VALIDITY, RELIABILITY AND USER-PRACTICABILITY OF A CLASSIFICATION TOOL FOR DRUG-RELATED PROBLEMS AND PHARMACIST INTERVENTIONS WITHIN AN UPPER AUSTRIAN HOSPITAL TRUST

BACKGROUND AND IMPORTANCE

In order to fully capture the contribution of clinical pharmacists to pharmacotherapy, a standardized and validated classification tool for drug-related problems (DRP) and pharmacist interventions (PI) is essential. Therefore, “DokuTool” has been developed by an Upper Austrian hospital trust following the expansion of its clinical pharmacy services.

“AokuTool” comprises four main categories and 39 subcategories with fixed choices for DRPs and PI. In addition, organisational and patient data is included (Tab. 1). Timekeeping and patient counts per day are documented in a separate spreadsheet.

AIM AND OBJECTIVES

- To assess the reliability, validity and user-practicability of the Austrian classification system for DRPs and PI, “DokuTool”.
- To give recommendations for an updated version and to provide the Austrian hospital pharmacists with a validated, uniform system.

MATERIALS AND METHODS

A literature review identified 10 similar instruments. Based on the analysis of their validation process, the methodology of the project was developed.

Reliability and Validity

Clinical hospital pharmacists (n=29) classified 24 sample cases, adapted from Ganso et al., with “DokuTool” (4). Inter-rater reliability was determined by internal and external participants using the Fleiss’ kappa statistic. Internal pharmacists reassessed ten of the previous cases and test-retest reliability was assessed by Cohen’s Kappa.

Validity was determined by correlating the individual ratings of the 24 sample cases with a majority vote of five experts (“gold standard”) using contingency coefficient.

Usability

Acceptability, feasibility and user-practicability were assessed by an online survey (nine questions) with a 5-point Likert scale (1=strongly agree; 5=strongly disagree) and an open comment section for suggestions for improvement.

RESULTS

- 29 clinical pharmacist participated (13 internal, 11 external and five experts)
- Professional experience in clinical pharmacy: “1-5 years” (median)

Reliability

“DokuTool” achieved a moderate inter-rater reliability (Fig. 2) in the two main categories “Type of DRP” (κ = 0.528 [95% confidence interval (CI): 0.514 – 0.541]) and “Cause of DRP” (κ = 0.594 [95% CI: 0.597 – 0.601]). The category “Planned PI” showed substantial agreement with κ = 0.638 [95% CI: 0.629 – 0.647]. Results were interpreted according to Landis and Koch (5).

Test-retest reliability achieved substantial to almost perfect agreement for all three main categories: “Type of DRP” (κ = 0.825 [95% CI: 0.734 – 0.915]), “Cause of DRP” (κ = 0.896 [95% CI: 0.825 – 0.967]) and “Planned PI” (κ = 0.891 [95% CI: 0.819 – 0.964]).

Validity

The median rater-specific contingency coefficient for the three main categories was 0.84 [range: 0.75 – 0.89], 0.95 [0.94 – 0.96] and 0.93 [0.91 – 0.94], indicating a strong correlation between gold standard and raters.

Usability

Users (n=28) rated “DokuTool” as comprehensive (median: 2 [interquartile range: 1.75]) and user-friendly (2 [1]) but the completeness of the categories was rated neutral to negative (3 [2]) (Fig. 3). The time required was considered reasonable (3 [1]).

CONCLUSION AND RELEVANCE

“DokuTool” has proven to be reliable and valid. Pharmaceutical interventions can be documented easily, reproducibly and in a time-saving manner. The use of a validated system contributes to efficient information transfer, performance documentation as well as to quality assurance. Therefore, a template as well as an user manual will be made available to Austrian hospital pharmacists.