

Automatic Quantification of Abbreviations and Symbols in Medicinal Package Leaflets and Assessment of their Comprehension

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ABSTRACT

Introduction: There are reports of severe medication errors, as a consequence of misunderstandings with their use. Given pharmaceutical regulations, medicine package leaflets (PLs) should not contain abbreviations and symbols (A&S).¹ Importantly, A&S of units of measures should be presented using the following formats: 1) x mg/ml = concentration; 2) z mg = total active substance; 3) y ml = total volume; and 4) z mg/y ml = total active substance per total volume.^{2,3} **Research question/problem:** Are A&S presented in PLs of Portuguese medicines? Are non-recommended formats of units of measure available in these PLs? Do educated people comprehend some of these A&S? **Objectives:** Using a representative sample of 531 Portuguese PLs, the aims of this study were: to quantify A&S, to identify non-recommended units of measure, and to determine educated peoples' interpretation of A&S. **Methods:** A&S, including A&S of non-recommended units of measure were quantified with a computational tool – PreText: Text Preprocessing.⁴ A questionnaire was applied to determine participants' comprehension. It was only evaluated the comprehension of 373 A&S to avoid tiring the participants. Overall, 26 undergraduates from non-biomedical areas were enrolled in this study.

Results: A total of 828 different A&S were identified (6407 occurrences). Overall, 14 non-recommended formats of units of measure were identified (38, 0.6% of 6407 occurrences). Only, 9.9% of all the replies of the comprehension questionnaire were classified as correct. **Conclusion:** Portuguese PLs may need to be revised in relation to the use of A&S and the format of units of measure. The software proved to be an efficient tool to check A&S in PLs.

Keywords: package leaflets; readability; medicinal products; abbreviations; patient safety

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