Abstract

Background. Relatively little attention has been focused on whether or how the effects of reader characteristics, or of the linguistic properties of a text, predict reading comprehension of health-related information. In addition, there is little evidence for the utility of any of the writing guidelines promulgated by the National Health Service (NHS) in order to improve the comprehension of health information. Nonetheless, some previous research suggests that health-related texts could be adapted for different groups of users to optimise understanding. Thus, existing knowledge presents important limitations, and raises concerns with potentially far-reaching practical implications. To address these concerns, I investigated how variation in individual differences and in text features predicts the comprehension of health-related texts, examining how the effects of textual features may differ for different kinds of readers.

Method. In the study reported here, I used Bayesian mixed-effects models to analyse the influences that affect the accuracy of responses to questions probing the comprehension of a sample of health-related texts. I measured variation among 200 participants in their cognitive abilities, to capture the effects of individual differences, as well as variation in the linguistic features of texts, to capture the effects of text structure and content.

Results. I found that tested comprehension was less likely to be accurate among older participants. However, comprehension accuracy was greater given higher levels of education, health literacy, and English language proficiency levels. In addition, self-rated evaluations of perceived comprehension predicted comprehension, but only in the absence of other individual-differences-related predictors. Variation in text features, including readability estimates, did not predict comprehension accuracy, and there was no evidence for the modulation of the effects of individual differences by text features.

Discussion. Text features did not module the effects of individual differences to influence comprehension accuracy in any meaningful way. This suggests that adapting health-related texts to different groups of the population may be of limited practical value.

Implications. Individual differences really matter to comprehension. Thus, optimally, understanding of health-related texts amongst the end-users should be tested, and interventions to aid readers, such as those with relatively low health literacy levels, could be used to improve comprehension of health-texts. In the absence of sensitive measures of reader characteristics, and when testing of understanding is not possible, the use of end-user evaluations of health-related texts may serve as a useful proxy of tested comprehension. However, looking for text effects, and guidance focusing on text effects, seems less useful given the reported evidence. Consequently, the effectiveness of designing health-related texts with the consideration of NHS's text writing guidelines, is likely to be limited.