure of interest for board members of the FDA. Additionally, section 94 b (page 47) indicated the source of funding for the FDA as donations, gifts and grants (22). One potential source of conflict of interest identified in the document was that it was not specific on the sources where gifts and donations could be sourced. The NNP on the other hand had 15 papers cited in it. These papers ranged from journal articles to reports (table 4). There were seven undisclosed COIs in the reports. The journal articles had 2 undisclosed COI while the guideline and investment plan had one undisclosed COI each. The undisclosed COIs were mainly non-financial COIs (Table 4).

Table 4: COI in NNP articles

Type of paper	Frequency	COI Disclosed	COI Undisclosed
Report	7	0	7
Guideline	1	0	1
Investment Plan	1	0	1

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Journal Article	6	4	2
Total	15	4	11

Table 5: Summary of Articles and COI Details

No	Title of Paper	Author	COI Status	COI Details
1.	World Development Indicators, 2012	The staff of the Development Data Group of the World Bank's Development Economics Vice Presidency	Undisclosed	Non-financial between authors and sponsors
2.	Water and Sanitation Sector Performance Report, 2010	Emmanuel Addai, Ben Yaw Ampomah, Ben Arthur, Michael Agyemang, Attah Arhin, George Boakye Yiadom, Enoch Ofosu, Kweku Quansah, Patrick Apoya	Undisclosed	Non-financial ties between authors and sponsors
3.	Noncommunicable Diseases Country Profiles, 2011	Ala Alwan, Timothy Armstrong, Melanie Cowan and Leanne Riley.	Disclosed	The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries
4.	Maternal and child undernutrition and overweight in low-income and middle-income countries, 2013	Robert E Black, Cesar G Victora, Susan P Walker, Zulfiqar A. Bhutta, Parul Christian, Mercedes de Onis, Majid Ezzati, Sally Grantham-McGregor, Joanne Katz, Reynaldo Martorell, Ricardo Uauy, and the Maternal and Child Nutrition Study Group	Disclosed	REB serves on the Boards of the Micronutrient Initiative, Vitamin Angels, the Child Health and Nutrition Research Initiative, and the Nestle Creating Shared Value Advisory Committee. VM serves on the Nestle Creating Shared Value Advisory Committee. Mdo is a staff member of the World Health Organization. Mdo alone is responsible for the views expressed in this publication; they do not necessarily represent the decisions or policies of the World Health

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			Organization. The other authors declare that they have no conflicts of interest. As corresponding author Robert E Black states that he had full access to all data and final responsibility for the decision to submit for publication
5.	Constraints on the Use of Animal Source Foods for Young Children in Ghana: A Participatory Rapid Appraisal Approach, 2007	Esi Colecraft, Grace S. Marquis, Richmond Aryeetey, Owuraku Sakyidawson, Anna Lartey, Benjamin Ahunu, Emmanuel Canacoo, Lorna M Butler, Manju B. Reddy, Helen H. Jensen & Elisabeth Huff-Lonergan	Undisclosed Non-financial. Personal relationships between authors and leaders of the study sites
6.	Interventions to improve water quality and supply, sanitation and Hygiene practices, and their effects on the nutritional status of Children (Review)	Alan D Dangour, Louise Watson, Oliver Cumming, Sophie Boisson, Yan Che, Yael Velleman, Sue Cavill, Elizabeth Allen, Ricardo Uauy	Disclosed Subsequent to the inception of this review and the publication of the review protocol, ADD has been seconded part-time as a Senior Research Fellow in the Agriculture Team of the Research and Evidence Division at the UK Department for International Development (DFID). YV and SC are employees of Wateraid, an international non-governmental organisation that works to promote the provision of safe water, improved sanitation and hygiene globally. YV and SC were involved in the conceptualisation of the review, contributed to the literature search and provided comments on the review drafts. YV and SC were not involved in data extraction, data

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analysis, or interpretation of the findings. All other authors have no known potential conflict of interest. Two review authors (LW and SB) independently assessed the risk of bias of included studies using the EPOC 'Risk of bias' tool for studies with a separate control group. We assessed studies for each item with answers of 'Low' indicating low risk of bias, 'High' indicating high risk of bias and 'Unclear' indicating either lack of information or uncertainty over the potential for bias. We contacted study authors for additional information where possible. Any discrepancies were resolved by a third author (ADD).

7. Ghana Demographic and Health Survey, 2008	Ghana Statistical Services (GSS) and Ministry of Health. The authors include: Mr. Sylvester Gyamfi, Ghana Statistical Service, Mr. Peter Takyi Peprah, Ghana Statistical Service, Mr. Louis Toboh, Ghana Statistical Service, Ms. Joyce Ami Amedoe, National Population Council, Dr. Gloria J. Quansah Asare, Ghana Health Service, Ministry of Health, Rev. Mrs. Emma Sepah, Ghana Statistical Service, Mr. Emmanuel George Ossei, Ghana Statistical Service, Mr. Marfo Yentumi Nkansah, Ghana Statistical Service, Mrs. Gladys Brew, Ghana Health Service, Ministry of Health, Ms. Eunice Sackey, Ghana Health Service, Ministry of Health, Mr. James Frimpong, National Malaria Control Programme, Ghana Health Service. Dr. Sylvia Anie-Akwetey, Ghana AIDS Commission. Ms. Efua	Undisclosed	Non-Financial (personal relationships) between authors and sponsors
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		Amponsaa Anyanful, the Ministry for Women and Children's Affairs, Ms. Patience Cofie, Ghana Health Service, Ministry of Health, Dr. Gulnara Semenov, ICF Macro, Mrs. Zhuzhi Moore, ICF Macro, Dr. Pav Govindasamy, ICF Macro		
8.	Ghana Living Standards Survey Report of the Fifth Round (Gls 5), 2008	Ghana Statistical Service, ICF & Macro	Undisclosed	Non-Financial (Personal relationships) between authors and sponsors
9.	Holistic Assessment of the Health Sector Programme of Work, 2013	Dr. Afisah Zakariah, Daniel Degbotse, Dan Osei, Dr. Nicholas Nyagblornu and Dr. Andreas Bjerrum., Dr Anthony Ofosu	Undisclosed	Non-financial. Authors were Government employees in the health sector
10.	Medium Term Agriculture Sector Investment Plan (Metasip), 2011 – 2015	Ministry of Food and Agriculture	Undisclosed	Non-financial (Personal Relationships) between authors and sponsors
11.	Maternal and child undernutrition: global and regional exposures and health consequences, 2008	Robert E Black, Lindsay H Allen, Zulfi qar A. Bhutta, Laura E Caulfi eld, Mercedes de Onis, Majid Ezzati, Colin Mathers, Juan Rivera, for the Maternal and Child Undernutrition Study Group	Disclosed	We declare that we have no conflict of interest. As corresponding author, R Black states that he had full access to all data and final responsibility to submit for publication
12.	Ghana Multiple Indicator Cluster Survey with an Enhanced Malaria Module and Biomarker. Monitoring the Situation of Children and Women in Ghana, 2012	Ghana Statistical Service, ICF & Macro	Undisclosed	Non-Financial (Personal relationships) between authors and sponsors

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13.	Comprehensive Food Security & Vulnerability Analysis Guidelines, 2009	World Food Programme (WFP), Food Security Analysis Service	Undisclosed	No COI detected but this was not disclosed in the document
14.	Landscape Analysis of Readiness to Accelerate the Reduction of Maternal and Child Undernutrition in Ghana	Mary N. A. Brantuo (WHO Ghana), Wilhelmina Okwabi (Family Health Division, GHS), Seth Adu-Afuawuah (UNICEF Ghana), Ernestina Agyepong (UNICEF Ghana), Nana Tamea Attafuah (P.O. Box 252, Legon, Ghana), Gladys Brew (Family Health Division, GHS), Veronica Gomez (Family Health Division, GHS), Alice Dawson (WIAD, MOFA) and Joseph Ashong (Cornell University)	Undisclosed	No COI detected during review but this was not disclosed in the document
15.	Risk Factors for Undernutrition in Children under Five Years Old: Evidence from the Ghana Multiple Indicator Cluster Survey, 2011	Ronald Welaga Miah, Paschal Awingura Apanga and Zakia Abdul-Haq	Undisclosed	No COI detected but this was not disclosed in the publication

Discussion

The newspaper review shows that the Ghanaian Daily Graphic reports on at least one health item per edition. However, each edition has an average of about 48 news items excluding advertisements, which means that only one out of 48 news items is dedicated to health.

The health articles reported in the Daily Graphic cover topics such as non-communicable diseases, communicable diseases, environmental health, as well as sexual and reproductive health. Topics on conflicts are far less reported and had to be deduced from the articles. Six (6) instances of COIs were deduced from the newspaper and they were primarily non-financial. Fifteen papers were cited in the National Nutrition Policy (NNP) but none in the Ghana Public Health Act (GPHA). There were no clear COIs disclosed or undisclosed in the GPHA. However, one of the statements in the GPHA indicated gifts and donations as one of the potential funding sources of the FDA but did not provide any additional information on the sources. This gift and donations could be deemed acceptable irrespective of the source, and this could potentially influence the institution's professional judgment. For the NNP, each of the 15 papers presented

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had a COI. Out of the 15 COIs, only 4 were disclosed and 11 were undisclosed. The disclosed COIs were found in four out of the six available peer-reviewed journal articles.

Our findings suggest that COIs are rarely disclosed in both policy documents and newspapers. This finding is not too surprising when the GPHA is taken into consideration because the GPHA is an ACT and, therefore, regarded as a law (22). Our findings are, therefore, in line with the available literature, which shows that laws or ACTs do not always have references, and COIs are rarely disclosed in them (34). On the other hand, when we take into consideration the NNP, our findings differ from what is expected of such policy documents where references are to be stated and COIs declared as recommended by COPE (35). When examined further, however, our findings from the NNP also show that COIs are declared primarily in peer-reviewed journal articles as compared with reports, guidelines, and investment plans. Our findings, therefore, highlight the importance of the peer-review process in ensuring that COIs are declared as recommended by COPE (35).

The low disclosure of COIs in Ghanaian newspapers is not too surprising considering the low reportage of health articles (23). Ghanaian newspapers are an important part of everyday life, and people often buy them or gather around available newspapers so they keep abreast of everyday developments (23). These newspapers are also thoroughly discussed on radio stations and television stations. Newspapers are, therefore, a great channel to promote health-related issues (23, 36). Our findings, however, indicate that although newspapers are promoted, health news is not as prominent in newspapers as alluded to earlier. Laar and colleagues, in a recent article on the publication of reproductive health news in newspapers, provided some good reasons why newspaper articles on RH and health in general were low (23).

One of the reasons provided by Laar and colleagues was the use of newspapers as businesses to generate money. In order to thrive as a business, the focus of these newspapers is to generate income from the sale of their published editions. Health-related articles do not sell as much as other articles and, therefore, are not highly featured (23). Subsequently, a good proportion of the Graphic newspaper is filled with adverts and the like because newspaper editions with a focus on health do not rope in as much income as those with a focus on other areas. This could explain why our study also found a low reportage of health stories in the Graphic newspapers.

Apart from the interest in making money, another major reason why newspaper editions reported few health stories is because of the low number of health workers involved in promoting the reportage of health stories. The newspaper articles on health were written primarily by journalists and agents of the Ghana News Agency (GNA) who have no specialization in issues related to health. Additionally, less than half of the articles featured health practitioners who had expertise in the health issue under discussion. These health practitioners were also not the ones who wrote the articles, although they contributed to their development. Some of the health issues featured political figures who did not have expertise in the field, such as the president and vice president, instead of health practitioners. The low involvement of health workers in health matters could account for the low coverage of health issues. This finding is quite similar to that of Laar and colleagues, who reported a low coverage of reproductive health (RH) issues, which was a result of the low number of RH experts featured in these articles (23).

In their study, Laar and colleagues also touched on the importance of prominence which is an indication of the importance placed on an article (23). One of the ways to measure prominence is by looking at where the article is placed in the newspaper edition. Our findings showed that most of the health-related articles were placed in the middle part of the newspaper with very few placed in front. This is quite similar to the findings from a Nigerian newspaper, which had

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health articles occupying 97% of the middle pages and only 3% of the front pages (36). Laar and colleagues measured prominence using the amount of space dedicated to the health story. They also found out that only 0.2% of the newspaper space was dedicated to health articles and this showed the low prominence attributed to health articles by newspapers (23).

Apart from the low reportage of health stories in the Graphic newspaper, there was also a low reportage of COIs in the newspaper. Newspapers have been proven over the years to be a great potential source for identifying conflicts of interest. In 2010, for example, it was discovered by an established Danish newspaper that a WHO vaccine expert had a financial conflict of interest based on his ties to the drug industry (37). Additionally, in Canada, a series of published newspaper articles was used to establish the biased reporting of the benefits of five recently launched pharmaceutical drugs (38). These are, however, just a handful of cases where COIs have been reported in newspapers despite the potential they possess. According to Cassels and colleagues who conducted one of the studies only five out of 164 interviewees (3%) reported in the newspapers that they had COIs (38). The COIs reported by Cassels and colleagues were primarily financial due to the link between some of the officials and the drug companies (38). This differed from our study because the COIs from our study were primarily non-financial with just one financial study. The COIs reported in our study also had to be deduced as compared to the study by Cassels and colleagues which were explicitly stated (38). Nevertheless, both studies point to a low reportage of COIs in newspapers. This could be as a result of the general low reportage of health matters in newspapers as compared with other areas such as sports and politics. Additionally, conflicts of interest, especially the non-financial ones, are difficult to detect and subsequently reported.

Recommendations

To encourage the reporting of conflicts of interest in newspapers, we recommend that the newspaper editions have a form where COIs can be duly reported. We recommend that newspaper editors mandate that people who are featured in their health-related articles disclose their COIs, if any before being featured. Additionally, we recommend that newspaper reporters and agencies be trained in reporting COIs of people who may be featured in their articles. These COIs can be published in a section of the newspaper dedicated to COIs.

In addition to dealing with the low reportage of COIs, we also recommend that appropriate measures be taken by the newspaper editors to ensure that health stories have a greater coverage and prominence. Laar and colleagues recommend some steps to address this and we believe that it is suitable to address the challenges with low coverage and reportage in the Daily Graphic (23). These steps include: sensitization of staff on the importance of health-related stories, incorporation of health issues into training for journalists, enhancement of the relationship between journalists and health practitioners, proper use of available social media platforms to promote health stories in newspapers, and encouragement of health practitioners to participate adequately in the production of health-related stories (23).

To help address the high number of undisclosed COIs reported in policy documents such as the NNP, we recommend that a form be designed and made available to all authors who contribute to the development of a policy document. These authors should be mandated to fill up this form as part of developing the policy document. With regards to the papers cited in the policy document, we recommend that existing measures on publications be enforced to ensure that these COIs are disclosed. For example, it is known that authors are required to disclose their COIs before their articles are published in a journal. Editors of these journals must, therefore, ensure that all authors disclose their COIs before their articles are published. Additionally,

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reports, guidelines, and investment plans should also go through some form of peer-review, which ensures that COIs are disclosed before publishing. Disclosure in recent times has been, unfortunately, reduced to short statements that provide little or no information on the nature of the conflict (39). As shown by Kearns and Caplan, more information is better than less information. Kearns and Caplan recommended the use of the electronic-form COI disclosure statement (ELFCOI) which captures more information and can also be linked to a person's publications as well (39). The use of an ORCID account could serve the same purpose. The disclosure of interest provides some perspective to contextualizing a publication; however, its declaration does not guarantee that authors do not have COI and would require authors' commitment to honoring research integrity and honesty.

Limitations

Our study had some limitations. First, we used only one public newspaper, the Daily Graphic, and therefore, our findings cannot be generalized to all other newspapers in Ghana, especially the private ones. The Daily Graphic is a government-funded newspaper, and its coverage and reportage vary considerably from that of private newspapers.

Additionally, we got 34 out of a possible 49 anticipated newspapers based on the constructed week sampling method. The effects of COVID-19, among others, have been documented as the primary reasons for not obtaining all the hard copies of these newspapers. The soft copies of these newspapers were also not available online. It is possible that the reports from these newspapers could have had a bearing on some of our findings. Nevertheless, our findings still show some key outcomes, including the low reportage of health issues and COIs in the Daily Graphic, the NNP, and the GPHA.

Conclusion

This study has shown that the Daily Graphic covers and reports health issues and COIs poorly. The NNP and GPHA also report poorly on COIs. The low reporting of COIs can be duly addressed through training, disclosure, and enforcement of existing policies on disclosure of COIs.

Ethical Approval

Not Applicable

Additional Materials

The data from the newspaper and policy documents was extracted into an Excel sheet which can be obtained from the corresponding author.

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