

Development of infographic as a warning for the prevention of penile cancer in Maranhão

Desenvolvimento de infográfico como alerta para a prevenção do câncer de pênis no Maranhão

Letícia Maria Muniz Lobo, Ana Carolina Garcia Ribeiro,
Maria Isabelle Silveira da Silva, Nicole Kareen Conceição Mendes,
Lívia Flávia de Albuquerque Campos

infographics,
penile cancer,
information design

It is important to talk about prophylactic measures for the intimate health of men when observing the high incidence of penile cancer in Maranhão, mostly caused by poor hygiene and little access to information. An interview was carried out to identify the most effective way to present information. The results culminated in a proposal that considers factors that influence the perception and absorption of the content so that the message can be received and understood more efficiently by the interlocutors through the use of information design resources.

*infográfico,
câncer de pênis,
design da informação*

Medidas profiláticas para a saúde íntima dos homens se tornam necessárias ao se observar a alta incidência do câncer de pênis no Maranhão, em sua maioria causados por má higiene e pouco acesso à informação. Elaborou-se uma pesquisa para identificar a maneira mais eficaz de apresentar estas informações. Os resultados culminaram em uma proposta que considera os fatores que influenciam na percepção e absorção do conteúdo, para que a mensagem seja compreendida de maneira mais eficiente pelos interlocutores mediante o uso de recursos de design da informação.

1 Introduction

According to the International Agency for Research on Cancer, Maranhão is the state with the highest incidence of penile cancer worldwide (IARC apud Rêgo, 2020). It has been found that many cases are due to the lack of necessary information, but research indicates that it occurs much more in the low-income population. According to Vieira et al. (2020, apud Moraes, 2020), Maranhão's patients affected by the disease,

[...] take more than a year and a half between the first sign of the disease and the beginning of treatment, in general, because they are very poor patients, with low educational background, difficulty in access to health care, and there is also the issue of modesty, the issue of shame, this also

delays. Through this scenario, it means that we have all these factors more intensely. We are in one of the poorest states in Brazil, with development indexes compared to the worst countries in the world, it is certainly a factor that helps a lot (Vieira et al. 2020, apud Morais, 2020).

It is noteworthy that the health of the male sexual organ is permeated by numerous suppressions and myths in the form of prejudice such as misogyny and LGBT phobia. These prejudices deprive boys and men of having full knowledge on how to preserve intimate health, which can lead to several types of illness, such as penile cancer. The disease affected at least 10,265 Brazilians between 2016 and 2020, according to data from Agência Brasil (Rodrigues, 2021), and may result in amputation of the organ.

Because of these problems, this study aims to present how Informational design can contribute to alerting the population of Maranhão about the worrying number of penile cancer cases in the state, and to make information such as prevention measures and treatment options more accessible.

2 Theoretical reference

2.1 Penile cancer in Maranhão

Penile cancer is a rare neoplasm, which affects approximately 1/100,000 men in developed countries, while a high incidence can be identified in developing countries, including Brazil. According to Lindoso et al. (2018), more than 4600 cases were reported in 2013 by the National Cancer Institute, mostly in the northeast region, coming close to half of the documented cases. It affects mainly men over 50 years of age, especially those who smoke, have phimosis, or have human papillomavirus (HPV). The occurrence of the disease is related to socioeconomic issues, such as low schooling and inadequate intimate hygiene (Dourado & Souza, 2015).

The lack of information and basic sanitation resulting from the low human development index of Maranhão influences the high number of cases, since the preventive measures are simple and easily accessible, but rely on basic sanitation, which is lacking for a great part of the people of the state.

The aforementioned socioeconomic factors also include sexist habits that jeopardize doctor-patient communication and the search for care at the signs of the first symptoms, as commented by Oliveira et al. (2020, p. 1529).

The male difficulty in exposing health needs is a reflection of the ideal of invulnerability associated with the relatively detached attitude of health professionals, who usually grant men less care and clarity. In the case

of penile cancer, sexism acts as an obstacle to its prevention (condom use, personal hygiene, circumcision) and treatment (men do not accept being sick).

Despite the taboos involving male intimate health, hygiene and regular visits to the urologist are essential to avoid the disease, or at least to have an early diagnosis and adequate treatment that decreases the chances of organ amputation or death. To do so, it is necessary to perform a monthly penile self-examination, in search of suspicious-looking lesions. In this sense, access and understanding of information are essential.

2.2 Informational Design and Infographics

The Brazilian Society of Information Design SBDI (2020) defines information design as:

[...] an area of Design whose purpose is the definition, planning, and configuration of the content of a message and the environments in which it is presented, to satisfy the informational needs of the intended receivers and promote communicative efficiency.

Infographics have much to contribute to facilitating access to information since it is often forgotten that reading textual information is not something natural, but rather, learned repetitively, through instruction and practice. For Pettersson (2010, p. 180) infographics aid in the absorption of information since “Memory for pictures is superior to memory for words” and our “receptors are better able to build connections between verbal and visual representations when text and illustrations are actively held in memory at the same time”.

Infographics correspond to the graphic record of information, by combining verbal and iconographic languages, with the predominance of the second. An infographic should be self-explanatory and can dispense the text (Moraes, 1998). For Carvalho and Aragão (2012, p. 163) an infographic consists of an “artifact produced to communicate a message that composes an interpretation of quantitative, spatial, narrative and/or chronological data, visually contextualized through the integration of text, images and/or shapes.”

3 Methodology

For the development of the infographic, it was used the framework adapted from Carvalho and Aragão (2012) (Figure 1). It was divided into 3 (three) phases: conception, execution, and finishing.

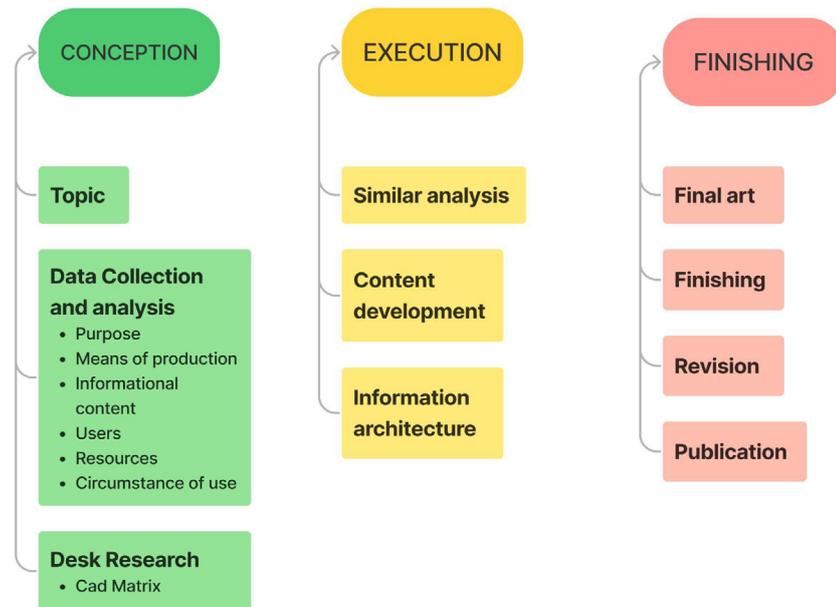


Figure 1 Steps and procedures for creating the infographic.
Source: Elaborated by the authors based on Carvalho and Aragão (2012).

3.1 Conception

According to Carvalho and Aragão (2012), the infographic begins with the suggestion of a theme to be discussed and published. The next step is researching the content and how it will be exposed. In this step the objective of this infographic was defined; the users to whom the infographic would be addressed; the means of production; the circumstances of use, defining the platform to which it would be sent and the proper format; the resources; and finally, the informational content, defining the information needed to achieve the proposed goal.

For this, desk research was created. The desk research acts as a preface to the primary research, providing a survey of the literature documenting the development of the design process (Design Council, 2007). Then, the CAD matrix was used, which is, according to Santos et al (2021), a way to organize the team's prior knowledge about the topic, breaking it down to direct the search for answers that will support the decisions to be made by the group. It, therefore, aims to organize information about some subject or problem into three basic columns: certainties, assumptions, and doubts.

There was also direct information from the audience of interest, through an online questionnaire format interview using the platform Google Forms, with 14 questions, with men from Maranhão, aged over 30, with different levels of education and socioeconomic conditions.

3.2 Execution

The second stage began with the research and analysis of similar and, aesthetic inspirations. In the sequence, it follows for the elaboration of the information, construction of the architecture, and finally, the infographic's layout.

3.3 Finishing

Final art and finishing details were produced and the infographic was reviewed. After the critical analysis of the work, the same can be published.

4 Results and discussions

4.1 Results of the conception phase

How to avoid Penile Cancer? This question was the topic for the elaboration of the infographic, given the high incidence of the disease in the state. The objective of the infographic became the awareness of Maranhão's residents about prophylaxis of penile cancer, considering the need for dissemination of information that encouraged the care of intimate health for the male population.

Keeping in mind the main goal of the infographic, the audience of interest was defined considering the part of Maranhão's population most affected by penile cancer: men over 30, with emphasis on those over 50. For the infographic's dissemination, the Whatsapp messaging application was chosen. According to Purz (2022), 96% of Brazilians have Whatsapp as the preferred messaging vehicle, for the pleasant and easy-to-use interface and in particular, for allowing free messaging. Thus, the format of the infographic was defined as a digital graphic piece for WhatsApp in the format 1200 × 1800 px.

The data needed for the next stage, the execution, were obtained from the desk research. The theoretical reference and information collected were organized in the CAD matrix between certainties, assumptions, and doubts (Figure 2).

The doubts and other data that were relevant for the characterization of the persona and definition of the graphic parties to be adopted were obtained after the results of the interview, with the collaboration of a sample of the public of interest. 6 respondents answered the questions available in Figure 3.

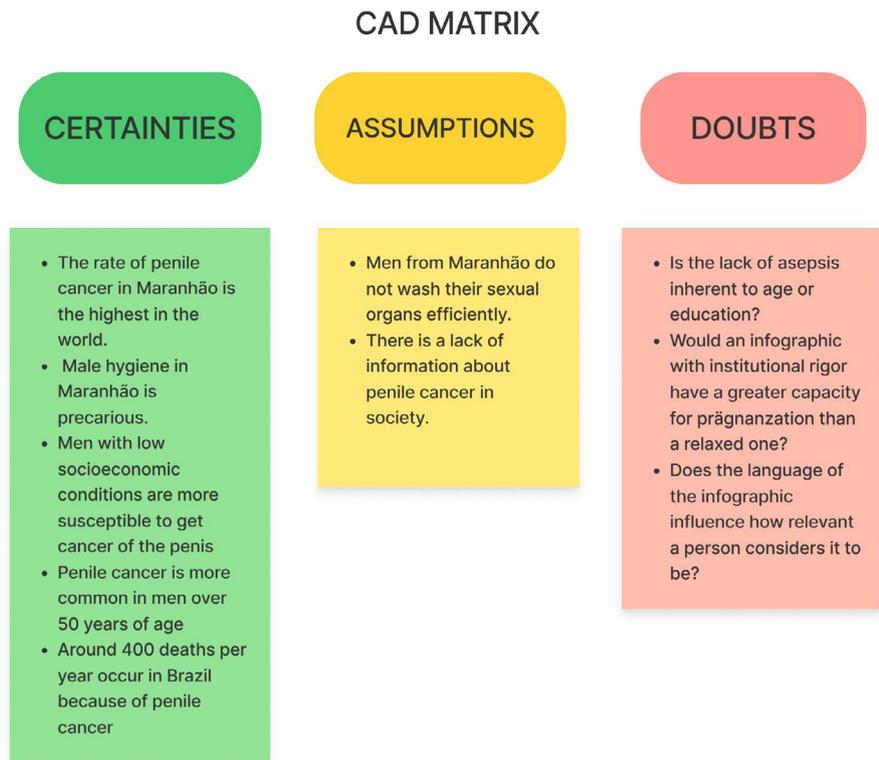


Figure 2 Matrix of certainties, assumptions, and doubts.
Source: Elaborated by the authors (2022).

The sample space of the interview was characterized by men over 30 years old, with secondary school education and monthly income between one and 10 minimum wages. 5 of them had annual medical follow-up (general physician), but only 3 respondents visited the urologist annually. The financial factor is the main obstacle, but 1 reported facing embarrassment to be able to consult with a urologist. Considering the income and access to information of the sample space, the answers about attention to intimate hygiene result in an approximate average of 4 points on the Likert scale, where the extreme 5 corresponds to excellent care and hygiene.

5 respondents find it difficult to find information about penile cancer and intimate health care but would like to know more about the subject. However, there are controversies regarding talking about the subject with friends and family members – 3 of the respondents speak naturally about the subject, including sharing personal hygiene tips, while the other 3 avoid talking about the subject with anyone but their doctor. Although for many the topic is taboo, the majority chose a friendly tone of voice (4 respondents) and humorous illustration style (3 respondents) for presenting information about penile carcinoma.

QUESTION SCRIPT

1. What is your age group?
2. What is your schooling level?
3. What is your approximate monthly income?
4. How often do you go to the doctor (general physician) for a "checkup"?
5. How much does the financial factor jeopardize your access to the doctor for general consultations?
6. How often do you see a urologist?
7. How much does the financial factor jeopardize your access to the urologist doctor?
8. Have you ever missed urologist appointments due to embarrassment?
9. How much attention do you pay to your intimate area? (this includes cleansing and caring of your penis, such as regular changing of underwear throughout the day and sanitizing after urination)
10. Do you think that the amount of information about men's intimate area care and penile cancer is low?
11. Are you interested in information about male intimate area care and penile cancer?
12. In your social circles, do you and your friends usually talk about intimate health?
13. Based on the images, which one, in your opinion, would most attract your attention to convey information in a close and comfortable manner about the male sexual organ?
14. In what way do you feel most comfortable talking about intimate health care?

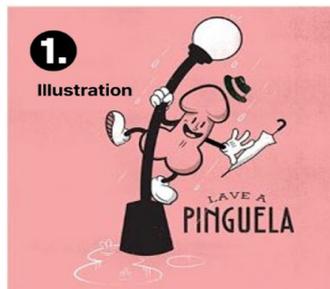


Figure 3 Question script and figure referring to question 13.
Source: Elaborated by the authors (2022).

At the end of the data collection and analysis, a panel of insights was organized to answer the questions and confirm the certainties of the CAD matrix. These insights served as the basis for the elaboration of the infographic's text and for the definition of the graphic parties and how the information would be architected (Figure 4).

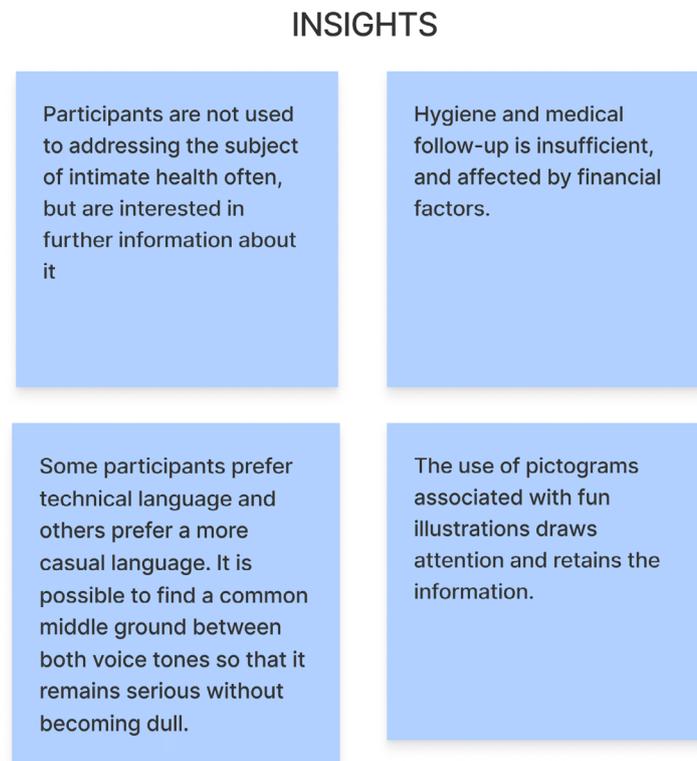


Figure 4 Insights from the results of the users' interviews.
Source: Elaborated by the authors (2022).

4.2 Results of the execution phase

According to the insights elucidated from the users' interviews and the CAD matrix, it was found that the infographic should have a balance between a humorous tone of voice and serious scientific data, considering that the topic of male intimate health is still taboo and must be approached subtly. For that reason, the technical language common to health care instructions is combined with more colloquial expressions such as the puns "don't step on eggs" and "watch out for the knife", a catchphrase made popular by the character Patrick in the humor Tv Show "Zorra Total". These subtitles were inspired by the humorous catchphrases used as a resource to approach the audience of interest on the Instagram "Lave o Dito Cujo", a project that invites national graphic artists to develop posts encouraging men to wash their sexual organs as a way to prevent Penile Cancer and other STI's (Figure 5).



Figure 5 Example of a post made on Instagram “Lave o Dito Cujo”. Source: @laveoditocujo, Instagram (2020).

The title of the infographic uses the fish as a pun, repeating a common joke among men that consists of praising the size of the phallus. The tambaqui refers to the male genital organ, and the size to which the phrase “Maranhão’s man has the largest tambaqui in the world” refers to is the exorbitant number of cases of penile cancer.

The informational content was chosen based on the main necessities brought up by the users’ interviews: the symptoms, the prophylactic measures, and why it is so important to prevent this disease. First, the high incidence of the disease in Maranhão compared with the worldwide rates was brought up. Then, the signals of penile cancer were listed, as well as the main consequence of late medical follow up which is amputation of the organ. Finally, hygiene tips and other measures of prevention were presented, as well as the recommendation of consulting a urologist regularly. Data from medical scientific papers and statistics released in news portals collected during the desk research were used to write the textual material.

The graphic parties and the final layout are better justified in the following image (Figure 6).

GRAPHIC PARTIES

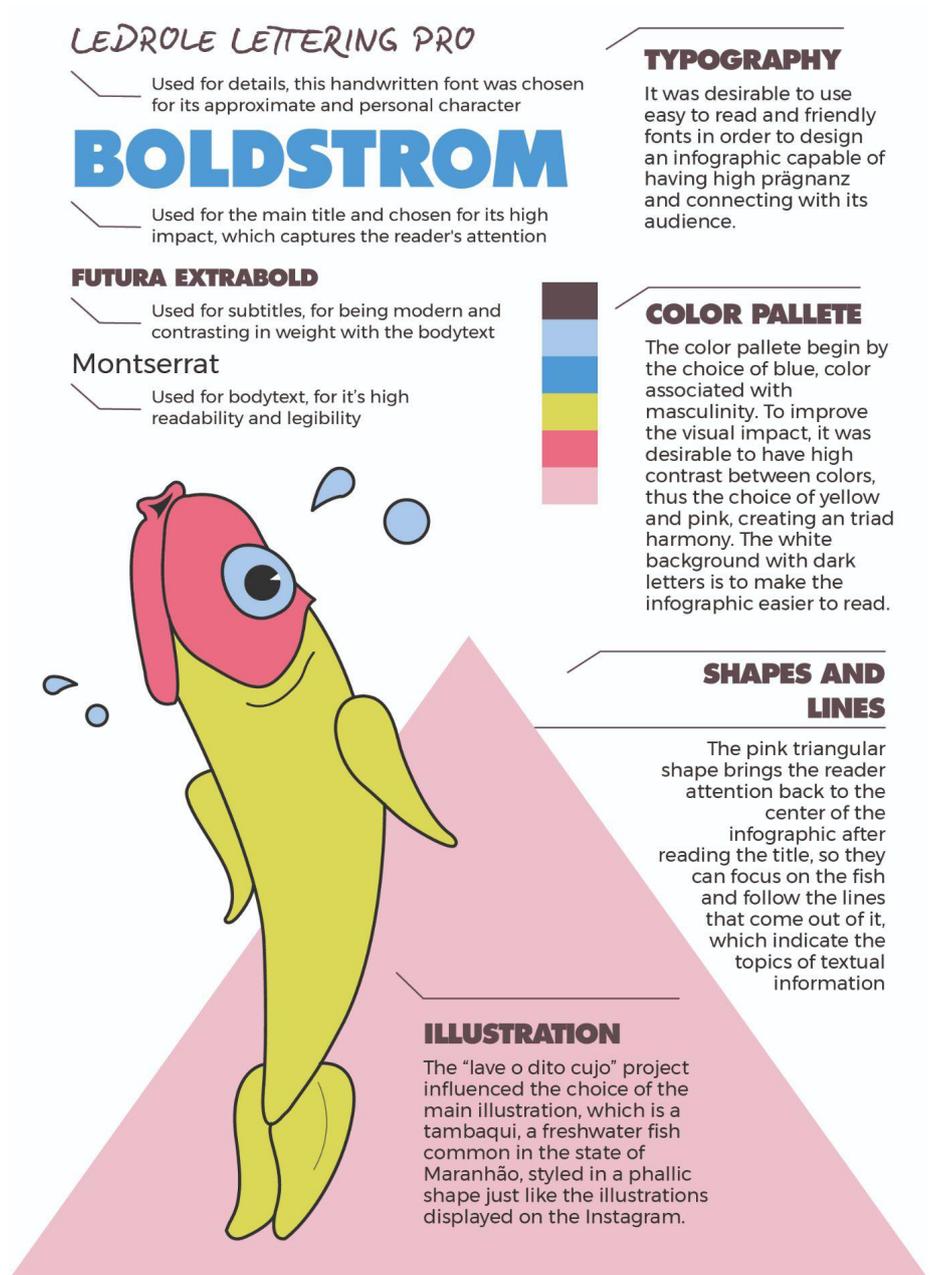


Figure 6 Graphic parties. Source: Elaborated by the authors (2021).

4.3 Results of the finishing phase

As result, an illustrated infographic was built (Figure 7), approaching the theme in a fun way but treating the subject with the seriousness it needs when it comes to health advice. The final piece was revised and can be seen in a simulation of the medium in which it will be published (Figure 8).



Figure 7 Infographic. Source: Elaborated by the authors (2022).

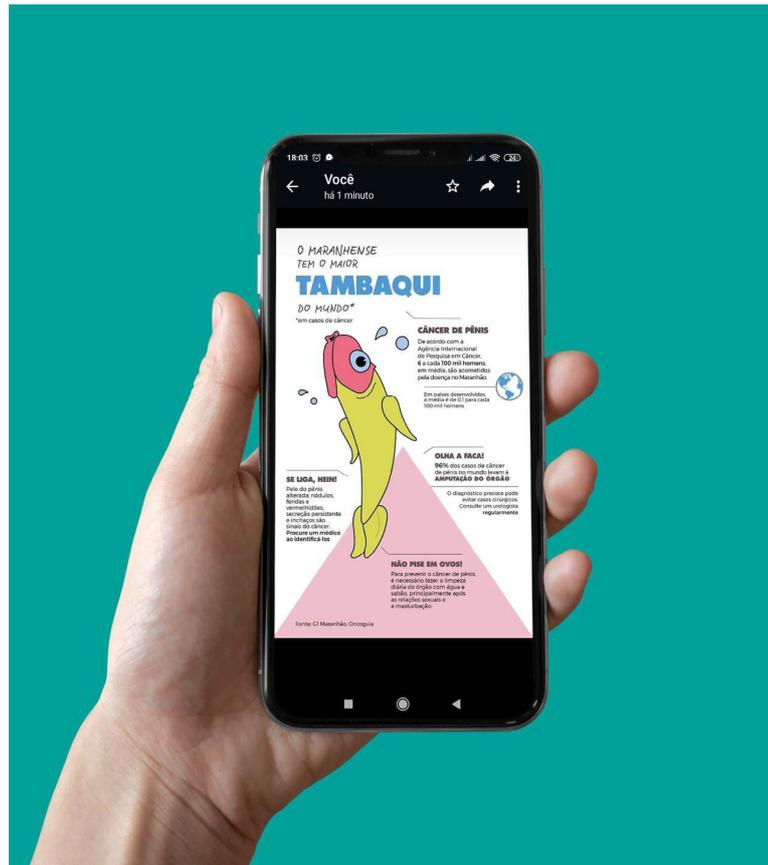


Figure 8 Figure 8 - Mockup of the infographic on a cell phone. Source: Elaborated by the authors (2022).

5 Conclusion

After this study, it can be concluded that design has much to contribute to the health area, especially when it comes to informational design. Patients having access to information, and – most importantly – being able to comprehend this information is essential to prevent and treat any disease better. Design can help to democratize that access by creating informational products that display the content in more digestible ways to the audience.

According to that, it is presumed that the presentation of data using imagery and a strategic arrangement of information combined with the use of humor is more effective for the prägnanz of the content compared to the running informative text in scientific language. The observation of the infographic as a whole, by relying on an eye-catching image such as the phallic tambaqui and the lines that lead to the informational topics, is essential to capture the reader's attention and facilitate comprehension, which is the first step to raising awareness of the need for prevention of penile cancer and ultimately, the decrease in incidence by the effectiveness of prophylactic measures.

The publication of the infographic in the chosen support and the directing of the final piece to the public of interest are awaited so that the assumptions around the results can be validated.

References

- Augusto, D. [@laveeditocujo]. (2020, 4 jan.). Lave a Banana [Instagram photograph]. Retrieved from https://www.instagram.com/p/B65pLjSF9m_/
- Carvalho, J., & Aragão, I. (2012). Infografia: Conceito e prática. *Infodesign: Revista Brasileira de Design da Informação*, 9(3), 160-177.
- Design Council. (2007). Eleven lessons: Managing design in eleven global companies. *Desk research report*. London: Design Council. Retrieved from https://www.designcouncil.org.uk/fileadmin/uploads/dc/Documents/ElevenLessons_Design_Council%2520%25282%2529.pdf
- Dourado, S. M. M., & Souza, V. C. (2015). Câncer de pênis no Brasil: Um problema de saúde pública. *Revista Brasileira de Oncologia Clínica*, 11(40), 58-59.
- IARC apud Rêgo, D. (2020). Homens maranhenses lideram ranking de câncer de pênis no mundo, aponta estudo. *O Imparcial*. Retrieved from <https://oimparcial.com.br/saude/2020/07/homens-maranhenses-lideram-ranking-de-cancer-de-penis-no-mundo-aponta-estudo/>
- Lindoso, G. S. et al. (2018). Epidemiologia e estratégias de prevenção do câncer de pênis no estado do Maranhão. *Revista de Investigação Biomédica*, 10(3), 237-242.
- Moraes, A. (1998). *Infografia: O design da notícia*. Dissertação (Mestrado em Design). Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro.
- Morais, D. (2020). Pesquisadores alertam para o alto índice de câncer de pênis no Maranhão. *Empresa Brasileira de Serviços Hospitalares*. Retrieved from <https://www.gov.br/ebserh/pt-br/hospitais-universitarios/regiao-nordeste/hu-ufma/comunicacao/noticias/pesquisadores-alertam-para-o-alto-indice-de-cancer-de-penis-no-maranhao>
- Oliveira, R. T. V. et al. (2020). Prevenção do câncer de pênis e a valorização da saúde do homem. *Brazilian Journal of Health Review*, 3(2), 1527-1530.
- Pettersson, R. (2010). Information Design: Principles and guidelines. *Journal of Visual Literacy*, 29(2), 167-182.
- Purz, M. (2022). Números atuais do WhatsApp no Brasil e o potencial do app para negócios. *Messenger People*. Retrieved from <https://www.messengerpeople.com/pt-br/whatsapp-no-brasil/#:~:text=Com%20quase%20120%20milh%C3%B5es%20de,meio%20predileto%20para%20mandar%20mensagens>
- Rodrigues, A. (2021). Câncer de pênis atingiu mais de 10 mil brasileiros nos últimos 5 anos. *Agência Brasil*. Retrieved from <https://agenciabrasil.ebc.com.br/saude/noticia/2021-02/cancer-de-penis-atingiu-mais-de-10-mil-brasileiros-nos-ultimos-5-anos>
- Santos, B. R. de C., Saraiva, L. B., Ruschival, C. B., Santos, A. V. de O., Silva, E. J. L. A. da, Dias, L. V., & Kuwahara, N. (2021). Double diamond method for designing an app: 'Move in' to health and wellness. *DAT Journal*, 6(4), 314-337. <https://doi.org/10.29147/datjournal.v6i4.507>

Sociedade Brasileira de Design da Informação [SBDI]. (2020). Retrieved from <http://www.sbd.org.br/definicoes>

Vieira, C. B., Feitoza, L., Pinho, J. et al. (2020). Profile of patients with penile cancer in the region with the highest worldwide incidence. *Sci Rep*, 10, 2965. <https://doi.org/10.1038/s41598-020-59831-5>.

About the authors

Letícia Maria Muniz Lobo

leticiamunizcontato@gmail.com
Federal University of Maranhão
São Luís, MA

Ana Carolina Garcia Ribeiro

carolinagaribeirol@gmail.com
Federal University of Maranhão
São Luís, MA

Maria Isabelle Silveira da Silva

isabelle.maria@discente.ufma.br
Federal University of Maranhão
São Luís, MA

Nicole Kareen Conceição Mendes

nicole.mendes@discente.ufma.br
Federal University of Maranhão
São Luís, MA

Lívia Flávia de Albuquerque Campos

livia.albuquerque@ufma.br
Federal University of Maranhão
São Luís, MA

Submission date/*Artigo recebido em*: 20/5/2022

Approval date/*Artigo aprovado em*: 16/9/2022