Development of the ADHD Treatment Satisfaction Questionnaire (ATSQ) for Use with Children, Adolescents, and Their Caregivers

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Introduction

- A substantial proportion of patients diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) receive treatment, yet nearly half of them switch or discontinue their treatment regimen within 12 months.[1,2]
- Currently available ADHD treatments may be associated with burdensome side effects, risk for abuse, and/or lack of efficacy in some patients.[3,4]
- The ADHD Treatment Satisfaction Questionnaire (ATSQ) was developed to investigate treatment satisfaction, treatment preference, and reasons for prior treatment changes in clinical trials with pediatric ADHD patients.[5]
- Questionnaire versions were developed appropriate to different age ranges used in the clinical trial program (children, 4-12 years via caregiver report; adolescents, 13-17 years via caregiver and self-report).[5]
- We previously evaluated the psychometric properties of two ATSQ versions designed to assess adolescents, either by self-report (ATSQ-A) or by caregiver report (ATSQ-PA).[5]
- The current study validates the conceptual framework and reliability of an ATSQ version for caregivers of children with ADHD (ATSQ-PC).

Methods

Questionnaire Content

- The ATSQ was developed based on a review of relevant literature and internal stakeholder input.
- Cognitive interviews were conducted in parent/caregiver dyads to evaluate the recall period, survey questionnaire instructions, items on the survey questionnaire, and response options.

Study Analyses

- The conceptual framework was assessed using confirmatory factor analysis.
- Previously, data from an Otsuka clinical trial in adolescents with ADHD (NCT05257265) were used to examine latent models from the ATSQ-A and ATSQ-PA versions of the treatment satisfaction questionnaire, confirming their structural validity.[5]
- In the present assessment of the ATSQ-PC, data from an Otsuka clinical trial in children with ADHD (NCT05428033) were randomly split into two samples to allow for model refinement in one exploratory sample (n=147) and a confirmation sample (n=220).
- Classical psychometric reliability statistics were evaluated.

Results

Content Development

- Literature review of ADHD medication preference and satisfaction research
- Existing treatment satisfaction questionnaires reviewed for methodology and item structure
- Cognitive interviews with 3 dyads of caregivers and adolescents
  - Item concepts, stems, and response options were found to be clear, relevant, and easy to answer by caregivers and adolescents. No edits were required.

Questionnaire Concepts

- Positive attributes of study medication
- Negative attributes of study medication
- Overall satisfaction of study medication
- Impacts on child's life (activities of daily living)
- Reasons for discontinuation
- Comparison with prior medications
- Duration of the study medication effect
- Side effects
- Out-of-pocket costs

ATSQ Structural Evaluation

ATSQ-A & ATSQ-PA

Source data: Trial NCT05257265

Sample: 279 adolescents,
257 caregivers for adolescents

ATSQ-PC

Source data: Trial NCT05428033

Sample: 315 caregivers for children*

The questionnaires demonstrated structural fidelity between the conceptual model and the confirmatory factor analysis for two summary scores:

- Daily Impact
- Comparison Rating

We found strong support linking qualitative research, theoretical underpinnings of ADHD-specific treatment satisfaction, and the quantitative support of the conceptual framework.

Values for comparative fit index and root mean square error of approximation were well within acceptable limits **(Table 1)**.[6-8]

Cronbach's alpha and Spearman-Brown adjusted alpha values were high for both Daily Impact and the Comparison Rating, indicating the high internal consistency of each domain **(Table 2)**.

Item-level statistics, including mean and standard deviation, the range of inter-item correlations, and item-total correlations were acceptable for both domains (data not shown).

Items and latent factors (concepts) were identical for ATSQ-A and ATSQ-PA. For the ATSQ-PC, one additional item ("completing work at home") was included in the Daily Impact factor. Otherwise, the overall structure remained consistent with the ATSQ-A and ATSQ-PA **(Figure)**.

*Fifty-two cases were removed per listwise deletion based on all variables in the procedure.

Table 1. Fit Statistics

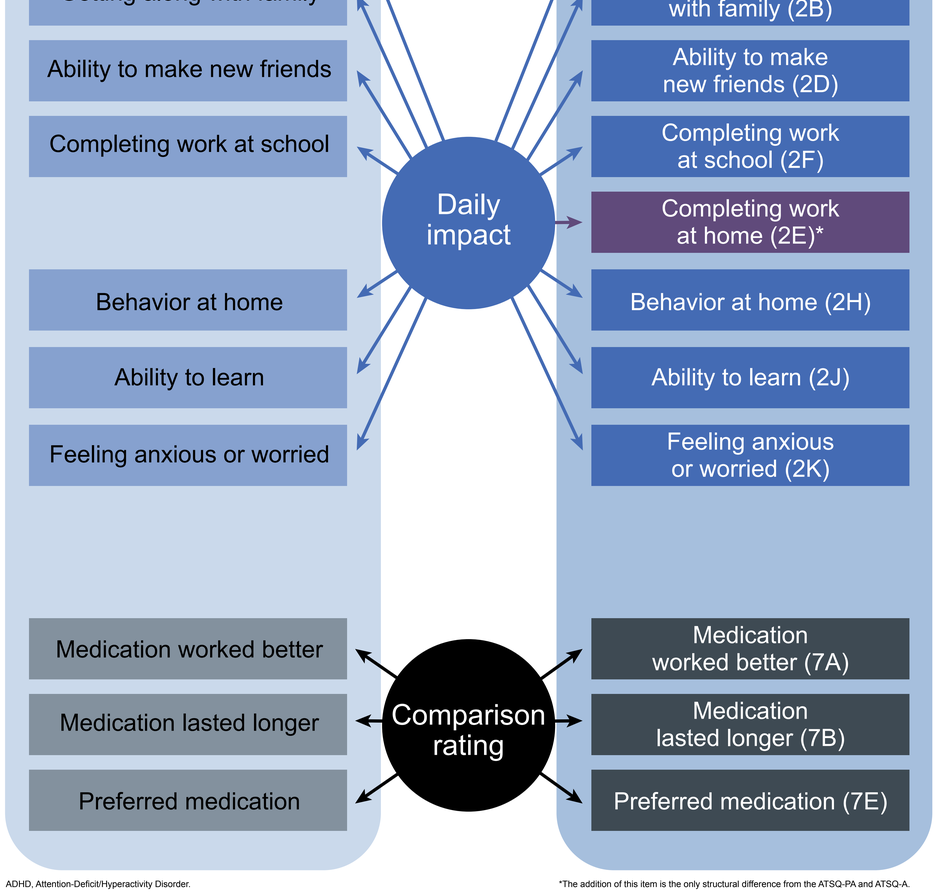
Model/Sample	CFI	RMSEA (90% CI)
ATSQ-A	0.960	0.085 (0.057 - 0.114)
ATSQ-PA	0.967	0.095 (0.068 - 0.123)
ATSQ-PC	0.991	0.051 (0.022 - 0.075)

CFI, comparative fit index; CI, confidence interval; RMSEA, root mean square error of approximation.

Table 2. Internal Consistency

	ATSQ-A		ATSQ-PA		ATSQ-PC	
	Daily Impact	Comparison Rating	Daily Impact	Comparison Rating	Daily Impact	Comparison Rating
Number of items	7	3	7	3	8	3
Cronbach's alpha	0.882	0.849	0.927	0.918	0.955	0.903
Spearman-Brown adjusted alpha	0.914	0.949	0.948	0.974	0.964	0.969

Figure. Structure of the ATSQ



ADHD, Attention-Deficit/Hyperactivity Disorder.

*The addition of this item is the only structural difference from the ATSQ-PA and ATSQ-A.

Conclusions

Evaluation of factors related to treatment satisfaction contextualizes patients' experience from the clinical trials and their experience with the study medication.

Combined with previous results of the ATSQ-A and ATSQ-PA versions, this new analysis provides strong support for using two domains in the ATSQ-PC.

Factor structure supports interpreting the domains as equivalent across the three ATSQ versions with strongly reliable measurement of these patient-reported domains.

References

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Disclosures

AP, CLW, JS, and **DO** are full-time employees of Otsuka Pharmaceutical Development & Commercialization, Inc., Rockville, MD, USA. **MJA** reports employment with COA Evidentiary Analytics, LLC, Powers, OR, USA, which was contracted with Otsuka to perform study analyses. **JCC** is the sole owner of P3 Research Consulting, Inc., Torrance, CA, USA, which was contracted with Otsuka to perform study analyses.

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