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Validity of health transition questions is supported by larger clinical improvements in purposive samples enriched for improvers

To the editors,

Health transition questions, which ask patients to report if they are better, worse, or unchanged after an intervention, are commonly used as anchors in determining clinically important changes in health outcome measures [1]. However, the validity of health transition questions has rarely been examined [2,3]. We previously showed that responses to health transition questions correlate with changes in self-rated health based on clinical vignettes [4]. As an additional test of the construct validity of health transition questions, we examined if responses on health transition questions corresponded with improvements in outcome measures. Specifically, we tested if samples enriched with higher proportions of patients who reported improvement on the transition question (as opposed to no change or worsening) demonstrated larger effect sizes than samples with lower proportions of patients who reported improvement.

What is new?

- Samples enriched to include more patients who reported improvement on a health transition question demonstrated larger effect sizes.
- These results support the validity of health transition questions.
- Transition questions may continue to be used as anchors for assessing clinically important improvement.

We used data from an observational study of treatment responses in 250 patients with active rheumatoid arthritis [5]. Patients were examined before and after treatment escalation for changes in several measures, including self-reported pain severity (by visual analog scale), physical function (by the SF-36 physical function subscale), swollen joint count (by physician), and the Simplified Disease Activity Index (SDAI), a composite measure of joint swelling, tenderness, patient global assessment, physician global assessment, and C-reactive protein level. After treatment, patients reported whether they had improved or not on domain-specific transition questions, including ones for pain, physical ability, joint swelling, and overall arthritis status [6]. The wording of the transition question was "Since the start of the study, my (pain/ability to do things/joint swelling/overall my arthritis) has: improved, stayed the same, or gotten worse."

From the 250 patients, we drew 200 random samples of 100 patients each, first selected so that 20 patients reported improvement on the pain transition question and 80 patients reported worsening or no change. We used standardized response means (SRM = mean change/change standard deviation) as the effect size measure. We computed SRMs for the pain visual analog scale for each random sample and computed the mean of the 200 results. We then successively repeated this procedure for samples specified to have 25% of patients who reported improvement through samples specified to have 90% of patients who reported improvement. We then repeated this process for physical functioning, swollen joint count, and SDAI. SRMs for each measure increased progressively as the percent of patients who reported improvement on the

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Conflicts of interest: None.

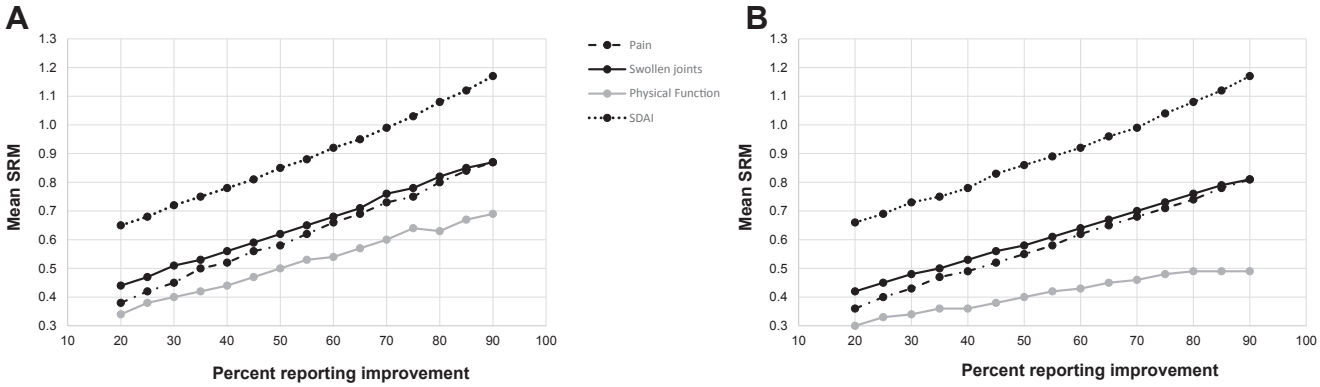

Fig. 1. Mean standardized response means (SRM) for pain, physical function, joint swelling, and the Simplified Disease Activity Index (SDAI) in purposive samples with increasing percentages of patients who reported improvement on the domain-specific transition question. (A) Overall results. (B) Omitting patients who reported improvement as ''extremely important.'' Standard deviations for the SRMs were pain 0.047−0.082, physical function 0.062−0.098, joint swelling 0.051−0.085, and SDAI 0.037−0.09.

transition question increased (Figure 1A). Importantly, this association was present for the physician-derived health measures of swollen joint count and SDAI as well as the patient-reported measures.

Many patients in this study experienced substantial improvement. For example, 42% of those who rated pain as improved rated the improvement as ''extremely important.'' To test if these major improvements influenced the results, we repeated the analysis after excluding these patients. Findings were similar even among patients with less marked improvement (Figure 1B).

These results provide further support for the validity of domain-specific transition questions by showing that greater improvement on the transition question is associated with larger measured improvements in health.

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