■ Use of Objectives in Research Articles

According to *The Merriam-Webster Dictionary*, the word “objective,” when used as a noun, typically refers to a goal or a purpose. By definition, an objective should be goal-oriented. However, in research publications, the listed objective often describes the process of research rather than the purpose of the research. For example, a verb used in an objective statement might be “explore.” A more appropriate verb might be “determine.” The exploration (process-oriented) of data has a goal of determining differences in the population assessed.

We have noticed (and sometimes participated in) a trend toward this practice in the medical literature. Therefore, we decided to examine the research articles published in *JMCP* from 2015 through 2017 in an attempt to characterize the verbs used in their objective statements.

We reviewed the abstracts for every research article in this 3-year period and recorded the verbs used for the objective statements. Two reviewers characterized the verbs as goal-oriented or process-oriented.

Some verbs were inherently difficult to characterize according to these 2 categories. For example, the verbs “assess” and “evaluate” would be goal-oriented if they were used to denote the assignment of a value. In this case, the research methodology would have a scoring mechanism. However, in the research reports we reviewed, these verbs seemed to be used as a synonym for “review,” which would be process-oriented.

The verb “compare” was even more troublesome. It was difficult to determine whether “compare” was used to describe the act of performing a parallel review (process-oriented) or the reporting of a parallel review (goal-oriented). Because of this difficulty, we designated “compare” as indeterminate.

When assessing the research articles, we assigned a numerical value to the verbs used. A goal-oriented verb was valued at 1, while a process-oriented verb was assigned -1. Verbs deemed indeterminate were valued at zero. When more than 1 objective verb was used, the scores for each verb were added together. A score of greater than zero was necessary to classify an article’s verb use as goal-oriented.

We looked for the number of abstracts with goal-oriented objectives as a proportion of the total number of abstracts from the research articles. Of the 315 abstracts, goal-oriented

verb usage was seen in 114 abstracts (36.2%; Wilson interval 30.9%-41.8%).

We also performed a calculation after excluding 36 abstracts that had only indeterminate verbs. This calculation showed 114 of 279 abstracts (40.9%; Wilson interval 35.1%-46.9%) with goal-oriented verb usage.

In addition to reporting on article results, we assessed the number of individual verbs used. The most common goal-oriented verbs used were “determine” (used 48 times), “estimate” (36), and “describe” (33), while the most common process-oriented verbs used were “evaluate” (77), “examine” (60), and “assess” (52).

In this sample, we found process-oriented objective verb use more common than goal-oriented use. We would like to challenge authors, editors, and reviewers to pay closer attention to this important aspect of a research paper.

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