Outcomes of teaching students to edit medical content on Wikipedia

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ABSTRACT

Patients and medical professionals search the Internet for medical information, and Wikipedia is a commonly consulted source. The 25,000 medical articles on Wikipedia receive 200 million views per month. The content, however, can be edited by anyone, and most editors are not medical professionals. This results in content with variable quality. In addition, most medical professionals have no formal training on Wikipedia editing. Our goal was to empower medical students and physicians to improve and peer review Wikipedia content through interactive group editing sessions (edit-a-thons) and a medical elective (Nexus) course aimed at 1st and 2nd year medical students.

METHODS

In order to teach Wikipedia editing to the ISMMS community, we formed a student group and led a Nexus course. The student group organized monthly edit-a-thons, where the goal of each session was to interactively teach editing by asking each attendee to contribute one peer-reviewed reference and five edits to Wikipedia over a one to two-hour long session. The Nexus course was formed in collaboration with the Emergency Medicine department and focused on longitudinal editing of a single article.

After these teaching interventions, we were able to quantify the contribution of our new editing community and determine predictors of editor retention. We used WMFlabs to profile edits and bytes changed since inception of the student group, and performed statistics using the R programming language.

Figure 1. Each event has it's on Wikipedia page, and users enroll with a private key.

Figure 2. For every editing session, participants chose an article to edit based on their interests, article quality, and number of times the article is viewed per month. The students then head to the Wikipedia course page and assign themselves to one article for editing and a classmate's article for reviewing. (b) Article quality and page views are enumerated by Wikiproject:Medicine.
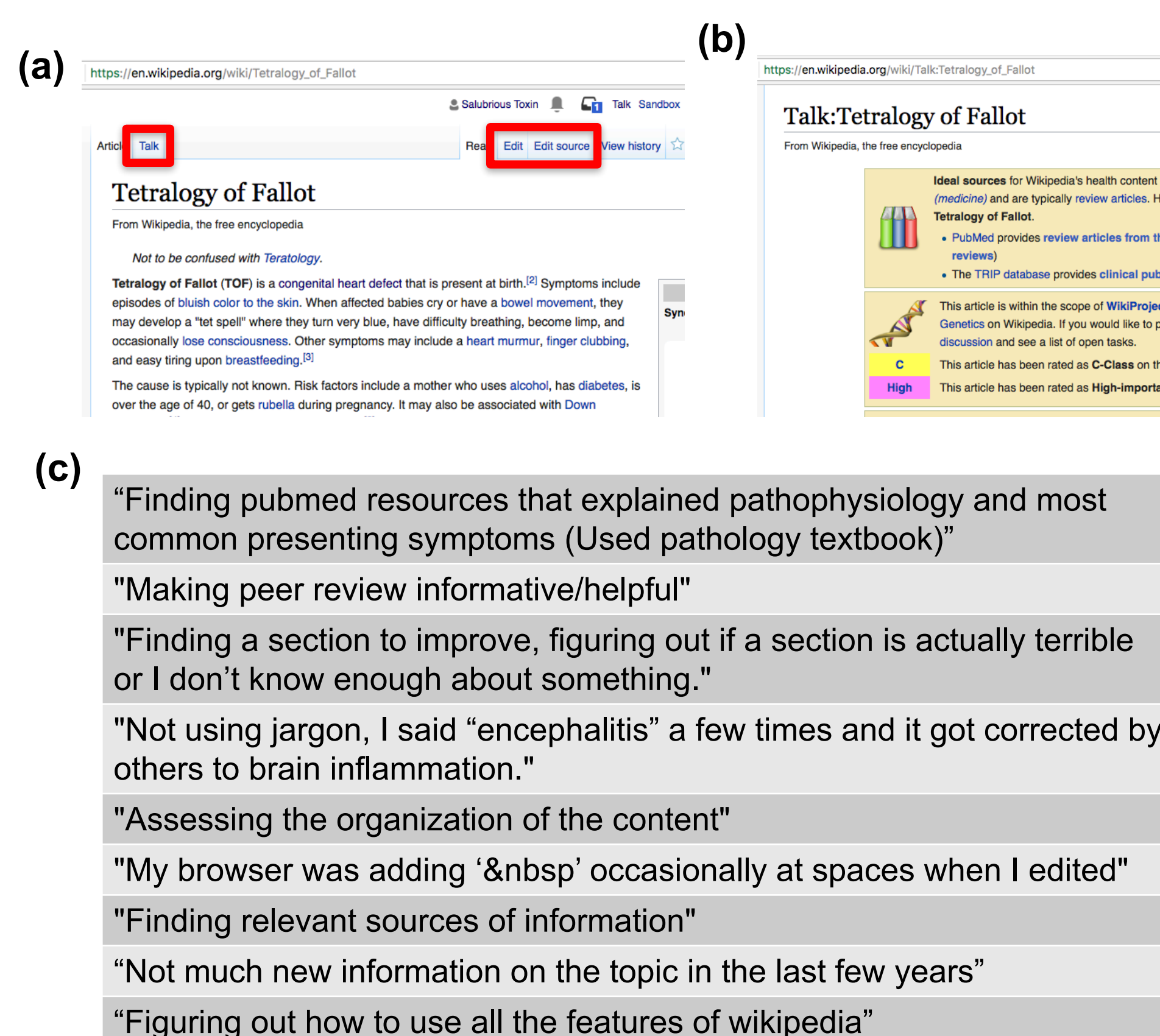
RESULTS

Figure 3. **Barriers to achieving teaching goals.** (a) The teaching goal was to familiarize medical professionals with the Wikipedia editing and peer review process (red boxes). (b) Each article has a "Talk" page with peer reviews and discussions. We prioritize articles with low quality scores and "high" importance. (c) We surveyed students on the challenges faced when editing.
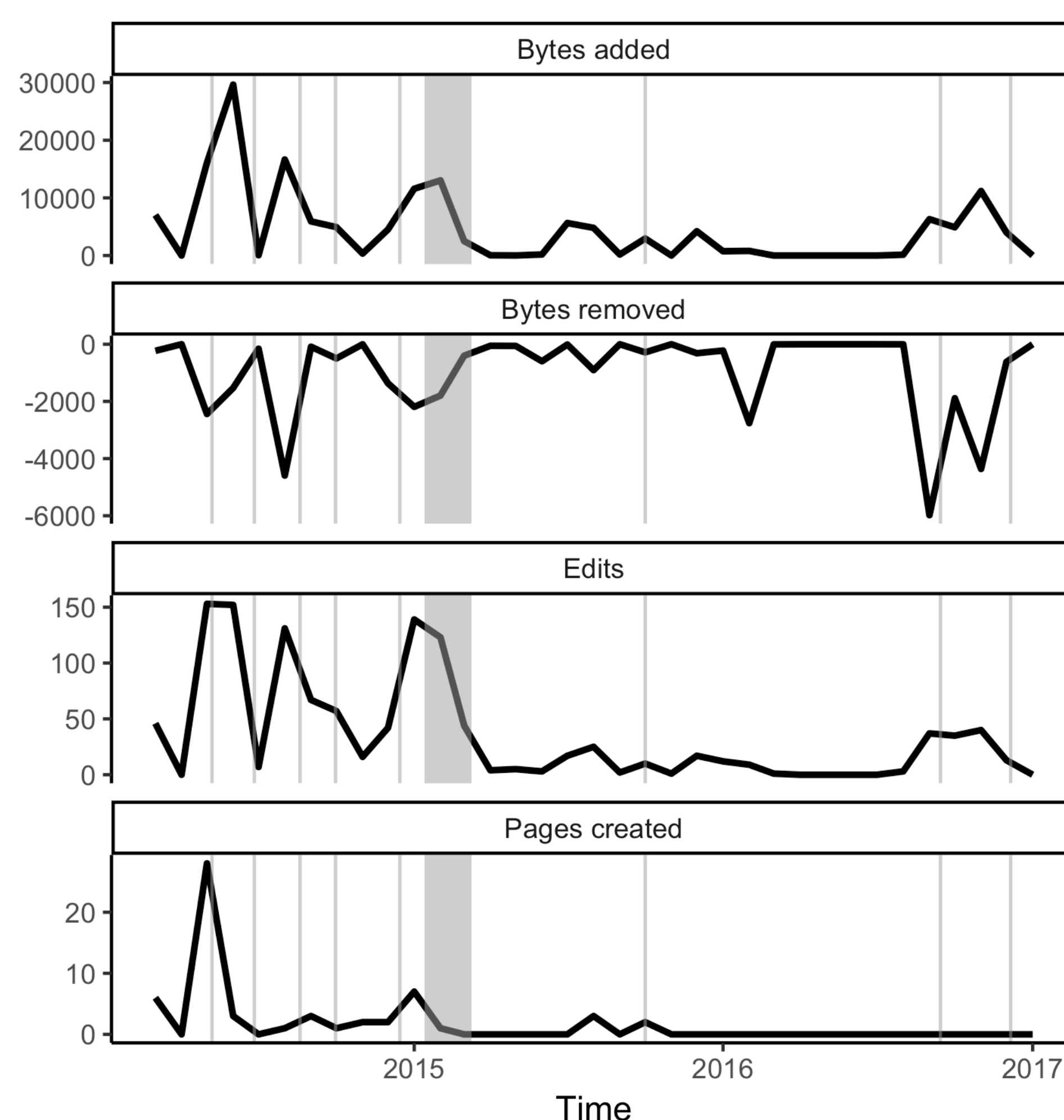
"Finding pubmed resources that explained pathophysiology and most common presenting symptoms (Used pathology textbook)"

"Making peer review informative/helpful"

"Finding a section to improve, figuring out if a section is actually terrible or I don't know enough about something."

"Not using jargon, I said "encephalitis" a few times and it got corrected by others to brain inflammation."

"Assessing the organization of the content"

"My browser was adding ' ' occasionally at spaces when I edited"

"Finding relevant sources of information"

"Not much new information on the topic in the last few years"

"Figuring out how to use all the features of wikipedia"

Figure 4. **Contributions.** Over 3 years, 28 students and physicians contributed 1211 edits, created 59 new pages and redirects, added 158,494 bytes, and removed 33,353 bytes from Wikipedia. Edit-a-thons are demarcated by vertical grey lines, and the Nexus course is demarcated by a shaded box. The most recent edit-a-thons had more bytes removed than added, reflecting the saturation of content on Wikipedia and emphasis on improving the quality of the content.
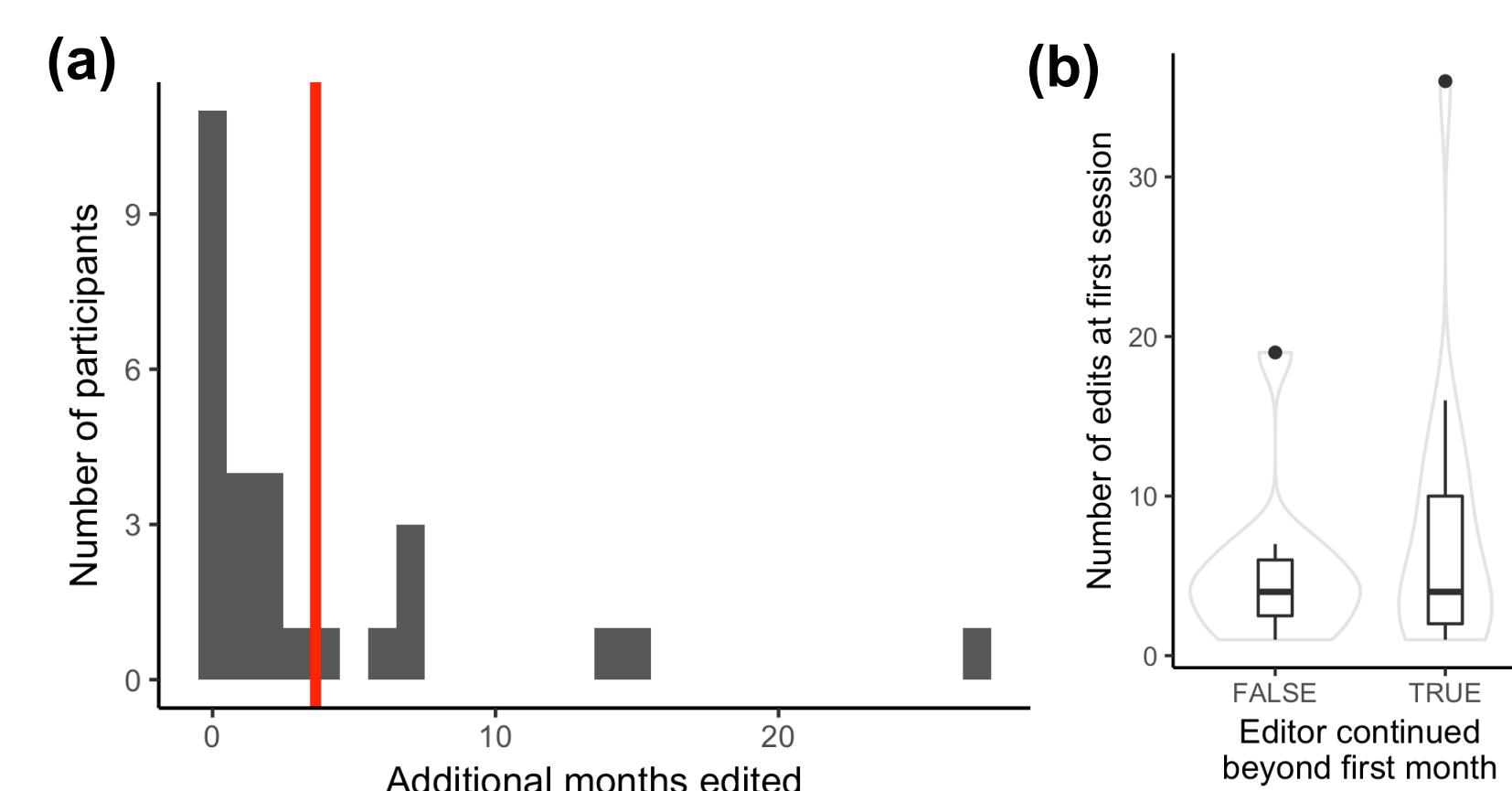
RESULTS

Figure 5. **Editor retention.** (a) Over half of the participants (18/28) continued to contribute to Wikipedia after their first month editing, which is higher than the average 5% retention rates for English Wikipedia ($p=3.1 \times 10^{-17}$, binomial test). Additional months edited over a 3 year period ranged from 2 to 27 months, with a mean of 3.1 (red). The biggest predictor of editor retention was whether or not a student enrolled in the Nexus course (OR=27.5, p=0.0014, Fisher's Exact Test). (b) Number of edits added during the first edit-a-thon was not associated with retention (p=0.34, Welch's two-sample test), and neither was completing the suggested 5 edits (OR=1.1, p=0.99, Fisher's Exact Test).

CONCLUSIONS

1. We taught Wikipedia editing to medical professionals through both one-off and long-term interactive sessions.

2. The overall contribution to Wikipedia encourages us that both the edit-a-thons and Nexus course are effective.

   - Selection bias probably played a role in which users were more likely to continue editing after the first month.

3. Barriers to editing Wikipedia include unfamiliarity with the interface or features, identifying appropriate sources, and organizing content.

4. Our findings were able to guide the design of future courses and events.

5. The number of edits made at the first session was not associated with retention

   - We will opt for any number of edits instead of the five edit suggestion.

6. We developed Wikipedia-based templates for the edit-a-thons and Nexus course that are freely available and will provide a framework at other institutions.

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