

Are YouTube Portuguese videos useful as a source of information on diabetes foot care?**Os vídeos em português do YouTube são úteis como fonte de informações sobre cuidados com o pé diabético?**

DOI:10.34117/bjdv6n1-091

Recebimento dos originais: 30/11/2019

Aceitação para publicação: 09/01/2020

Edson da Silva

Ph.D, Diabetes Study Group, Department of Basic Sciences
Federal University of Jequitinhonha and Mucuri Valleys (UFVJM), Campus JK, Edifício DCB-DCBio, Sala 129, CEP: 39100-000, Diamantina, Minas Gerais, MG, Brazil
Tel./fax: +55 38 3532 1200
E-mail: edson.silva@ufvjm.edu.br

Marileila Marques Toledo

MS, Diabetes Study Group, Department of Basic Sciences
Federal University of Jequitinhonha and Mucuri Valleys, (UFVJM), Diamantina, MG, Brazil
E-mail: marilleila@hotmail.com

Jéssica Samara Oliveira Tolomeu

MS, Diabetes Study Group, Department of Basic Sciences
Federal University of Jequitinhonha and Mucuri Valleys, (UFVJM), Diamantina, MG, Brazil
E-mail: jessica.samarat@hotmail.com

Gabriela de Araújo Nominato

Diabetes Study Group, Department of Basic Sciences
Federal University of Jequitinhonha and Mucuri Valleys, (UFVJM), Diamantina, MG, Brazil
E-mail: gabriela-nominato@hotmail.com

Ana Paula Nogueira Nunes

PhD, Diabetes Study Group, Department of Basic Sciences,
Federal University of Jequitinhonha and Mucuri Valleys, (UFVJM), Diamantina, MG, Brazil
E-mail: anapaulannunes01@gmail.com

Lilian Fanny de Castilho

MD, Universidade Paulista (UNIP)
Associação Nacional de Atenção ao Diabetes (ANAD), São Paulo, SP, Brazil
E-mail: secretaria@anad.org.br

ABSTRACT

Studies have been assessed the importance of YouTube as a source of information for some health conditions, diseases or procedures. However, this platform provides an ever-growing, unregulated source, and some of their information may cause health risks to patients. The aim of this study was to evaluate the use of Brazilian YouTube videos as a source of useful information about diabetes foot care. The website www.youtube.com was searched for the term “diabetes foot care” in Brazilian Portuguese to assess their usefulness as an information source. The videos were categorized as very useful, moderately useful, somewhat useful, and not useful, and categorized as organizational,

professional, personal and advertisement. The search resulted in 8.080 videos, of which 200 were reviewed, and 159 videos uploaded on YouTube were analysed. Videos were categorized as very useful (6.29%), moderately useful (16.35%), somewhat useful (24.35%), and not useful (52.83%). The video source revealed the following classification: organizational, n = 76; professional, n = 11; personal, n= 46; and advertisement, n = 26. In conclusion, YouTube's Brazilian videos on diabetic foot care are popular, with varied sources and content. However, most of their content is not useful. Therefore, YouTube videos in Portuguese cannot be considered a good source of information about diabetes foot care.

Key words: Diabetes Mellitus, Foot-care, Social media, YouTube, Video.

RESUMO

Estudos avaliaram a importância do YouTube como fonte de informação para algumas condições, doenças ou procedimentos de saúde. No entanto, essa plataforma fornece uma fonte sempre crescente e não regulamentada, e algumas informações podem causar riscos à saúde dos pacientes. O objetivo deste estudo foi avaliar o uso de vídeos brasileiros no YouTube como fonte de informações úteis sobre o tratamento do pé diabético. O site www.youtube.com foi pesquisado pelo termo “cuidados com o pé diabético” no português do Brasil para avaliar sua utilidade como fonte de informação. Os vídeos foram categorizados como muito úteis, moderadamente úteis, um pouco úteis e não úteis, e categorizados como organizacional, profissional, pessoal e publicitário. A pesquisa resultou em 8.080 vídeos, dos quais 200 foram revisados e 159 vídeos enviados no YouTube foram analisados. Os vídeos foram categorizados como muito útil (6,29%), moderadamente útil (16,35%), um pouco útil (24,35%) e não útil (52,83%). A fonte de vídeo revelou a seguinte classificação: organizacional, n = 76; profissional, n = 11; pessoal, n = 46; e propaganda, n = 26. Concluindo, os vídeos brasileiros do YouTube sobre cuidados com o pé diabético são populares, com fontes e conteúdo variados. No entanto, a maior parte do conteúdo não é útil. Portanto, os vídeos do YouTube em português não podem ser considerados uma boa fonte de informações sobre o tratamento de pés com diabetes.

Palavras chave: Diabetes *Mellitus*, Cuidados com os pés, Mídia social, Youtube, Vídeo.

1 INTRODUCTION

Diabetes mellitus (DM) imposes a heavy human, social, and economic cost on public health, especially in low- and middle-income countries like Brazil. In 2017, the International Diabetes Federation estimated that Brazil was ranked fourth in the world for number of people aged 20–79 with diabetes [1]. Moreover, the health and socioeconomic burden of diabetic foot disease on the Brazilian Public Health Care System (SUS) is very high [2].

To avoid or postpone complications involving the diabetic foot, the patient needs be educated on self-care [3]. Information about prevention of diabetic foot can help to reduce physical, psychosocial, and financial damages to patients with DM, so they should be motivated [4].

With the rapid growth of technology, patients with DM have access to several technological options. In this sense, social media, especially YouTube, are widely used as a source of information for some

diseases or health conditions [5-7]. But online health information can also be inaccurate or obsolete or provide misleading information and promises of cures, making it a serious hurdle to find relevant and reliable online data to help patients [8]. In Brazil, it is estimated that YouTube is the most viewed social media in the country [9]. However, few studies have evaluated the content and source of YouTube videos about diabetes in Portuguese. So, in this study, we analysed the use of Brazilian YouTube videos as a source of useful information about diabetes foot care.

2 METHODS

The website www.youtube.com was searched on November 30, 2016, for the term “diabetes foot care” in Brazilian Portuguese. The search revealed 8,080 videos. The videos associated with diabetes foot care and available on the first 10 pages (n=200 videos) of search results were eligible for inclusion in the study. Videos of greater than 30-min duration (n = 5), without audio (n = 2), not recorded in Brazilian Portuguese (n = 15), or duplicated were excluded (n = 19) [10-12]. Total number of videos included in analysis (n = 159).

A document with URLs to all individual videos was prepared on a single date for further assessment. The videos were analysed independently by M.M.T. and J.S.O.T. The assessment adopted mutually exclusive categories, and the concordance between the reviewers was determined by the kappa test. The following parameters were recorded for all videos: upload date; number of views, likes/dislikes, and comments; and duration. The video sources were categorized into four groups: organizational (if the video was uploaded by any organization), professional (if health care professionals like nurse or doctors uploaded the video), personal (if someone with unknown credentials uploaded the video), and advertisement (if the video was uploaded in intension of selling products or servisse) [10]. We used an 11-point information checklist to evaluate the usefulness of the videos: 1. checking feet daily; 2. washing feet daily; 3. drying feet properly; 4. moisturizing feet properly; 5. cutting nails carefully; 6. wearing proper shoes and socks; 7. protecting feet from hot and cold; 8. awareness about self-treatment of corn and calluses; 9. annual checkup by professional healthcare provider; 10. awareness of bad effects of smoking; and 11. taking care of blood glucose levels). Then, we categorized the scores into four groups: very useful (8–11), moderately useful (4–7), somewhat useful (1–3), and not useful (adapted from Abedin et al. [10] and Gupta et al. [12]). Ethics approval was not required because all study information was publicly available.

Descriptive statistics were calculated for all variables. Data are presented as mean \pm standard deviation. Differences in continuous variables among the groups were determined by ANOVA or the Kruskal-Wallis test. Categorical variables were also tested using the Chi-squared test. A *P*-value \leq 0.05 was considered statistically significant [10]. All analyses were conducted with Stata/SE

3 RESULTS

A total of 200 videos were reviewed, and 159 videos uploaded on YouTube between 2008 and 2016 were analysed. Table 1 represents the following metrics of the videos: total number of likes (11,660), dislikes (945), views (2,681,311), and comments (787), as well as duration (1,113 minutes and 30 seconds).

Table 1. Descriptive statistics by level of usefulness.

	Level of usefulness of the videos				P value
	Very Useful	Moderately Useful	Somewhat Useful	Not Useful	
n (%)	10 (6.29)	26 (16.35)	39 (24.53)	84 (52.83)	-
Likes, mean (\pm SD)	16.70 (27.76)	24.26 (77.42)	19.10 (60.34)	120.44 (502.66)	0.15
Dislikes, mean (\pm SD)	0.7 (1.05)	2.03 (8.44)	1.35 (4.04)	9.90 (32.31)	0.04*
Duration (min.), mean (\pm SD)	6.67 (5.73)	7.69 (6.12)	8.69 (9.12)	5.81 (5.71)	0.58
Comments, mean (\pm SD)	0.8 (1.13)	1.30 (5.53)	0.94 (2.99)	8.42 (35.51)	0.02*
Number of views, mean (\pm SD)	5,519.40 (9,370.91)	2,725.92 (5,649.84)	6,439.23 (18,790.27)	27,429.92 (98,437.76)	0.19

*SD= Standard Deviation; * P-value \leq 0.05*

Among all the videos analysed, the minority (6.29%) were categorized as very useful, 16.35% were moderately useful, 24.53% were somewhat useful, and most (52.83%) were categorized as not useful. Statistical data on duration and number of likes, dislikes, comments, and views are respectively presented as mean \pm standard deviation of the mean for each usefulness category of the analysed videos (Table 1).

On average, there were differences in the number of dislikes (9.90 ± 32.31 ; $P=0.04$) and comments (8.42 ± 35.51 ; $P=0.02$) among the four levels of usefulness (Table 1). But the number of likes and views and the duration of the videos were no statistically significantly different ($p \leq 0.05$).

Figure 1 shows the results for usefulness by video source. Organizational, professional, personal, and advertising sources contributed 47.80% ($n=76$), 6.92% ($n=11$), 28.93% ($n=46$), and 16.35% ($n=26$) of the videos, respectively. Most of the very useful videos ($n=5$; 3.14%) were uploaded by organizations, and most of the not useful videos ($n=32$; 20.12%) were from the personal category. In addition, the majority of advertisement videos were not useful ($n=22$; 13.84%). The inter-reviewer agreement was very good: kappa = 0.896.

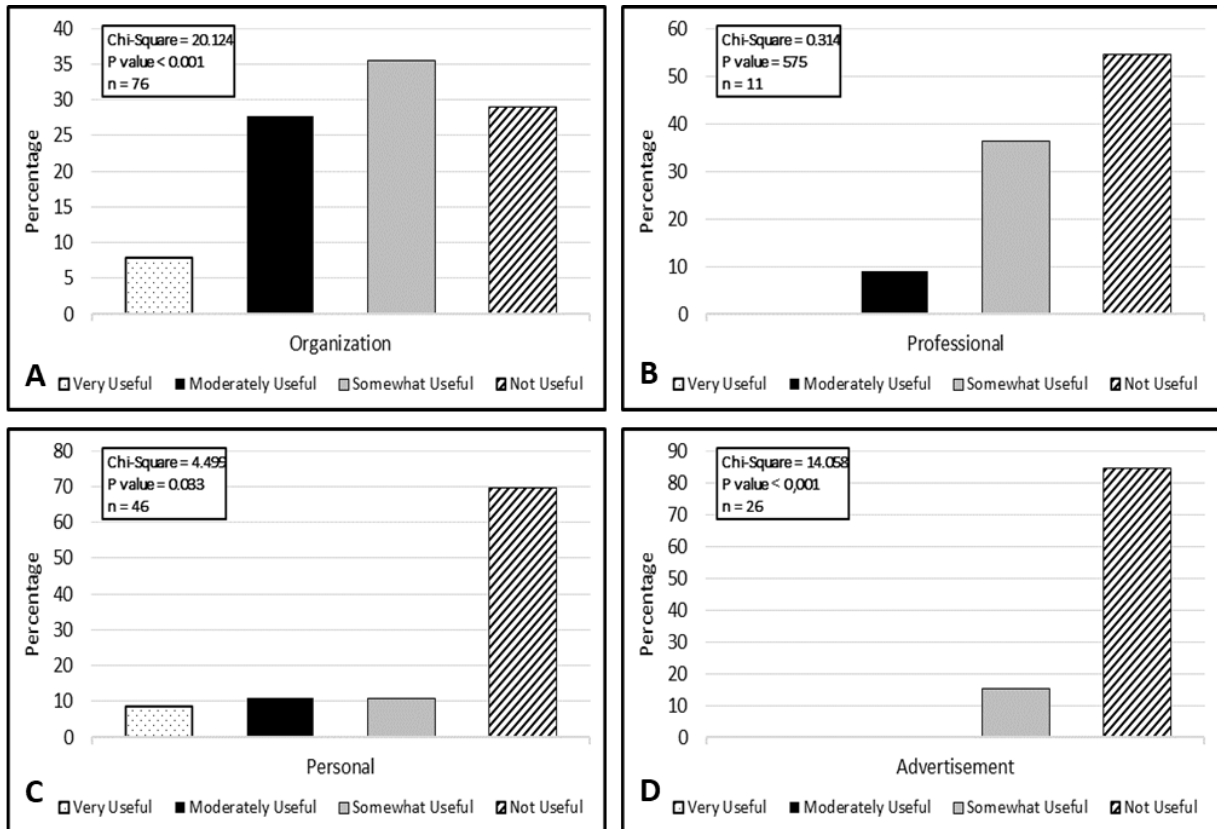


Figure 1. Usefulness by video source. Bars represents the percentage of videos (very useful, moderately useful, somewhat useful and not useful) by sources: (A) organization, (B) professional, (C) personal and (D) advertisement, respectively.

4 DISCUSSION

YouTube is a social media website that is considered an important resource for patients [7, 12]. English videos have been evaluated in relation to the source of information for various diseases, including diabetes [6, 10, 12-14]. But Portuguese videos on diabetic foot care have not yet been evaluated. In addition, the lack of regulation of the content available on YouTube has been related to the risk of patients' receiving misleading, unreliable, or inaccurate information [12].

Our study shows that organizations were the sources that uploaded the most Brazilian videos (47.80%, n=76) and that they presented the highest number of very useful videos (6.29%). On the other hand, most of the content analysed as not being not useful (52.83%) was uploaded by personal sources. People with unknown credentials, including people in general and patients with diabetes, shared personal information and testimonies, often filled with myths and inaccurate information about diabetes.

Two studies, to our knowledge, have assessed the usefulness level of youtube videos on diabetic foot care. A study by Abedim et al. [10] evaluated the first 100 videos in English with less than 30 minutes of duration and found that 11.2% of videos were very useful category and 49.4%

were not useful. However, another study [7] evaluated the first 100 videos in English with less than 10 minutes of duration, which found that 64.4% of videos were useful category and 35.6% were not useful. These results suggest that videos among 10 and 30 minutes, in both English and Portuguese are less useful than short videos.

In summary, YouTube Portuguese videos on diabetic foot care are popular, with a variety of sources and content. However, most of their content is not useful. Therefore, YouTube videos in Portuguese cannot be considered a good source of information about diabetes foot care. Future research is needed to identify aspects of YouTube videos that attract viewer attention for using this social media for increasing diabetic foot care among people with diabetes.

ACKNOWLEDGMENTS

GAN was supported by a student fellowship from FAPEMIG/UFVJM (CICT 008/2016).

AUTHOR DISCLOSURE STATEMENT

Authors have no conflict of interests to disclose for this article.

AUTHORS' CONTRIBUTIONS

Study conception: ES. Statistical analysis: APNN. Interpretation of Data: ES, MMT, JSOT, GAN and APNN. Manuscript development: ES, MMT, JSOT, GAN and APNN. All authors read and approved the final manuscript.

REFERENCES

- (1) Cho NH, Shaw JE, Karuranga S, et al. IDF Diabetes Atlas: global estimates of diabetes prevalence for 2017 and projections for 2045. *Diabetes Res Clin Pract.* 2018 Apr;138:271-281. doi: 10.1016/j.diabres.2018.02.023. Epub 2018 Feb 26.
- (2) Toscano C, Sugita T, Rosa M, et al. Annual direct medical costs of diabetic foot disease in Brazil: a cost of illness study. *Int J Environ Res Public Health.* 2018 Jan 8;15(1).
- (3) De Menezes LCG, Guedes MVC. Autocuidado da pessoa com diabetes mellitus: contribuição ao cuidado clínico de enfermagem para a prevenção do pé diabético. *Estima Brazilian Journal of Enterostomal Therapy*, 2017; 15:1.

- (4) de Pádua Gandra FP, Silva KC, Castro CF, et al. Efeito de um programa de educação no nível de conhecimento e nas atitudes sobre o diabetes mellitus. *Revista Brasileira em Promoção da Saúde*, 2012; 24 (4):322-331.
- (5) Hassona Y, Taimeh D, Marahleh A, et al. YouTube as a source of information on mouth (oral) cancer. *YouTube as a source of information on mouth (oral) cancer. Oral Dis.* 2016 Apr;22(3):202-8.
- (6) Drozd B, Couvillon E, Suarez A. Medical YouTube videos and methods of evaluation: literature review. *JMIR Med Educ.* 2018 Feb 12;4(1):e3.
- (7) Smith PE, McGuire J, Falci M, et al. Analysis of YouTube as a source of information for diabetic foot care. *J Am Podiatr Med Assoc.* 2019 Mar;109(2):122-126.
- (8) Fernandez-Llatas C, Traver V, Borrás-Morell JE, et al. Are health videos from hospitals, health organizations, and active users available to health consumers? an analysis of diabetes health video tracking in youtube. *Comput Math Methods Med.* 2017;2017:8194940.
- (9) YouTube: Statistics. Available at: <https://www.youtube.com/yt/press/statistics.html> . Accessed June 10, 2019.
- (10) Abedin T, Ahmed S, Al Mamun M, et al. YouTube as a source of useful information on diabetes foot care. *Diabetes Res Clin Pract.* 2015 Oct;110(1):e1-e4.
- (11) Garg N, Venkatraman A, Pandey A, et al. You Tube as a source of information on dialysis: A content analysis. *Nephrology*, 2015; 20(5):315-320.
- (12) Gupta HV, Lee RW, Raina SK, et al. Analysis of YouTube as a source of information for peripheral neuropathy. *Muscle Nerve.* 2016 Jan;53(1):27-31.
- (13) Hudali T, Papireddy M, Bhattarai M, et al. Evaluating YouTube as a source of patient education on the role of the hospitalist: a cross-sectional study. *Interact J Med Res.* 2017 Jan 10;6(1):e1.

(14) Hilliard ME, Sparling KM, Hitchcock J, et al. The emerging diabetes online community. *Curr Diabetes Rev.* 2015;11(4):261-72.