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Introduction

Adolescence is a critical period of development characterised by changes in social skills and cognitive capabilities¹. Adolescents with Multiple Sclerosis (MS) have a specific cognitive profile relative to their peers, including diminished attention, processing speed, visuospatial skills, language and intelligence².

The internet is widely used by adolescents to access health information³. However, adolescent health websites do not take into account the neurodevelopmental profile of their users⁴⁻⁵. There has been no study looking at usability of health-information websites for adolescents with MS.

Objectives

1. To determine what adolescents generally prefer and find difficult when using health-information websites.
2. To develop a neurodevelopmental model and design brief from adolescent feedback which could help inform the development of a health-information website for adolescents with MS.

Methods

A systematic review was conducted and reported using PRISMA recommendations⁶. The literature search was carried out in April 2018 using Pubmed, PsycINFO and ERIC (see figure 1).

Eligibility criteria:

- Peer-reviewed English studies from year 2000
- Adolescents aged between 13-17 years
- Studies evaluating usability for a specific health-information website

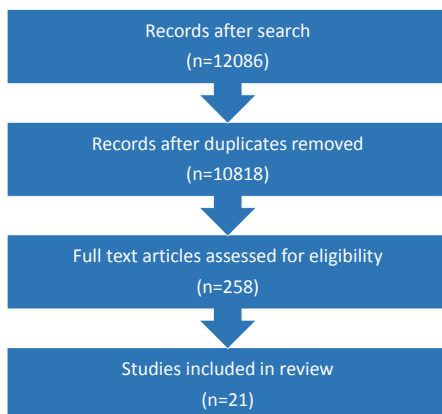


Figure 1. Flow chart of selection process of studies

Results

A total of 2554 participants were recruited across all 21 studies, with a mean age of 15.6 years. Adolescents were mostly from a non-clinical population (81.8%).

Studies evaluated health-information websites designed for specific health issues, such as weight management, anxiety, depression, migraines and cancer (see Figures 2 and 3 for example of website sections). Adolescents preferred websites with interactive content and social networking features. Adolescents did not like websites that were difficult to access or were too cluttered (see Table 1).

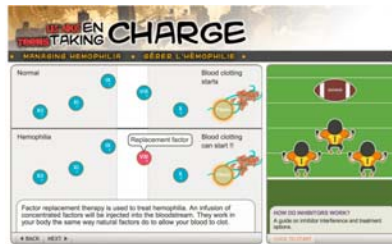


Figure 2. Interactive section in website⁷



Figure 3. 'Ask the Expert' section in website⁸

Table 1. Adolescent feedback about usability of health websites and recommendations

| | Adolescents' feedback of specific websites | Recommendations from adolescents |
|---------------------|--|---|
| Visual appearance | <ul style="list-style-type: none"> ✓ Bright colours ✗ Blank space ✗ Too much text | More colour |
| Navigation burden | <ul style="list-style-type: none"> ✓ Search features ✓ Use of hyperlinks ✗ Slow loading pages ✗ Difficult log-in | Search bar Drop-down menus Hyperlinks to other pages |
| Delivery of content | <ul style="list-style-type: none"> ✓ Videos ✓ Images, graphics, charts | Sound easy to control Clearly visible Videos not too long Images or graphics not difficult to comprehend Websites that were not too cluttered |
| Message source | <ul style="list-style-type: none"> ✓ Info from health professionals ✓ Questions from adolescents ✓ Vignettes and testimonials from adolescents ✓ Social networking | Structured answers from health professionals Positive testimonials from other adolescents |
| Participation | <ul style="list-style-type: none"> ✗ Gender imbalanced pages ✗ Unclear logo and website name | Make websites age-appropriate Adapt websites to both gender |
| | <ul style="list-style-type: none"> ✓ Quizzes ✓ Games ✓ Customised webpages | Interactive content |

Conclusions and Practice Implications

Adolescents have specific preferences for usability of health-information websites. The neurodevelopmental model and design brief from this review can help inform the development of a health-information website for adolescents with MS, as long as their unique cognitive profile is accommodated during website design.

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Conflict of Interests

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