

# Validation of the RoRex Questionnaire: The Needed Questionnaire for Gastroesophageal Reflux Disease?

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## INTRODUCTION

Gastro-esophageal reflux disease (GERD) is increasingly common worldwide, with a prevalence in Western countries between 10 and 30% of the population. Prevalence could be even underestimated as only typical symptoms (heartburn and regurgitation) are considered in epidemiological studies. At present no questionnaire is universally accepted as the benchmark. Herein we propose a new 15-item questionnaire, named RoRex (Rovereto Reflux), which is intended to be both complete as it considers both typical, atypical and extra-esophageal symptoms, easy to understand, and as objective as possible as it assesses symptom frequency on a numeric scale rather than perceived severity.

## AIM

To validate the RoRex questionnaire.

## METHODS

The RoRex questionnaire was administered via web from April 2021 to October 2023 to volunteers and patients attending specialized gastrointestinal surgical units in two Italian centres, Rovereto (Trento) and Verona. Each individual answered a RoRex version in scientific jargon and in plain language, and two already validated questionnaires, RSI and GERD-HQRL. Internal consistency was assessed by

Cronbach's alpha, questionnaire dimensions were evaluated by exploratory and confirmatory factor analysis, and item responses were related to subjects' characteristics.

## RESULTS

213 individuals (149 patients and 64 volunteers) answered the questionnaire. Of these, 60 patients and 29 volunteers were recruited in Rovereto, while 89 patients and 35 volunteers were recruited in Verona. In the exploratory factor analysis (EFA), two factors (esophageal and extra-esophageal symptoms) were identified which accounted for 97.7% and 94.1% of the total variance of the scientific or plain language versions, respectively (Kaiser–Meyer–Olkin [KMO] statistic = 0.9015 for normal item and 0.8803 for easy item). For the plain language version, overall Cronbach's  $\alpha$  of the questionnaire was 0.89, indicating good internal consistency; in detail, Cronbach's  $\alpha$  was equal to 0.87 for factor 1 and 0.85 for factor 2. We evaluated the factor correlation matrix of the final exploratory factor analysis to be verified discriminant validity. The correlation between factor 1 and factor 2 was 0.546. The confirmatory factor analysis (CFA) yield similar results.

## CONCLUSION

The RoRex questionnaire seems to be an easy clinical tool, useful to diagnose GERD and evaluate therapy effectiveness, whether medical or surgical.