COMPARATIVE ANALYSIS OF AWARENESS AND UNDERSTANDING OF PICTOGRAMS IN PHARMACY AND NON-PHARMACY STUDENTS.

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Summary

The objective of the present study was to evaluate awareness and rational use of pictogram in non-pharmacy students, further comparison of locally developed, culturally appropriate pharmaceutical pictograms with pictograms appearing in the 1991 edition of the USP-DI (United States Pharmacopoeia Dispensing Information). Twenty pictograms from the USP-DI and corresponding set of 20 locally developed, pictograms for conveying medication instructions were evaluated. Respondents were evaluated for their interpretation of all 40 pictograms. The correct meaning of each pictogram was explained at the end of the study. Preference for either the Local or USP pictograms was determined. The evaluation results revealed that 34% individuals could correctly interpret 16-20 pictograms, out of which 6 respondents answered all the 20 pictograms correctly. Out of the 345 respondents only one respondent had voted for all the 20 locally prepared pictograms and had preferred absolutely no USP pictogram. Out of the total number of respondents, 52% respondents preferred local pictograms over USP pictograms. Thus local pictograms were preferred over USP by 3%. This clearly shows that local pictograms are better understood compared to the USP pictograms.

Keywords: Pictograms, pharmaceutical care, compliance, graphic images.

Introduction

An inability to read and understand written medication instructions may be a major contributory factor to non-compliance in certain population. The limited literacy skills of a large proportion of the Indian population present a significant barrier to accessing and understanding information on medicines which is necessary for the degree of adherence required for a successful therapeutic

outcome. The challenge facing Health Care Professionals (HCPs) is to communicate this information in an appropriate, understandable form commensurate with the patient's literacy skills and in addition to ensure that it is acceptable in terms of patient's culture, beliefs, attitudes and expectations. One way of addressing the low literacy problem in developing and poor country is to use visual aids such as pictograms, which have been shown to enhance compensation and recall of information when used appropriately. The term pictogram is a collective term used to describe both symbols and pictorials. The United States Pharmacopoeia convention defined pharmaceutical pictograms as "standardized graphic images that help to convey medication instructions, precautions and/ or warnings to patients and consumers [1]. The design and valuation of these pictograms is a complex and multistage process. One of the main strategies to minimize problems in this process is to follow a basic ergonomic principle, which is to identify and involve the target population in all stages of design and evaluation process. The practical application of pictograms in a low- literate population would entail explain the meaning of pictograms to the patient after which the subsequent role of the pictogram is to act as a stimulus to recall that information. The evaluation process should therefore incorporate a follow-up stage to test foe the effectiveness of the pictograms in aiding recall of information [2]. The pictograms should firstly be tested in healthy participants from the target population to monitor the effects of pictograms on the understanding of and adherence to medicine instructions. Given the potentially important role of pictorial symbols in communicating hazards, national and international standards have been established to evaluate their comprehensibility, including the American National Standard Institute [3], and the organization for International Standardization [4]. ANSI and ISO advice that in a comprehension test, symbols must reach a criteria of at least 85% or 67% correct respectively, in order to be considered acceptable.

Pharmaceutical care is a philosophy of practice that is being adopted by many pharmacists world-wide and is described as a practice in which the pharmacist takes responsibility for a patient's drug-related needs and is held accountable for this commitment [5]. An integral part of this process involves educating and counseling patients in order to prepare and motivate them to adhere to their medication regimens [6]. The quality and form of this information must, however, be appropriate to the patient's level of education and must also take into account his culture, beliefs, attitudes and expectations [7, 8]. Pictograms are considered to be a part of universal language and can be easily recognized by all as they convey their meaning with little or no dependence on language or cultural background. Pictograms may improve warning comprehension for those with visual or literacy difficulties and can sometimes be recognized and recalled far better than words [9]. They have the potential to be interpreted more accurately and more quickly than words. It was shown that the preference of pictograms contribute positively to both understanding of instructions and adherence [10]. The present study evaluates awareness and understanding of pictogram among non-pharmacy students.

Subjects and Methods

Study Site and Sample

The study was conducted at Banasthali University, Newai, Jaipur. A total of 345 individuals were selected to participate in the study, out of which 193 students were selected from the

Department Of Pharmacy, Banasthali University. To make comparative study, 79 Undergraduate and 61 Postgraduate students from various streams were randomly selected from the campus and interviewed.

Preparation of Local and USP sets

Forty pictograms were directly taken from the survey performed by World Health Organization (W.H.O.) in South Africa. Out of the 20 pairs of Pictograms selected, one was taken from USP-DI and the other was a locally modified version (culturally sensitive pictograms for conveying medication instructions) of the USP-DI pictogram. The two pictograms conveyed the same instruction pertaining to any medication. This pair of pictogram that conveyed the same instruction was pasted side by side on a Play card and clearly marked for Local and USP.

Collection of test Data during Interviews

A questionnaire to collect data was designed. At the onset respondents were explained about the purpose of the study and invited for the same after taking consent. The demographic details of the respondents like Name, Age, Gender and their Educational Level were collected. It was clearly explained to the respondents that each play card contained two pictograms, one local and its USP counterpart, both of which convey the same instruction. The respondents were then shown all the 40 pictograms and were asked to give their interpretation of each pictogram by writing in the space provided on the questionnaire. Respondent were also asked to indicate which pictogram of each matched pair was preferred.

Results

The evaluation results revealed that 34% individuals could correctly interpret 16-20 pictograms, out of which 6 respondents answered all the 20 pictograms correctly. As a matter of fact only 3% respondents could correctly interpret a maximum of 5 pictograms.

From evaluation of Pharmacy students it was clearly found that Fourth year students interpreted 27% of the pictograms correctly. This is indifferent of the M. Pharm results where a mere of 14% answers were correct. The first year, second year and third year student's interpreted18%, 22% and 19% answers correctly. It can also be drawn from the report that 48% Pharmacy students preferred local pictograms against 52% students who voted for their USP counterparts (Figure-19). When compared with Non Pharmacy Undergraduates, 54% pictograms were understood by B. Pharm students and 48% by Non Pharmacy Undergraduates.

Non Pharmacy Postgraduates were better placed than the students pursuing M. Pharm. (Figure-24) 55% pictograms were correctly evaluated by Non Pharmacy Postgraduate students compared to 45% by M. Pharm students.

Out of the 345 respondents only one respondent had voted for all the 20 locally prepared pictograms and had preferred absolutely no USP pictogram.

Out of the total number of respondents, (Figure-29) 52% respondents preferred local pictograms over USP pictograms. Thus local pictograms were preferred over USP by 3%. This clearly shows that local pictograms are better understood compared to the USP pictograms.

Table. 1 Comparision of B. Pharm. Versus UG Non Pharmacy Students

B. Pharm. Versus UG Non Pharmacy Students

	B. Pharm.	Undergraduates
Answers	14.6287	12.59494
Local	9.97	10.53
USP	9.96	9.41

Table. 2 Comparision of M. Pharm. Versus PG Non Pharmacy Students

M. Pharm. Versus PG Non Pharmacy Students		
	M. Pharm.	**Postgraduate**
Answer	9.41	11.49
Local	8.47	13.45
USP	11.52	7.52

Figure. 1

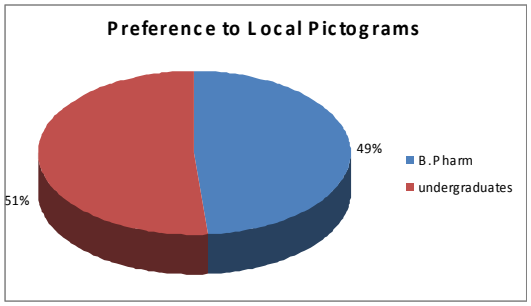


Figure. 2

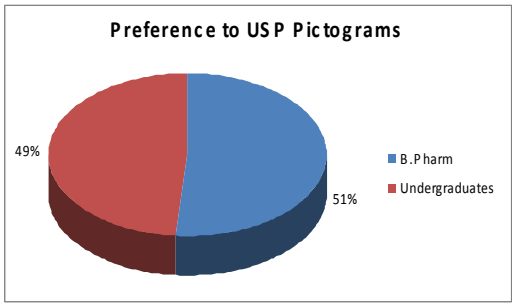


Figure. 3

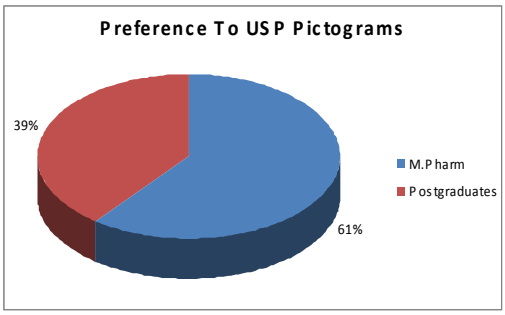


Figure. 4

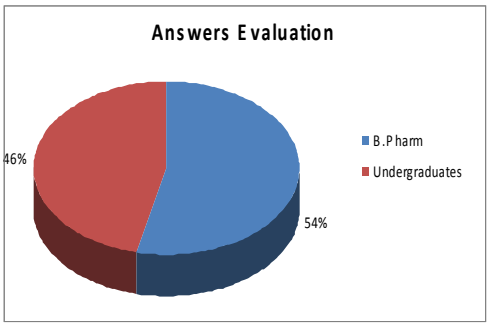
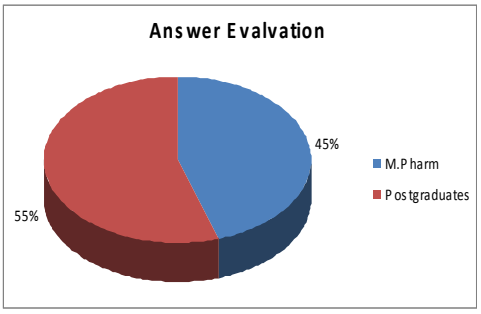


Figure. 5



Conclusion

Present study suggests and strengthens a belief to introduce pictograms as a topic in curriculum of Pharmacy (Dispensing Pharmacy). Mock sessions are proposed for better understanding and to increase awareness among Pharmacy individuals.

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