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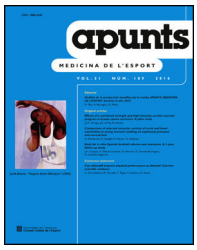

ORIGINAL ARTICLE

Quality of recommendations on health-enhancing physical activity in the press. Content analysis of five Spanish newspapers

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KEYWORDS
Health promotion;
Public health;
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Abstract
Introduction: The pandemic of physical inactivity causes millions of early deaths globally. However, inactivity can be reversed if more and better information is made available. While the number of news stories on health and health-enhancing physical activity (HEPA) has increased globally and also in Spain, various studies show that the quality of these articles is often questionable.
Methodology: Content analysis was used to analyze twelve quality variables from the scientific and media perspectives and five variables about the themes in news stories on HEPA published in five Spanish general-interest newspapers in the years 2013 and 2014: *El País*; *El Mundo*; *La Vanguardia*; *ABC*; and *El Periódico*.
Results: The average score of quality of news stories ($n = 100$) is 6.3 ($s = 1.9$) on a scale from 0 to 10. The percentages of satisfactory quality variables are: medicalization (96%); objectivity (94%); sources (80%); context (62%); credibility (61%); availability (54%); novelty (52%); truthfulness (43%); alternatives (26%); emotion (20%); accessible language (19%); and magnitude (19%).
Conclusions: The average quality of the newspaper articles on HEPA is intermediate. Further work is required, particularly regarding the following variables: alternatives; emotion; accessible language; and magnitude. Suggestions to improve journalistic practice and scientific dissemination (sources) are accordingly included.

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PALABRAS CLAVE
Promoción de la salud;
Salud pública;
Estilo de vida;
Alfabetización de la salud;
Medios de comunicación;
Comunicación

Calidad de las recomendaciones sobre actividad física saludable en la prensa. Análisis del contenido de cinco periódicos españoles

Resumen
Introducción: La inactividad física es una pandemia que provoca mundialmente millones de muertes prematuras, pero es un hábito que puede modificarse aumentando la cantidad y la calidad de la información disponible. En España y en el mundo, las noticias publicadas en los periódicos sobre salud y actividad física saludable (AFS) han aumentado, pero su calidad es cuestionable, según muestran varios estudios.
Metodología: Se utiliza la técnica de análisis del contenido para analizar 12 variables de calidad desde las perspectivas comunicativa y científica en noticias sobre AFS publicadas en los periódicos generalistas con mayor difusión en España (2013-2014): *El País*, *El Mundo*, *La Vanguardia*, *ABC* y *El Periódico*.
Resultados: La calidad de las noticias (n = 100) obtiene una nota media de 6,3 puntos (s = 1,9) en una escala de 0 a 10. Las variables satisfacen heterogéneamente la calidad; de mayor a menor: medicalización (96%); objetividad (94%); fuentes (80%); contexto (62%); credibilidad (61%); disponibilidad (54%); novedad (52%); veracidad (43%); alternativas (26%); emoción (20%); lenguaje divulgativo (19%), y magnitud (19%).
Conclusiones: Aunque la calidad media de las noticias sobre AFS no es baja, existe un amplio margen de mejora. Sobre todo, en algunas de las variables analizadas para las que se aportan unas recomendaciones para la práctica periodística y para las fuentes de información científicas y profesionales.

Introduction

Physical inactivity is the fourth risk factor of early death globally[1] because it increases the risk of several non-communicable diseases.[2–4] Inactivity was related to 5 million deaths in 2008, i.e., 8% of global mortality.[1] The pandemic of physical inactivity persists and is considered a significant public health issue.[4] Indeed, it is calculated that the levels of physical activity of 60% adults and 81.4% teenagers are insufficient.[4,5] In 2010 the WHO published the *Global Recommendations on Physical Activity for Health*,[6] which focus on the weekly physical activity needed to attain the health benefits of exercise.[7] Physical activity can take place in different everyday life settings: home, transport, occupation (school, college and workplace) and leisure time.

Theoretical framework

Physical activity is a health habit that can be significantly modified if information is more widely disseminated.[8] The strategies to fight physical inactivity, usually paired with diet recommendations, should include different intervention phases based on social marketing and in models and theories that originate from the social sciences. All these propositions entail a prior essential requirement, i.e., to properly advice the population[9] in order to achieve behavioral change toward lifestyles that are sufficiently active.[10]

The use of the media might prove effective to enhance the health of the population.[11] Agenda-setting theory attributes more influence to the written press than to television in determining the items that will feature in the media.[12] However, the intermediation between scientists and the general population has disappeared in most cases in Spain and globally. Thus, the regulatory role of the press in the search for truth and objectivity appears to be missing.[13] In Spain, the financial crisis that started in 2008 resulted in a lack of resources for quality journalism reporting on science and health.[14,15]

Nevertheless, there is still a high volume of news articles with specialized health contents in the Spanish press.[16] The number of news stories on health-enhancing physical activity (HEPA) has also increased.[17] However, serious research and significant advances in health and medicine still only feature in a small percentage of publications.[18]

To our knowledge, no study has applied the Oxman Index, specifically validated[19] to measure the scientific quality of the news stories on health in the press. A study by Moynihan et al.[20] is considered groundbreaking and was followed by various international initiatives (Australia, Canada, USA, Germany, China and Japan) that use criteria based on the Oxman Index.[21] The most significant initiative in terms of number of news stories analyzed is the *Health News Review*, which started its activity in 2006 in the USA. After the analysis of approximately 3000 news stories, some of these initiatives[22–24] reveal lack of rigor and thoroughness in relation to the original finding.

In consequence, we believe that this content analysis[25–27] of news stories on HEPA published in the Spanish press is timely. The objective of the research is to assess the conformity to quality criteria with the aim to generate tools for journalists to create improved news stories. The research questions (RQ) raised are as follows:

Table 1 Analyzed variables.

Quality			Characteristics of the themes
Communicative	*Both*	*Scientific*	
Context	Truthfulness	Magnitude	Source of story
Sources	Credibility	Medicalization	Setting of PA
Accessible language		Alternatives	Target age group
Objectivity		Availability	Specific diseases
Emotion		Novelty	Recommendations included

RQ1. – What is the quality of news stories on HEPA in Spain?
RQ2. – From the media and scientific perspectives, to which degree are the quality variables of the news stories on HEPA in Spain satisfactory?
RQ3. – To which degree are the quality variables satisfactory compared to the results of international quality analysis in health news stories?
RQ4. – What is the correspondence between the topics in the news stories and government strategies to achieve change in the habits of the population?
RQ5. – How are the topics explained in relation to the setting, age groups, risk factors and prevalence of non-communicable diseases?

Methodology

Selection of variables

Quality variables were selected according to criteria described in several essays and applied to various scientific articles. These criteria concern the media and scientific perspectives, namely: specialized journalism[28–30]; ethical principles of journalism[31]; emotional communication regarding health issues[32]; and rigor in reporting scientific and health topics.[19,21] A total of 12 variables were defined for the quality analysis of these two perspectives (media and science) and 5 variables for the thematic description of the contents (Table 1).

Object of study and sampling

The units of analysis are the news stories on HEPA published during 2013 and 2014 in the five general-interest newspapers with the largest readership in Spain: *El País, El Mundo, La Vanguardia, ABC* and *El Periódico de Catalunya*.

We used the news database *MyNews Online*, which provides the articles published in the written press (paper) in *Portable Document Format* (PDF), the news database *LexisNexis* and the online newspaper archive of *ABC* for the news stories not found in *MyNews Online* for the study period. The search keywords were ''physical activity'' and ''physical exercise'' for the period defined in the national editions of these five newspapers. All sections of the newspapers were screened, including opinion and sponsored articles,[b] and also the supplements and special features incorporated within the newspapers for a fixed price per unit. The inclusion criteria with regard to the topic of the news story were: recommendations on HEPA or HEPA plus diet, articles on HEPA or HEPA plus diet, studies on the prevalence of a specific condition or risk factor, prevention and/or health promotion programs and techniques, new fitness trends and technology applied to physical activity (PA).

[b] Includes opinion articles and sponsored contents when they feature some recommendation or the benefits of HEPA.

Definition and satisfactory criteria of quality variables

1. **Context**: data to support that the main facts do not occur in isolation, but related to other facts, including past and present information.
2. **Sources**: the sources must have a citation in the article, including name, affiliation, specialty and lack of conflicts of interest; when more than a source exists, all of them should be mentioned. If there is a press release, it should only contribute toward the context of the story.
3. **Accessible language**: when there is specialized language, the scientific contents should be explained with plain language accessible to most readers without having to consult other sources.
4. **Objectivity**: facts and data should be clearly differentiated from opinions. Generally, in this type of news stories the opinion of the journalist should not be in the text.
5. **Emotion**: the inclusion of elements that stir emotion in the reader is one of the most promising areas of communication. These elements can be witnesses' quotations and persuasive narrative.
6. **Truthfulness**: this variable depends on others such as context, sources, objectivity, credibility and magnitude. Truthfulness evaluates the rigor of the story in relation to the original source (scientific article or report).
7. **Credibility**: mention of scientific evidence. The study, journal or institution that publishes the scientific finding should be specified; also, that the personal sources are from experts on the matter.
8. **Magnitude**: the relevance or scope of the findings must be clearly stated, without exaggerating or lessening risks and benefits. Qualitative data are less informative because of their ambiguity and subjectivity, whereas numeric data (absolute and relative) provide specific information.
9. **Medicalization**: risk factors should not be equated to a disease and natural processes such as aging cannot be presented as a health issue; medication cannot be

presented without the alternative of physical exercise when there is scientific evidence that favors exercise.
10. **Alternatives**: to evaluate a new treatment or HEPA recommendation available alternatives of proven efficacy should be presented. Even better if advantages and disadvantages are compared.
11. **Availability**: the article should mention if the program, treatment or HEPA recommendation are available in the country, if professional monitoring and specific gear are required and costs incurred.
12. **Novelty**: explains if the HEPA recommendation method, program or treatment are really new and if it is a reformulation of an old concept or a variation of an existing idea.

Technique used

We used content analysis, a quantitative technique based on the objective reading and coding of the information contained in each news story (unit of analysis). Coding ascribes one unit of analysis within a specific category of a variable.[27] Next, these variables were successively computed, described, analyzed and given a dichotomous value: satisfactory = 1; non satisfactory = 0; or ''not applicable'' according to the criteria (quality variables). The total number of applicable items is not the same for all news stories and therefore the results are not comparable if they are not standardized, for instance with a scale from 0 to 10. The formulae applied are as follows:

For each news story:

$$\text{Quality of news story} = \frac{\text{number of satisfactory variables}}{\text{number of applicable variables}} \times 10$$

For each quality variable:

$$\text{Quality of variable } X = \frac{\text{number of satisfactory news for } X}{\text{number of new stories applicable to } X} \times 10$$

The result is a score (0-10) for each news story of the sample and 12 scores (0-10) for each quality variable observed.

Data management

The database was created with the program *Filemaker Pro Advance* (version 14.0.6) and the data were processed with *Microsoft Excel for Mac* (version 14.7.1) and *IBM SPSS Statistics* (version 21).

Results

Sample descriptors (Table 2)

The sample analyzed ($n = 100$) presents a similar annual distribution, 46% ($n = 46$) for 2013 and 54% ($n = 54$) for 2014. More stories were published during the first half of the year, peaking in May for both 2013 (21%; $n = 21$) and 2014 (13%; $n = 13$). The frequency according to the day of the week is also very similar in the two years of the study. The newspaper *La Vanguardia* contributes almost half of the news stories ($n = 45$; 45%), while the remaining 55% ($n = 55$) is similarly distributed among the other four newspapers with percentages ranging from 11% to 17%. Most articles feature in the section ''Society-Trends'', followed by the supplements (35%; $n = 35$). These two sections accumulate 81% ($n = 81$) of the news stories published. Table 2

Quality of the news stories (Table 2; Fig. 1)

The total quality of the whole sample ($n = 100$) is 6.3 (s = 1.9) on a scale of 0-10 (0 = lowest score; 10 = highest score). We did not find differences between 2013 ($\bar{x} = 6.3$; s = 1.8) and 2014 ($\bar{x} = 6.3$; s = 2.0) or between the first ($\bar{x} = 6.2$; s = 2.0) and second ($\bar{x} = 6.4$; s = 1.7) half of the year. The differences observed in relation to the days of the week are not significant, since 75% ($n = 75$) of the sample is accumulated in three days which present scores close to the mean. However, *El País* ($\bar{x} = 7.0$; s = 1.7) and *La Vanguardia* ($\bar{x} = 6.8$; s = 1.8) obtained higher scores, followed by *El Periódico* ($\bar{x} = 5.6$; s = 2.3), *ABC* ($\bar{x} = 5.6$; s = 1.7) and *El Mundo* ($\bar{x} = 5.4$; $\sigma = 1.5$).

As a whole, 72% news stories obtained a score of 5.0 or over. Fig. 1 shows the distribution by categories (low = 0-4.9; intermediate = 5-6.9; high = 7-8.9; very high = 9-10).

Satisfactory scores of quality variables (Table 3)

Table 3 shows the satisfactory scores obtained by the quality variables and the percentage of stories to which the criteria have not been applied due to different reasons. The scores (scale 0-10) calculated for comparison and the results according to categories of quality are as follows: very high: Objectivity (9.7) and Medicalization (9.6); high: Sources (8.0), Truthfulness (7.5) and Credibility (7.4); intermediate: Availability (6.6), Novelty (6.5) and Context (6.2); low: Accessible Language (4.2), Alternatives (3.8), Emotion (2.0) and Magnitude (2.1).

Characteristics of the themes (Table 4)

The themes of the stories are represented in similar frequencies. At the highest end we found ''Recommendations on HEPA or HEPA plus diet'' (19%; $n = 19$) and at the lowest end (4%; $n = 4$) the stories on ''Technology applied to physical activity''. Table 4

The settings are only mentioned in 44% of stories ($n = 44$), with a prominent first place for ''Leisure'' (28%; $n = 28$). In relation to the age group of the target population, 63% ($n = 63$) of stories do not specify any.

Obesity is the disease that features most frequently (25%; $n = 25$) as the main condition. However, 62% ($n = 62$) of articles do not focus on any specific disease. The remaining news stories (13%; $n = 13$) correspond to various diseases with percentages that range from 1% to 3%.

Finally, we have observed that while there are specific recommendations on health-enhancing physical activity in 65% ($n = 65$) of news stories, a decrease of 16.5% occurred in 2014 (57.4%; $n = 31$) compared to 2013 (73.9%; $n = 34$).

Table 2 Quality scores (0-10) and distribution of frequencies of the sample ($n = 100$).

	Mean	s.d.	*n*	%
Year				
2013	6.3	1.8	46	46.0
2014	6.3	2.0	54	54.0
Month				
July to December	6.3	1.7	63	63.0
January to June	6.2	2.0	37	37.0
Weekday				
Wednesday	7.1	1.1	13	13.0
Monday	6.6	1.2	7	7.0
Thursday	6.6	1.4	12	12.0
Saturday	6.2	2.1	29	29.0
Tuesday	6.0	2.4	27	27.0
Friday	5.5	2.4	4	4.0
Sunday	5.3	1.3	8	8.0
Newspaper				
El País	7.0	1.7	11	11.0
La Vanguardia	6.8	1.8	45	45.0
El Periódico	5.6	2.3	17	17.0
ABC	5.6	1.7	12	12.0
El Mundo	5.4	1.5	15	15.0
Section				
Society – Trends[a]	6.8	1.7	46	46.0
Other[b]	6.7	2.0	8	8.0
Science	6.6	0.9	5	5.0
Local	6.2	1.2	6	6.0
Supplements	5.4	2.1	35	35.0

s.d., standard deviation.
[a] The section ''Trends'' in the newspaper La Vanguardia is the same as the section ''Society'' in the other newspapers.
[b] Feature Article (4), Opinion (2), Technology (1), Special Features (1)

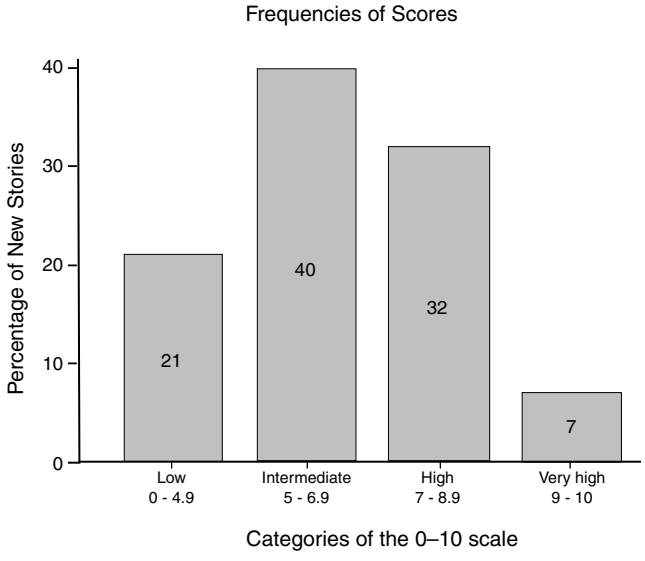

Figure 1 Quality of the news stories by categories.

Table 3 Percentage of satisfaction of quality variables.

	Satisfactory	Non satisfactory	Not applicable
Medicalization	96%	4%	–
Objectivity	94%	4%	2%
Sources	80%	20%	–
Context	62%	38%	–
Credibility	61%	22%	17%
Availability	54%	28%	18%
Novelty	52%	28%	20%
Truthfulness	43%	14%	43%
Alternatives	26%	43%	31%
Emotion	20%	80%	–
Accessible language	19%	26%	55%
Magnitude	19%	73%	8%
Total	52.0%	31.6%	16.4%

Table 4 Characteristics of the themes in the sample ($n = 100$).

	Frequency	%
Source of story		
Recommendations on HEPA or HEPA plus diet	35	35.0
Prevalence study	17	17.0
Prevention program/technique	16	16.0
Article on HEPA or HEPA plus diet	16	16.0
New trends in fitness	12	12.0
Technology applied to PA	4	4.0
Setting of PA		
Leisure	28	28.0
Occupational[a]	12	12.0
Household	2	2.0
Transport	2	2.0
Not mentioned	56	56.0
Target age group		
Adults (18-64 years)	16	16.0
Young (5-17 years)	11	11.0
Children (<5 years)	6	6.0
Elderly (65 years and over)	4	4.0
Not specified	63	63.0
Specific diseases		
Obesity	25	25.0
Type 2 diabetes	3	3.0
Osteoarthritis	2	2.0
Heart disease	2	2.0
Other[b]	6	6.0
Not specified	62	62.0
Recommendation		
Yes	65	65.0
No	35	35.0

[a] Work (5), School (4) and University (3).
[b] Hypertension (1), Depression (1), Osteoporosis(1), Cancer(1), Technology addiction (1) and Exercise addiction (1).

Discussion

RQ1. – What is the quality of news stories on HEPA in Spain?

The quality of the news stories analyzed (2013-2014) is very homogeneous. For the whole study period, the average score obtained is of intermediate quality, i.e., 6.3 (s = 1.9) on a scale from 0 to 10. Specifically, 79% have either intermediate ($n = 40$), high ($n = 32$) or very high quality ($n = 7$), with the remaining 21% obtaining low quality scores ($n = 21$). This variability underscores that readers are frequently exposed to vague and incomplete recommendations on HEPA.

RQ2. – To which degree are the quality variables of the news stories on HEPA in Spain satisfactory?

The performance of journalists in relation to objectivity and avoiding medicalization is excellent. The variables with a high quality (score = 7-8.9) show that most stories maintain the scientific rigor of the source study or report and also that they include information on the sources, which adds scientific credibility to the news story. The variables with an intermediate quality (score = 5-6.9) show that the stories could be greatly improved by a greater contextualization of the main topic of the article, by specifying the availability of the method or technique and by clarifying the novelty factor. Low quality scores (<5) imply the following shortcomings:

- The language of these stories is not sufficiently accessible to be understood by most people. Frequently, the technicalities included are ill-explained.
- The main information is insufficiently contextualized, in particular in relation to the presentation of available alternatives.
- Very few news stories use narrative resources that stir emotion in the reader while informing. Emotion contributes to enhance understanding and recollection of the information.
- Most writings do not show data that quantify benefits and possible risks related to the HEPA.

Table 5 Comparison of scientific quality with prior studies (percentage of criteria satisfaction for each variable).

Study	Current study	Schwitzer[22], 2013	Wilson[24], 2009	Cassels[23], 2008
Country	Spain	USA	Australia	Canada
Period	2013-2014	2006-2013	2005-2008	2005-2006
Media	Newspaper	Newspapers; TV	Newspapers; TV; Radio	Newspapers; TV; Radio
Channel	Paper	Websites[a]	Websites	Websites
Audience	General public	General public	General public	General and professional public
Sample (n)	100	1675	1230	87
Criteria				
Medicalization	96%	70%	89%	90%
Availability	54%	70%	56%	62%
Novelty	52%	85%	83%	94%
Alternatives	26%	38%	51%	43%
Magnitude	19%	31%[b]	27%[b]	20%[b]

[a] During the first 3.5 years they also analyzed the news broadcast by the channels ABC, CBS and NBC.
[b] Arithmetic mean between the percentages of magnitude of benefits and possible risks.

RQ3. – From a scientific perspective, to which degree are the quality variables satisfactory compared to the results of international quality analysis in health news stories?

If we take into account that our study only analyses news stories on HEPA, we believe that it is of value to compare these results with the scientific perspective of other studies of content analysis in the press which include also articles on HEPA. Table 5 shows the main characteristics of the articles and the results of criteria satisfaction. The characteristics of these three studies on the USA, Australia and Canada initiatives are very similar. In relation to quality, they find the same trends observed in our study. With the exception of the criterion ''Novelty'', which has the highest variability (intermediate, high or very high), the quality grading of the remaining four criteria coincides in the four studies:

1) Very high quality: Medicalization (96–70%).
2) High quality: Availability (70–54%).
3) Intermediate quality: Alternatives (51–26%).
4) Low quality: Magnitude (31–19%).

RQ4. – What is the correspondence between the topics in the news stories and government strategies to achieve change in the habits of the population?

Over two thirds (68%) of the stories originate in studies on the prevalence of a disease or risk factor, mainly sedentarism and overweight/obesity, studies on the effects of HEPA or HEPA plus diet and recommendations on HEPA or HEPA plus diet. This high proportion corresponds to the fundamental and priority contents of strategies aimed at behavioral change,[10] which start by raising awareness on the severity of physical inactivity (prevalence studies) followed by information on how to fight this problem (recommendations and/or benefits of HEPA plus diet) while explaining the adaptive processes that take place in the body with scientific studies.

RQ5. – How are the topics explained in relation to the setting, age groups, risk factors and prevalence of non-communicable diseases?

The distribution of settings within the news stories shows that in 56% of cases there is no mention of any specific setting that the reader can identify with and therefore understand the implications of the information for herself. When a setting is mentioned (44%), it mainly refers to leisure time (28%) and the remaining 16% is distributed between household, transport and work or education (school and university). This is relevant, since the reader might interpret that these recommendations can only be followed during leisure time. Moreover, if we consider that there are only clear recommendations on HEPA in 65% of news stories, the possibilities for the reader to locate her own reality in the information that she reads decreases even further. Similarly, the age group of the population targeted by the information and recommendations should be clearly specified, since the activities vary in accordance with age.[6]

Correspondingly, we only find references to diseases in 38% ($n = 38$) of texts. Obesity is the main condition, with 25% ($n = 25$) of stories, while other diseases are distributed in the remaining 13% ($n = 13$). It is obvious that this distribution does not represent the diversity and importance of diseases and risk factors in Spain and globally. Hypertension and hyperglycemia are risk factors that cause more mortality than obesity[1] and they only feature in 4% of news stories, in contrast with 25% of overweight and obesity. We should also highlight the scant information on prevention of breast and colon cancer (1%), taking into account that scientific evidence shows that HEPA could help prevent between 21% and 25% of these types of cancer.[1]

Conclusions

The news stories from the years 2013 and 2014 analyzed in this study have an average quality of 6.3 on a scale from 0 to 10. While we consider this a rather positive result, further efforts to improve these scores are crucially needed, in particular in view of the wide dispersion of scores obtained

for the quality variables from the media and scientific perspectives.

The results from the scientific perspective (Medicalization, Availability, Novelty, Alternatives and Magnitude) are very similar to previous studies on content analysis carried out by different international groups of the USA, Australia and Canada.

Regarding the characteristics of the themes, we consider that the diversity and proportion of sources (scientific articles, prevalence studies, recommendations and benefits of HEPA) are well represented in the study sample. In contrast, little mention is made of the various settings where HEPA can be practiced and of recommendations on HEPA. Moreover, the diseases associated with physical inactivity are poorly represented in the news stories. Indeed, two thirds do not include any information about diseases and when a condition is mentioned the articles focus mainly on overweight and obesity. We should underscore this absence of information on diseases, since current literature shows at least 36 conditions that can be prevented or treated with a carefully designed program of physical exercise.[33,34]

Implications for journalistic practice and dissemination by scientific and professional sources

The results of this research reveal that without additional time burden, the news stories could be greatly improved by following these recommendations:

Sources

1) When the origin of the news story is a scientific study or a report, data must be provided to identify the source, i.e., the full title, the main author and the journal. The date of publishing must always be included.

Stirring the reader's emotions

2) Whenever possible, the reader must identify with the story: witnesses can be the backbone of the news story featuring as information sources or telling their personal stories.

Register of language

3) When the text includes scientific terms and technicalities these should be clearly explained. In these cases the use of rhetorical resources is very effective, namely:[35] metaphor, example, definition, synonymy, analogy, personification, anecdote, experts' quotations and explanatory apposition.

Information on context

4) When the text includes a method, technique or recommendation on HEPA it is crucial to mention availability, need for monitoring and specific gear and also accessibility (costs); the article should mention if it is a new idea or the remake of an existing concept, and compare it with existing alternatives.

Quantify benefit and possible health risks

5) The positive effects on health and risks of a method, technique or recommendation on HEPA should be expressed in quantitative instead of qualitative terms and always better in absolute, not only relative, terms. Examples for the same recommendation on HEPA are as follows:

a) Qualitative: ''Daily physical activity increases life expectancy'';
b) Quantitative relative: ''30 minutes of daily physical activity increases life expectancy by 4.2%'';
c) Quantitative absolute and relative (with accessible language for the technicalities): ''30 minutes of daily moderate physical activity (you should be able to talk but not sing during the activity) increases life expectancy by 4.2%, i.e., 3.4 years for a person with the Spanish average life expectancy of 80 years.''

About recommendations on HEPA

6) When writing on HEPA we should remember to include at least the general recommendations to achieve the minimum physical activity (see Background). In addition, the story should include some tips to incorporate HEPA in our daily lives, such as those available in programs of prevention of sedentarism and promotion of physical activity.[36]

Topics that should feature more often

7) When defining the topics of the news stories on HEPA

a) Always mention the everyday life setting from the source study, because each setting offers different possibilities for exercising;
b) Specify the target age group of the information: children (preschool and school ages), adolescence, adults and the elderly;
c) and include information on specific diseases taking into account prevalence,[1] avoiding just focusing on overweight and obesity.

Limitations

A single researcher has conducted the coding phase due to funding constraints. In consequence, the study does not include data on intercoder reliability. However, we believe that this does not affect the objective of the study, since the results are in agreement with the trends already observed in previous studies and our method has proved to be able to measure strengths and limitations regarding the quality of news stories on HEPA and to suggest improvements for future news stories on health.

Sources of funding

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Previous publications

None fragment of this manuscript has been previously communicated and is not being considered for publication, elsewhere.

Conflict of interest

Authors declare that they don't have any conflict of interests.

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