The Quality of Health Research Reporting by the Daily Newspapers in Trinidad and Tobago

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ABSTRACT

In this study, the authors examined the scientific quality of health research reported in the three daily newspapers in Trinidad and Tobago. All medical research articles published for the period January 1 to December 31, 2003, were extracted using a standardized data collection form. The scientific quality of the articles was analyzed by taking into consideration various aspects of study design, as well as other issues associated with accurate reporting. Of the 321 eligible articles, 108 were collected from The Trinidad Express, 100 from The Trinidad Guardian and 113 from The Trinidad and Tobago Newsday. The percentages of articles reporting methodological components consistent with good scientific quality were as follows: objective(s) (99.7%), study design (79.8%), study procedure (70.1%), selection procedure (70.1%), description of participants (87.5%), control/matching group (74.9%), outcome variables (99.4%) and issues of validity and reliability (2.5%). In addition, the percentage of articles containing aspects of good report writing were as follows: authorship (71.3%), authors' affiliation (59.5%), location of the study (25.4%), source of the research material (83.1%), duration of the study (27.7%), study setting (72.0%), number of participants (74.1%), period in which the study was conducted (12.0%) and quantification of the results (66.7%). Observational studies were significantly more likely to be reported than experimental studies (71.5% versus 28.5%). Overall, articles reported in the Trinidad Express and the Trinidad and Tobago Newsday were of a better scientific quality than those in the Trinidad Guardian. These findings suggest a need to improve the overall scientific quality of reported health research in these newspapers by ensuring that reports answer the fundamental questions of what, why, who, where, when and how. This might be achieved by adopting a structured reporting format similar to that used by many peer-reviewed journals.

La Calidad de los Reportajes Sobre las Investigaciones de Salud Publicadas en los Diarios de Trinidad y Tobago

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RESUMEN

En este estudio, los autores examinaron la calidad científica de las investigaciones de salud reportadas en los tres diarios de Trinidad y Tobago. Todos los artículos de investigación médica publicados en el período de enero 1 a diciembre 31, 2003, fueron extractados mediante una planilla estandarizada de recolección de datos. La calidad científica de los artículos fue analizada tomando en consideración varios aspectos del diseño del estudio, así como otros problemas asociados con el arte de reportar con exactitud. De los 321 artículos elegibles, 108 fueron tomados del periódico The Trinidad Express, 100 del diario The Trinidad Guardian, y 113 del rotativo The Trinidad and Tobago Newsday. Los porcentajes de artículos que reportaban componentes metodológicos correspondientes a una buena calidad, fueron como sigue: objetivos(s) (99.7%), diseño del estudio (79.8%), procedimiento del estudio (70.1%), procedimiento de selección (70.1%), descripción de participantes (87.5%), grupo de control/apareamiento (74.9%), variables del resultado (99.4%) y problemas de validez y confiabilidad (2.5%). Además, el porcentaje de artículos que contienen aspectos sobre escritura de buenos reportes, fue como sigue: autoría (71.3%), afiliación de autores (59.5%), lugar del estudio (25.4%), fuentes del

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material de la investigación (83.1%), duración del estudio (27.7%), entorno del estudio (72.0%), número de participantes (74.1%), período en que se llevo a cabo el estudio (12.0%) y cuantificación de los resultados (66.7%). La probabilidad de publicación de los reportes fue significativamente mayor para los estudios observacionales en comparación con los estudios experimentales (71.5% versus 28.5%). En general, los artículos reportados en el Trinidad Express y el Trinidad and Tobago Newsday presentaron una mayor calidad científica que los publicados en el Trinidad Guardian. Estos hallazgos sugieren la necesidad de mejorar la calidad científica general de los reportes de investigaciones de la salud publicados en estos periódicos, garantizando que cada reporte responda las preguntas fundamentales de qué, por qué, quién, dónde y cómo. Esto podría lograrse adoptando un formato estructurado para los reportes, similar al usado por muchas publicaciones periódicas revisadas por homólogos.

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INTRODUCTION

Trinidad and Tobago, like many of the English-speaking Caribbean islands, is well into its epidemiological transition where the chronic non-communicable diseases such as heart disease, high blood pressure, cancers and diabetes mellitus are the major causes of illness and death among its adults (1). This is compounded by the fact that rates of infection with HIV/AIDS are among the highest in the Caribbean (2). For many persons, the daily newspapers have become a major source of health related information, especially in populations, such as Trinidad and Tobago with high literacy rates (3–5). A recent survey suggests that there are 123 daily newspapers per 1000 persons in Trinidad and Tobago, the highest in the English-speaking Caribbean (6). Other estimates suggest a daily readership of approximately 188 000 persons (7). Thus, health research articles published in the local daily newspapers have the potential to influence the public belief about the aetiology of disease in a large segment of the population. Widespread belief in the aetiology of disease may in turn affect the provision and use of health services as well as health-related behaviour patterns (8, 9). Newspapers have been criticized for attributing too much certainty to health research findings, for premature representation of findings as medical breakthroughs, and for being alarmist, incomplete, inaccurate and inconsistent (10–12). Clearly, the local daily newspapers can be an ally or foe in the moral and strategic vision of promoting and fostering healthier societies. It is therefore crucial for stakeholders in the health sector to analyse and monitor on a continuous basis the scientific quality of health-related reports in the newsprint medium to ensure accuracy, completeness, and a balanced view of articles published (13–15). The authors therefore undertook analyses of the scientific quality of the information contained in health research articles published in the three local daily newspapers namely: the Trinidad and Tobago Newsday (Newsday), The Trinidad Express (Express), and The Trinidad Guardian (Guardian).

METHODS

A search was done of all issues of the daily (*ie* newspapers with publications on four or more days of the week) and weekend publications of the Newsday, Express and Guardian from January 1 to December 31, 2003, for health research articles. Articles were included in the study if they were press released from peer-reviewed journals, sourced from an international news agency (*eg* Reuters, Associated Press *etc*), published in magazines and bulletins or written by local journalists. Editorials, commentaries, articles for debate and education, narrative reviews, letters to the editor, case reports and articles related to the local health sector and advertisement of health products and services were excluded. A standardized data extraction form was used to retrieve information of interest. To address issues related to the scientific quality of the health research, published items related to questions on Table 1 were addressed on the data extraction sheet.

Variables related to study design, location, population, procedure, authorship, and source of the article were recorded. The study design was classified as experimental (*eg* randomized controlled trials, clinical trials) and observational (cohort studies, cross sectional studies, case-control studies, ecological studies and case studies), meta-analysis (*ie* summation of the findings of many studies) and qualitative (*eg* focus group). The study location was classified as it pertained to an industrialized or developing country (16, 17). All errors associated with data extraction and entry were corrected before statistical analyses.

Statistical Analysis

All data were analyzed using SPSS version 11 for windows. Overall, summary simple statistics such as mean, percentages and frequencies were computed. In addition, comparisons were made among the various newspapers using analysis of variance (ANOVA) with Bonferoni post-test comparisons for significant differences and the chi-square test.

RESULTS

Of the 321 eligible articles, 108 were collected from the Express, 100 from the Guardian and 113 from the Newsday. These represented 88 (22.2%) publication days per year for the Express, 58 (15.9%) publication days per year for the Guardian and 79 (21.6%) publication days/year for the Newsday. Overall, the percentages of articles reporting methodological components consistent with good scientific

Table 1: Constructs for evaluating the scientific quality of health research reporting.

Questions to address the scientific quality of articles
Who?
$ Who authored the article?
$ Who conducted the study?
$ Who participated in the study?
Why?
$ Why was the study conducted? (ie justification)
$ Why was the particular study group used?
What?
$ What were the objectives of the study?
$ What study procedure was utilized?
$ What study design was used?
$ What was the outcome of the study?
$ What do the results mean?
Where?
$ Where was the study conducted?
$ Where was the study published?
When?
$ When was the study conducted?
$ When was the study published?
How?
$ How was the study conducted?
$ How were participants selected?
$ How many persons were selected?
$ How was the issue of bias addressed in the study?
$ How were the issues of validity and reliability addressed in the study?

quality were as follows: objective(s) (99.7%), study design (79.8%), study procedure (70.1%), selection procedure (70.1%), description of participants (87.5%), control/matching group (74.9%), outcome variables (99.4%) and issues of validity and reliability (2.5%). In addition, the percentage of articles containing aspects of good report writing were as follows: authorship (71.3%), authors' affiliation (59.5%), location of the study (25.4%), source of the research material (83.1%), duration of the study (27.7%), study setting (72.0%), number of participants (74.1%), period in which the study was conducted (12.0%) and quantification of the results (66.7%). When study designs were stated, the majority was of a non-experimental nature.

There were significant differences in various aspects of the scientific quality of reporting among the various newspapers. Health research articles published by the Express and Newsday were significantly more likely than those in the Guardian to include statements relating to study design, procedure for selecting participants, description of participants, authorship and author's institutional affiliation. The Newsday was significantly more likely than both the Express and Guardian to include statements relating to the number of participants and study procedure. There were no significant differences among the newspapers in reporting location and period of the study (Table 2). Peer-reviewed journals were

Table 2: Characteristics of study methodology as reported by newspaper

Methodological Feature	Newspaper			
	Express (n = 108)	Guardian (n = 100)	Newsday (n = 113)	p-value
Objectives stated (%)				
No	0	0	1.8	
Yes	100	100	98.2	0.69
Study design (%)				
Not stated	19.1	50.8	9.7	< 0.0001
Meta-analyses	2.6	2.2	1.8	
Experimental	24.3	14.4	23.0	
Cohort	22.6	14.6	27.4	
Case-control	9.1	0.8	8.0	
Survey	24.3	19.2	30.1	
Study procedure stated (%)				
No	33.0	53.1	9.7	0.0006
Yes	67.0	46.9	90.3	
Sampling selection procedure (%)				
Not stated	36.5	58.5	11.5	< 0.0001
Random	30.4	10.8	34.5	
Volunteer	33.0	30.8	54.0	
Number of participants stated (%)				
No	33.0	53.1	9.9	0.0002
Yes	67.0	46.9	90.3	
Characteristics of participants stated (%)				
No	7.4	23.0	7.1	< 0.0001
Yes	92.6	77.0	92.6	
Outcome measures stated (%)				
No	0	1.0	0.9	0.60
Yes	100.0	99.0	99.1	
Study setting stated (%)				
No	26.9	41.0	17.7	0.0016
Yes	73.1	59.0	82.3	
Study Location stated (%)				
No	78.3	74.6	70.8	0.19
Yes	21.7	25.4	29.2	
Duration of study stated (%)				
No	72.3	82.8	75.7	0.19
Yes	27.7	17.2	24.3	
Author stated (%)				
No	27.8	56.9	15.9	< 0.0001
Yes	72.2	43.1	84.1	
Institution stated (%)				
No	33.0	67.7	33.6	< 0.0001
Yes	67.0	32.3	66.4	
Results quantified (%)				
No	35.2	41.0	24.8	0.04
Yes	64.8	59.0	75.2	
Tone of conclusion (%)				
Associative	13.0	8.0	15.9	0.21
Causal	87.0	92.0	84.1	

Table 2: Characteristics of study methodology as reported by newspaper (Contd)

Methodological Feature	Newspaper			
	Express (n = 108)	Guardian (n = 100)	Newsday (n = 113)	p-value
Caution on study implications indicated (%)				
No	33.3	42.0	35.4	0.41
Yes	66.7	58.0	64.6	
Validity/reliability of procedure addressed (%)				
No	94.4	99.0	99.1	0.04
Yes	5.6	1.0	0.9	
Study time stated (%)				
No	89.6	91.5	82.3	0.09

cited as the original source for the majority (78%) of health research articles. Sixty-seven journals were cited by the various newspapers. The Express cited articles from 37 journals, the Guardian cited research from 20 journals and the Newsday cited research from 41 journals. The five most frequently cited journals were as follows: the New England Journal of Medicine (n = 28), the Journal of the American Medical Association (n = 18), the Lancet (n = 16) and the British Medical Journal (n = 15), and the Archives of Internal Medicine (n = 8). Articles that cited a journal as the source of the research were significantly more likely to indicate study design (odds ratio (OR) = 6.3, 95% Confidence Interval (CI): 3.5, 11.3; $p < 0.0001$), study procedure (OR = 4.4, 95% CI: 2.6, 7.6; $p < 0.0001$), sampling method (OR = 4.4 95% CI: 2.6, 7.6; $p < 0.0001$), number of participants (OR = 4.2 95% CI: 2.4, 7.8; $p < 0.0001$), location (OR = 2.3, 95% CI: 1.2, 4.5; $p = 0.01$) and institution responsible for the investigation (OR = 3.7, 95% CI: 2.2, 6.3; $p < 0.0001$) than those that lacked journal citations. Of the 91 reports that stated a study location, only five were performed in developing countries. The prime measures used in the quantification of results were percentage (49%), relative risk (31.9%), mean (8.9%) and odds ratio or likelihood (6.5%).

DISCUSSION

In this study, we examined the scientific quality of health research reported in the three major daily newspapers in Trinidad and Tobago. The results suggest the need for journalists and editorial staff to focus their attention on the scientific quality of the health research articles published by their various newspapers. In particular, attention should be paid to the completeness of articles by ensuring that they answer the questions of who, why, what, where, when and how. Failure to address these fundamental issues severely reduces the scientific quality and utility of the publication from the perspective of providing good medical evidence. Given the potential of newspapers to influence public perception and health behaviour, it is imperative that articles published be of good scientific quality to ensure that the newsprint medium make a positive contribution to informing the population on important issues in health.

The findings of a preponderance of observational studies (*eg* cohort studies, case-control studies *etc*) rather than experimental studies (*eg* clinical trials) reported in the major newspapers, supports the findings of previous studies (16, 17). In addition, the majority of reports presented findings as causal despite the fact that in over half of the reports a temporal sequence between possible cause and effect could not be established. Studies employing experimental designs are less prone to bias than those employing observational designs and therefore provide better source of evidence-based health research (18). This publication bias might represent true ignorance on the part of journalists and editorial staff of the gold standard of evidence-based health research. Alternatively, it might reflect the frequency of various study designs as they appeared in the original sources used for extracting their reports. Journalists and editorial staff are constrained by their inability to evaluate the quality of evidence and arguments presented in medical journals and as such rely heavily on the peer review processes and the opinions of medical experts to guide them in the selection and development of stories (8). This is further supported by the fact that many of the health research articles were originally published in prestigious journals having large international circulations (*ie* high impact factors) and where the peer-review process is assumed to be of the highest quality (19). Alternatively, this finding might indicate an abdication of journalistic responsibility for complete balanced investigation on account of the fact that journalists usually work to tight deadlines for daily newspapers and have little time to identify and develop news articles (8). Thus, the use of journal press releases or articles reproduced from other international news agencies represents conveniently packaged information (8). Clearly, journalists with responsibility for producing articles on health research need to understand the nature of causal thinking in health research. This underscored the need for courses on fundamentals of epidemiological study interpretation for journalists. Such courses might be developed by institutions such as the Caribbean Health Research Council (CHRC), The University of the West Indies (UWI), and The Caribbean Epidemiology Research Centre (CAREC).

The finding of articles from general medical journals being the ones most frequently cited, while articles from specialist journals such as Neurology and Journal of Asthma were cited infrequently, suggests that journalists responsible for health research articles rely heavily on a few journals as sources of health research news. Thus, the newspaper medium within this context might be suggesting the health issues for consideration by society (20, 21). Notwithstanding this, articles extracted from peer-reviewed journals were

significantly more likely to possess features congruent with good scientific reporting quality than those obtained from other sources. Health educators, health promoters, policy-makers and providers of health services should not neglect the importance of this fact and should liaise with the journalists and editors to improve the overall scientific quality of health research articles by suggesting sources of seminal articles on health related issues. Additionally, they should seek to prepare articles for publication by the various newspapers. This will broaden the scope of coverage as well as the range of journal sources used.

Another important issue is the manner in which results are quantified. Although the majority of results were quantified, less than 5% of these stated explicitly what numerators and denominators were used in deriving the overall reported percentages, relative risks, odds ratios, and rates. The inclusion of numerators and denominators reduces the likelihood that the magnitude of findings would be exaggerated (12, 22). Risk means different things to different people. For most lay people, risk is more than some combination of the magnitude for potential damage and the probability of damage. Rather, the perception of risk is directly linked to one's level of education, natural and social environments, ethical and political beliefs, and physical and mental health status (23). Thus, crude and poorly framed expressions of the probability and severity of an adverse health effect might have a little or serious effect on the way in which the public treat important health issues (24). This becomes even more important in the new health reform scenarios that seek to increase public involvement in health decision-making. Thus, journalists and editors should be aware of the fact that as far as health research reporting is concerned, the newspapers are an important source of health risk communication. Such reporting might be improved by stating the absolute risk associated with the putative risk factor. To optimize correct interpretation by the public, data might be presented as the excess number of persons who might develop the condition as a result of their exposure to the particular risk factor. Journalists must therefore strive to explain clearly the methodologies by which health risk severity are assessed and interpret the results emanating from such methodologies in a manner that facilitates a better understanding of the associated risks by the readership (23). Journalists need to evaluate the type of quantitative risks and uncertainties in question and decide on the key information that has to be communicated. Such a venture requires both excellent scientific expertise and the ability to translate technical information in an easily understood language. The vast array of relevant skills and competencies needed can only be realized by extensive collaborations among the various stakeholders in all aspects of the process.

Clearly, there is an urgent need for journalists and editors to be cognisant of the fundamentals of the process and goals of health research. A thorough understanding of these processes would allow the right balance to achieve completeness and good scientific quality. The authors strongly recommend that journalists and editors responsible for producing health research articles in the local newspapers become familiar with the fundamental principles of epidemiology, especially the interpretation of results emanating from studies using a variety of designs. In addition, improving editorial oversight and the development of presentation standards similar to the structured abstract format used by many peer-reviewed journals would ensure that health research articles address the important questions of what, who, why, where, when and how – fundamental prerequisites for completeness and good scientific quality. Thus, articles might include a brief introduction, the aim of the study, brief details of the methods, a results section summarizing the findings in words, tables, and graphs, a section interpreting the findings in context of studies of a similar nature, a limitations section, and a statement about the authors and potential conflicts of interest (25). We are convinced that this approach will allow journalists and editors to produce health research articles that are good news stories and compelling features in 500 words or less – the average length of articles published by the various newspapers. A major advantage of this study is that as far as we are aware it is the first to look as this issue within the content of the Trinidad and Tobago newsprint medium and should provide an initial foundation for studies investigating the reporting of important research issues in health such as HIV/AIDS. Another advantage was that unlike previous studies that were non-quantitative or based on sampling of newspapers (26), in this study, all daily and weekly issues of the various newspapers over the period of twelve months were reviewed. The study, therefore, provides a more complete picture on the pattern and scientific quality of health research reporting in these local newspapers in Trinidad and Tobago.

A limitation was that while the study was confined to the daily newspapers, there exist eight other weekly and evening newspapers in Trinidad and Tobago and numerous bulletins produced by organizations within the health sector. Thus, the findings in this study might only be applied to the scientific quality of health research articles in the daily newspapers in Trinidad and Tobago. Notwithstanding, we believe that with an estimated coverage of 188 000 daily readers, the development of excellent standards for reporting health research by the local newsprint industry would ensure that readers are provided with contemporary health issues in an accurate and timely manner. Another limitation of this study is that it did not address the editorial decision making process that determines which health research articles get published in these daily newspapers. Several factors are known to influence what gets published among these are newsworthiness of the article, journalists' and editors' confidence in handling the relevant issues, ease of extracting the article from its original sources, and space for publication of competing articles.

In addition, this study did not address behavioural issues associated with health research from the purview of the newsprint readership. A perusal of editorial columns, comments, letters to the editor and other health-related educational articles suggest that the major issues focused on during the period of interest were related to industrial actions by healthcare workers, outbreaks of infectious disease at public health facilities and issues focusing on overall delivery and performance of the health system. The apparent failure of the newsprint medium to engage feedback on issues related to its health reports might be due to the fact that such issues might have been more effectively and efficiently addressed by the multiplicity of television and radio stations call-in programmes as well as panel discussions and ensuing debates conducted by non-governmental, community-based and faith-based organizations. The interactive nature of these media provides the environment where many of the behavioural health issues related to the predominant areas reported by the newsprint medium (*eg* nutrition, diabetes mellitus, cancer, cardiovascular disease) might be addressed in a more timely and anonymous manner. Finally, we did not conduct a content analysis of the various published articles, as this would be the subject of a future investigation. While we used one approach to evaluate the quality of newspaper reporting of health research, there are other approaches each with its particular strengths and limitations (10, 27).

To summarize, the overall scientific quality of health research published by various newspapers in Trinidad and Tobago suggests the need for journalists and editors to develop systems of reporting that would ensure that reports are consistently complete and of a high scientific quality by addressing the funda-mental questions of what, why, who, where, when and how. Practically, this might be achieved by adopting a publication format similar to the structured abstract format used by many peer-reviewed journals and by overseeing improvements in all aspect of the editorial process from information gathering to the production of the final piece. In addition, establish selection guidelines might be formulated as a standard feature of the editorial oversight process. Such guidelines should present clear criteria for input from health professional and other stakeholders within the various disciplines of health with regards to the format and the nature of the articles to be published.

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