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Does Quality Improvement improve the Quality of Care?

A Systematic Review of the Effect and Methodological Rigor of the Plan-Do-Study-Act (PDSA) Method

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Background

The Plan-Do-Study-Act (PDSA) method is essential in many Quality Improvement (QI) strategies. The scientific literature, however, has previously indicated that the evidence for effect of the method is at best limited. A problem is low fidelity to central elements of the method which hampers the interpretation of reported improvements and the effects in terms of better clinical practices and patient outcomes.

To assess whether these limitations are still actual, we reviewed recently published studies describing PDSA-based QI-interventions by self-reported improvement and use of key features in the study designs.

Methods

A systematic literature search was performed in the PubMed, CINAHL and Embase databases. Studies published in 2015 and 2016 using PDSA in a clinical setting were included. A framework was created to assess the use of the following key features:

- iterative cyclic method
- use of a theoretical rationale
- continuous data collection
- small-scale testing.

Results

Of the 120 individual studies included less than a third set a specific, quantitative aim and reached it. In addition, more than half of the projects did not set an aim but claimed to have achieved improvements. A total of 72 studies documented PDSA-cycles sufficiently for inclusion in full analysis for key PDSA-features.

Regarding use of key features, 10 studies (14%) used small scale testing, 26 studies (36%) had an explicit theoretical rationale, 48 studies (67%) used measurements over time and 75 studies (79%) used iterative cycles (figure 1A).

All key features of the method were applied in 3/72 studies (4%), while 20 (28%), 26 (36%), and 18 (25%) used three, two, and one feature, respectively. Five studies (7%) lacked all features (figure 1B).

Conclusion

This systematic review documents methodological challenges in recently reported PDSA-based QI interventions. Individual improvement projects should strive to contribute to a scientific foundation for QI by conducting and documenting with a high rigor.

There seems to be a need for methodological improvement in quality improvement initiatives.

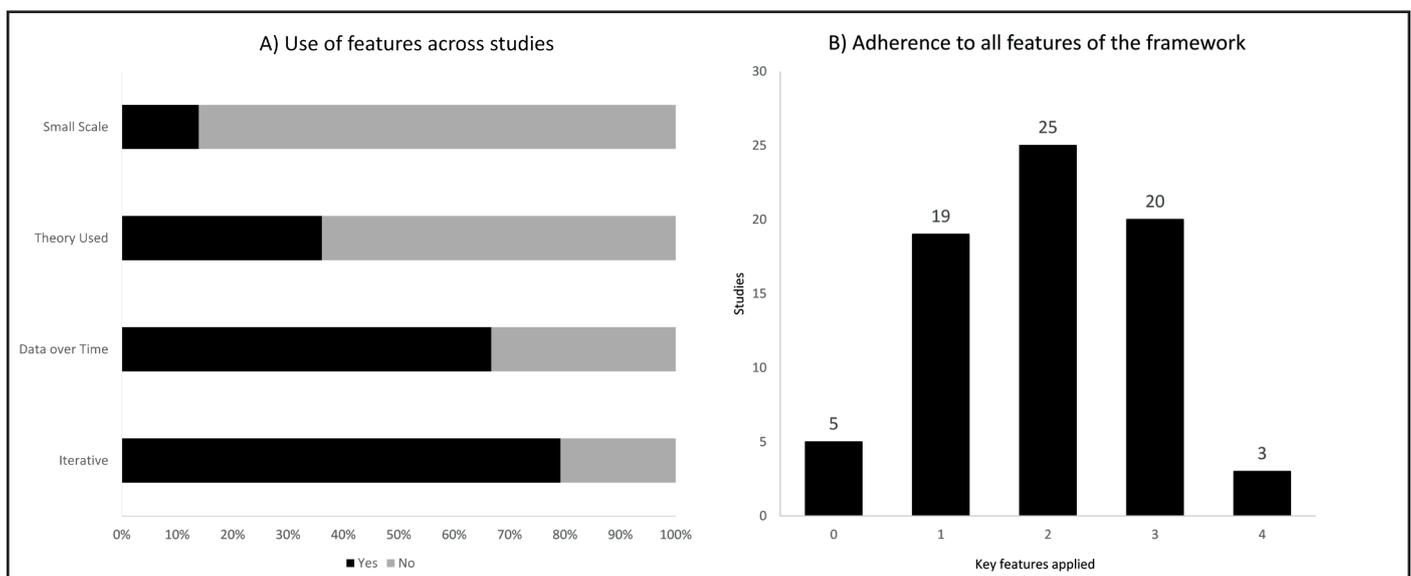


Figure 1: A) Bar-chart depicting how often the four key features were used across the studies.

Figure 1: B) Bar-chart depicting the amount of studies, which had used zero to four key features.