HEALTH RISKS ASSOCIATED WITH EATING MEAT:

A COMPARATIVE ANALYSIS OF AMERICAN, BRITISH AND ITALIAN ONLINE INFORMATION

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Objectives

Excessive meat consumption is an alarming public health issue due to its impact on human health and environmental sustainability(1–3). The quality of online information regarding the risks associated with excessive meat consumption could play a crucial role in shaping consumers' behavior(4,5). The aim of this study is investigating the quality of Italian, British, and US webpages obtained in response to searches for 'Is meat bad for you?' and the Italian equivalent 'La carne fa male?'

Methods

We downloaded the top 100 English and the top 100 American webpages in response to the query "Is meat bad for you?", and the top 100 Italian webpages in response to "La carne fa male?". We assessed the trustworthiness of each web page using the JAMA score(6). The JAMA score is a tool made up of the following four binary conditions to be met: Authorship (Authors and contributors, their affiliations, and relevant credentials should be provided), Attribution (References and sources for all content should be listed clearly, and all relevant copyright information noted), Disclosure (Web site ownership should be prominently and fully disclosed, as should any sponsorship, advertising, underwriting, commercial funding arrangements or support, or potential conflicts of interest) and Currency (Dates in which the content was posted and updated should be indicated). Furthermore, the completeness of information on the relationship between meat and health was assessed based on the following criteria chosen by a panel of professional nutritionists: authority (the content was drafted by a trained nutritionist, life-scientist or dietician); guidelines (precise quantitative indications corresponding to the meat requirement were provided); diet sustainability (the impact of meat production on the environment was mentioned); general health prevention (the impact of excessive meat consumption on global health was mentioned); cancer and chronic diseases prevention (the risk of cancer and chronic diseases associated with increased meat consumption was clearly stated);meat substitutes (clear indications regarding the replacement of meat in the diet were provided). We also classified websites according to their category (commercial, non-profit, journalism, professional, government, health portal) and their judgment towards meat consumption (neutral, promoting, demonizing). Descriptive statistics and a multinomial regression model were used to investigate between-country difference in terms of website characteristics.

Results

One-hundred American, 96 British and 94 Italian websites were analyzed. The quality of US websites was found to be high in 61% of cases (95% CI: 50.7-70.6%), while only 22.3% (95% CI: 14.4-32.1%) of the Italian sites were classified as high quality. When compared to US websites, multinomial regression (table 1) showed how Italian websites demonized meat consumption less (RRR: 0.336; p=0.012) and less frequently had healthcare professionals as authors (RRR: 0.236; p<0.001). Additionally, Italian sites less frequently

mentioned risks to the environment (RRR: 0.241; p=0.001) and the development of chronic diseases (RRR: 0.384; p=0.013) associated with excessive meat consumption. The quality of Italian sites was significantly lower compared to American ones (RRR: 0.332; p=0.009). When compared to US websites, UK websites exhibited a lower frequency in promoting meat consumption (RRR: 0.322; p=0.019) and contents were less likely written by qualified healthcare professionals (RRR: 0.292; p=0.003). The reporting of chronic disease risks was less common (RRR: 0.387; p=0.013), while the mention of cancer risks was more prevalent on UK sites (RRR: 2.708; p=0.008). Moreover, UK websites demonstrated a higher frequency of being of high quality (RRR: 4.431; p<0.001).

Conclusions

In general, Italian websites provide less reliable and lower-quality information regarding the link between health and meat compared to American and British websites. It is concerning to note the frequency of online content written by individuals who are not nutritionist, life-scientist or dietician, and the low occurrence of information regarding the environmental impact of meat consumption. Conversely, UK and US websites demonstrate comparable quality. The diversity in the quality of online information across countries is present in other fields of knowledge(7). The observed differences in our study may be attributed, at least in part, to the high volume of content produced in the United States and the Italian cultural and culinary peculiarities. Ensuring the quality control of online health information remains a pressing issue.

Bibliography

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Table 1. Multinomial regression model investigating the differences between the characteristics of Italian, British (UK) and American (US) websites in providing information about the risks associated with meat consumption. RRR: Relative Risk Ratio. reference category: US websites

		RRR	p	[95% conf. interval]	
	Italian vs US websites				
	The website promotes meat consumption	0,434	0,085	0,168	1,121
	The website demonizes meat consumption	0,336	**0,012**	0,143	0,788
	The author is a qualified health professional	0,236	**0,000**	0,109	0,511
	daily/weekly meat recommended consumption	0,532	0,094	0,254	1,113
	risks for environment sustainability	0,241	**0,001**	0,103	0,567
The website reports:	risk of chronic diseases	0,384	**0,013**	0,181	0,815
	how to replace meat with other foods	0,763	0,505	0,345	1,688
	risk of cancer	0,766	0,540	0,326	1,800
	Government	0,358	0,512	0,017	7,733
Website category (ref: commercial website)	Journal	0,315	0,118	0,074	1,341
	No-profit	1,502	0,725	0,156	14,494
	Health portal	0,336	0,142	0,078	1,443
	Professional	0,254	0,117	0,046	1,407
	High Quality	0,332	**0,009**	0,145	0,757
	UK vs US websites				
	The website promotes meat consumption	0,322	**0,019**	0,126	0,827
	The website demonizes meat consumption	0,509	0,084	0,237	1,095
	The author is a qualified health professional	0,292	**0,003**	0,130	0,656
	daily/weekly meat recommended consumption	1,669	0,150	0,831	3,355
	risks for environment sustainability	0,574	0,153	0,268	1,230
The website reports:	risk of chronic diseases	0,387	**0,013**	0,182	0,821
	how to replace meat with other foods	1,227	0,554	0,623	2,418
	risk of cancer	2,708	**0,008**	1,296	5,658
	Government	0,000	0,989	0,000	.
Website category (ref: commercial website)	Journal	1,370	0,748	0,200	9,365
	No-profit	0,000	0,982	0,000	.
	Health portal	1,867	0,526	0,271	12,874
	Professional	0,259	0,197	0,033	2,022
	High Quality	4,431	**0,000**	1,945	10,098