

Introduction

- Hepatitis B is a vaccine preventable disease that greatly predisposes an infected individual to hepatocellular carcinoma. Serological evidence has shown approximately 30% of the world's population to have a current or past infection with Hepatitis B, and Asian Americans comprise 60% of individuals afflicted by chronic Hepatitis B
- Studies have shown that at risk Asian Americans for Hepatitis B use the internet as their most common form of health information.
- This study identified and analyzed the most popular Hepatitis B websites in the United States based on a multi-metric evaluation method to determine which websites most effectively delivered appropriate medical information to at risk health consumers.
- The aim of this study was to evaluate the quality, content, and readability of the most popular Hepatitis B websites in the United States based on criteria of design, credibility, accessibility, literacy, engagement, content, and cultural sensitivity.

Aims and Objectives

Aim I: To evaluate the quality, content, and readability of the most popular Hepatitis B websites in the United States based on criteria including website design, credibility, accessibility, literacy, engagement, content, and cultural sensitivity.

Aim II: To determine which of the most popular websites for Hepatitis B effectively provided health information in the most accessible and equitable way for all health consumers regardless of educational background, literacy level, or cultural background

Aim III: To identify any gaps within the information provided on the most popular websites for Hepatitis B in relation to the most at risk Asian American populations.

Methods

- Eight of the top Hepatitis B websites in the United States were identified through a comprehensive, multiple-query search
 - 2 different web browsers used – set in privacy mode (Command + Shift + N)
 - Safari
 - Chrome
 - 3 search engines used
 - Google
 - Bing
 - Yahoo
 - Search term: "Hepatitis B"
 - Websites included in the study:
 - To ensure that the assessed websites are seen by majority of people searching for information on Hepatitis B, the website has to be present in the 6 pages of search results from the multiple-query search
- The multimetric evaluation of each website was performed based on seven factors (design, credibility, accessibility, literacy, engagement, content, and cultural sensitivity) which are generally considered key indicators for quality in online content.
 - These factors were operationalized based on an evaluation tool used in a previous study that conducted similar analyses of health literacy in websites⁷

Table 1: Organizations and uniform resource locator (URL, i.e. web address) for the assessed websites

Organization	URL
1. CDC	https://www.cdc.gov/hepatitis/hbv/index.htm
2. Mayo Clinic	https://www.mayoclinic.org/diseases-conditions/hepatitis-b/symptoms-causes/syc-20366802
3. WHO	https://www.who.int/news-room/fact-sheets/detail/hepatitis-b
4. WebMD	https://www.webmd.com/hepatitis/digestive-diseases-hepatitis-b
5. HepB Org	https://www.hepb.org/what-is-hepatitis-b/what-is-hepb/
6. Health Line	https://www.healthline.com/health/hepatitis-b
7. NIDDK	https://www.niddk.nih.gov/health-information/liver-disease/viral-hepatitis/hepatitis-b
8. Wikipedia	https://en.wikipedia.org/wiki/Hepatitis_B

Results

Data analysis revealed that all eight websites in general performed well on most of the criteria on design, accessibility, credibility, engagement, and content. However, 6 out of the 8 websites were lacking in the criteria of literacy while 4 out of the 8 websites were lacking in the criteria of cultural sensitivity (see Tables 1 and 2).

Table 2: Overall evaluation of organizations and factors

Organization	Design (%)	Accessibility (%)	Credibility (%)	Literacy (%)	Engagement (%)	Content (%)	Cultural Sens. (%)	Average (%)
CDC	96.3	84.6	62.5	40	100	81.8	71.4	76.7
Mayo Clinic	92.6	75	87.5	33.3	77.8	81.8	71.4	74.2
WHO	96.3	76.9	50	20	62.5	81.8	57.1	63.5
WebMD	92.6	84.6	87.5	66.7	75	81.8	57.1	77.9
HepB Org	92.6	69.2	37.5	40	60	81.8	71.4	64.6
Health Line	92.6	75	87.5	33.3	88.9	81.8	28.6	69.7
NIDDK	96.3	84.6	62.5	60	90	81.8	71.4	78.1
Wikipedia	92.6	84.6	87.5	20	16.7	81.8	28.6	58.8
Average	94.9	79.4	70.3	39.2	71.4	81.8	57.1	

Conclusions

- Overall, the study results reveal a high level of readability and a low level of cultural sensitivity in top websites on Hepatitis B targeted to patients and health consumers.
- Amongst the websites analyzed in the studies, the CDC, Mayo Clinic, WebMD, and NIDDK (under NIH) scored higher than other websites on average based on the multimetric evaluation of seven criteria.
- The results inform health care providers and patients and health consumers of popular websites and their quality when seeking health information about Hepatitis B on the Internet.
- The study suggests a greater need for creating culturally sensitive Hepatitis B resources offered at more appropriate literacy levels and languages for at risk populations

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