



Users' Interpretation of *Pictograms* and *Pictures* for Conveying Instructions and Warnings on Pharmaceutical Labels

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Abstract. Pharmaceutical pictograms are figures that provide a visual representation of medication instructions and warnings. Pictograms were created in order to lower the continuously rising problem of poor medication adherence due to patients misunderstanding what is being instructed on medication labels. Research on pictograms show that their use could increase patients' comprehension of medication instructions, but the comprehension rates are still low. Researchers have argued that in order to improve the effectiveness of pictograms, they must be more concrete, simple, meaningful, and familiar. Pictures have these properties. Thus, the goal of this study was to examine if the use of pictures (i.e., real images) provide a better representation of what is being instructed to users on medication labels than pictograms. We hypothesized that real images would lead to a better understanding of the instructions and warnings for taking medication, and in turn, users would have higher comprehension levels. Participants completed an online survey evaluating the meaning of either pictograms or pictures. Both quantitative and qualitative data analyses were conducted on free responses to the questions and on users' ratings of the "goodness" of the stimuli. The results showed that participants were moderately accurate (74%) in their interpretation of pictograms, and the use of pictures did not improve their comprehension.

Keywords: Pictograms · Pictures · Real images · Medication instructions · Medication adherence · Comprehension levels

1 Introduction

According to the Institute of Medicine, nearly every individual living today has taken or will take medication at some point in their lifetime. Specifically, approximately four out of five U.S. adults will use prescription medicines, or other drugs received over-the-counter, on a weekly basis [1]. These medications are meant to be beneficial to consumers; however, they can be harmful if the medication is not taken appropriately [2].