TITLE: DEVELOPMENT OF AN INSTRUMENT ASSESSING RECOVERY AFTER AMBULATORY ANESTHESIA

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INTRODUCTION: As more complex procedures on higher risk patients are performed as ambulatory surgery, it is increasingly important to evaluate patients' recovery after their hospital discharge¹. The purpose of this study was to develop a valid and reliable instrument to assess patients' subjective post-discharge functional recovery after ambulatory anesthesia.

METHODS: Ethics approval was obtained. The development involved four phases: item generation, item selection, reliability and validity testing. In item generation, forty patients were interviewed with open-ended questions. After incorporating input from content experts, the items were scaled and a draft questionnaire was devised containing 55 items grouped under six dimensions: basic activity of daily living (ADL), intermediate ADL, role limitation, social function, mental function, and symptom distress. In item selection, seventy-six patients were interviewed with the draft questionnaire to determine the feasibility and endorsement frequency of items. Nine items were eliminated for having an endorsement rate of >0.8 for one of their alternatives. Items were selected to optimize internal consistency (Cronbach's α) under the chosen factors. The questionnaire was modified according to the results of factor analysis and Cronbach's α before testing reliability. Two hundred and sixty-four patients were interviewed on the third day after the surgery by two research assistants and intraclass correlation (Cronbach's α) was calculated. Construct validity was tested by multiple hypotheses on convergent validity, extreme groups, and discriminant validity.

RESULTS: For factor analysis, diagnostic checks removing items with communalities <0.6 removed 12 items. Principal component analysis was used to extract factors. The final questionnaire: Functional Recovery for Outpatients (FROP) has 3 factors (Table). Inter-rater reliability (Cronbach's α) was found to be 0.99. Convergent validity for FROP vs. VRS pain scores (Spearman's correlation co-efficient, r) was found to be 0.76 and for hours of restricted activity $r=0.72$. Discriminant validity testing demonstrated the type of surgery was significant; the coefficients for intermediate surgery ($\beta=0.138$) and for major surgery ($\beta=0.337$) indicate that major surgery was associated with a higher FROP score.

DISCUSSION: The FROP demonstrated excellent reliability, and good convergent validity for VRS pain scores and hours of restricted activity. Discriminant validity revealed that the type of surgery was the only significant variable.

REFERENCES: 1. JAMA.272:619-26.

Table: Variables loading on each factor

Factor	Variables
1	Visiting friends & relatives, social activity, driving, effect of pain on daily activity, lifting or carrying groceries, care of family, return to work, moderate exertion
2	Lower limb activities: climbing stairs, walking, bending, in/out of chair, sitting
3	General physical activity: dressing, bath/shower, lying down