User-centered customization options in consumer health information materials on type 2 diabetes mellitus

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Background

Health literacy is essential for making informed health-related decisions, acting independently, and making autonomous decisions on health issues. A significant determinant of health literacy is the relationship between a person's personal abilities and the health information services available in their specific environment (1,2). The challenge is to deliver understandable consumer health information materials (CHIMs) effectively to consumers that are tailored to their health status, disease knowledge, skills, specific needs, and individual preferences.

Methods

We conducted a comprehensive search for CHIMs across different types of media, such as websites, apps, videos, and printed or printable forms. A representative sample of CHIMs was obtained for analysis through blocked randomization across six different media groups. The sample was supposed to be equally distributed across the different media to avoid over-representation of individual publishers or media companies. A quantitative content analysis was conducted to identify trends and variations in customization options among the various media types.

Aim

The aim of our research was to analyze different types of media of consumer health information on type 2 diabetes mellitus (T2DM) regarding user-centered customization options. We hypothesized that current CHIMs typically provide a 'one-size-fits-all' approach.

Results

Our representative sample consisted of 114 CHIMs. In this sample, we identified a total of 24 different user-centered customization options, which we grouped into five main categories of customizations (see Table 1). None of the printed/printable health information provided the option to customize the information.

Table 1: Kinds and frequencies of user-centered customization options in CHIMs on T2DM

User-centered customization options	Types of media of consumer health information					
	WDO (n=19)	WOO (n=19)	p-HI DO (n=19)	p-HI OO (n=19)	App (n=19)	Video (n=19)
(1) Language customization	**6 (32%)**	**8 (42%)**	**0**	**0**	**4 (21%)**	**15 (79%)**
Language of content	6 (32%)	8 (42%)	0	0	4 (21%)	0
Language of subtitles	na	na	na	na	0	15 (79%)
(2) Medical content customization	**1 (5%)**	**2 (11%)**	**0**	**0**	**0**	**na**
Level of detail of information	0	1 (5%)	0	0	0	na
Prioritization of information	1 (5%)	1 (5%)	na	na	0	na
(3) Presentation customization	**0**	**2 (11%)**	**0**	**0**	**0**	**na**
Different visualization types	0	2 (11%)	0	0	0	na
(4) Text customization	**2 (11%)**	**4 (21%)**	**na**	**na**	**2 (11%)**	**15 (79%)**
Font and background (n=12) [a]	2 (11%)	3 (16%)	na	na	1 (5%)	15 (79%)
Text to speech (n=5) [b]	1 (5%)	3 (16%)	na	na	1 (5%)	na
(5) Audiovisual customization	**na**	**na**	**na**	**na**	**1 (5%)**	**18 (95%)**
Playback speed	na	na	na	na	0	18 (95%)
Audio transcription	na	na	na	na	1 (5%)	15 (79%)
Total customization options across all main categories, n (%[c])	**9 (12%)**	**16 (21%)**	**0**	**0**	**7 (7%)**	**48 (84%)**
Total modifiable features, n (%[d])	**14 (4%)**	**38 (10%)**	**0**	**0**	**9 (2%)**	**198 (65%)**

[a] font style, font size, font color, font opacity, text spacing, character edge style, color of the text background, color of the text field, opacity of the text background, opacity of the text field, screen masking, show or hide subtitles; [b] read aloud only, highlighted read aloud text, automatic scrolling of reading text, reading speed, reading volume; [c] calculation refers to all possible adaptable categories; [d] calculation refers to all possible modifiable features; na: not applicable; p-HI DO: printed/printable health information of diabetes organization; p-HI OO: printed/printable health information of other organization; WDO: website of diabetes organization; WOO: website of other organization

Overall, almost 65% of the analyzed CHIMs did not offer any option for users to tailor the health information according to their needs and preferences. We observed that the provision of the identified possibilities of customization was limited through the different media. We did not find a single CHIM across various types of media that provided customization options in all the categories in which it would have been theoretically possible. In our representative sample, we determined a disparity in the implementation of at least one customization option across the different types of media. In particular, only 5 out of the 19 analyzed apps (26%) provided users with the opportunity to make any adjustments, whereas almost all of the videos (18 out of 19; 95%) did. Additionally, we identified a discrepancy in the occurrence of customization options among websites, i.e. 11 out of 19 websites of other organizations (58%) provided some form of modification, while only 7 out of 19 websites of diabetes organizations (37%) did so (Figure 1).
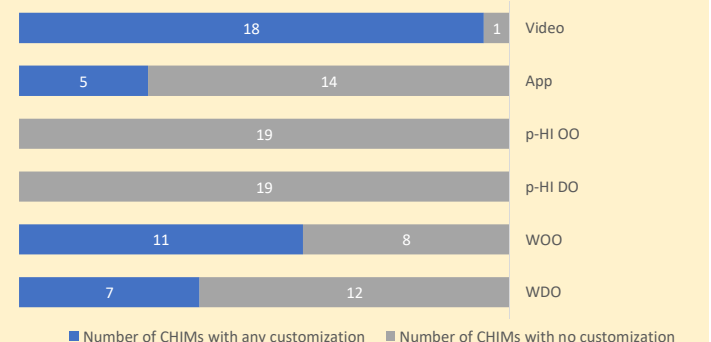

■ Number of CHIMs with any customization ■ Number of CHIMs with no customization

Figure 1: Number of CHIMs with customization options in different media

Conclusion

The results confirmed our hypothesis that existing CHIMs on T2DM predominantly employ 'one-size-fits-all' user interfaces and provide few options for users to select or pre-select the preferred medical content, form of presentation and level of detail of information according to their individual situation and needs. Further research is needed to investigate the effectiveness of different customization options and their impact on user accessibility, engagement, and health literacy, as well as the potential barriers for implementing more complex customization options.

References:
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