Universidade de Lisboa

Faculdade de Farmácia

Assessing pharmaceutical pictograms amongst cultural minorities: the case study of Chinese patients speaking European Portuguese

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Mestrado Integrado em Ciências Farmacêuticas

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Resumo

A população chinesa é uma das culturas minoritárias que cresce mais rapidamente em Portugal. A falta de capacidades linguísticas dos imigrantes leva à dificuldade em perceber as instruções da medicação, à não aderência à terapêutica e a erros na medicação. A adição de pictogramas a informações escritas e orais pode melhorar a compreensão. Quinze pictogramas de USP e os quinze pictogramas correspondentes de FIP foram avaliados por 50 participantes da comunidade chinesa em duas regiões de Portugal. Os pictogramas foram apresentados aos participantes de forma aleatória através de um questionário em papel. A maioria dos pictogramas neste estudo foi bem compreendida pela população chinesa. A taxa de respostas corretas variou entre 32% a 90%. Dezoito dos 30 pictogramas testados satisfizeram ao critério de legibilidade ISO (Organização Internacional para Padronização), 10 pictogramas eram de USP em comparação com 8 de FIP. Os resultados mostraram que a versão USP foi ligeiramente melhor compreendida que a versão FIP. Quase todos os participantes deste estudo (96%) expressaram que era uma boa ideia ter os pictogramas na caixa do medicamento porque irão melhorar a compreensão das instruções da medicação e irão ajudá-los a relembrar como se toma os medicamentos e as devidas precauções, sendo particularmente útil para os utentes que não falam o português. As autoridades de saúde em Portugal deveriam introduzir regras que levem à boa utilização dos pictogramas, em especial em populações com baixa literacia e imigrantes.

Palavras-chave: Pictograma; Medicamentos; População chinesa; Portugal

Abstract

One of the cultural minorities growing faster in Portugal is the Chinese population. The lack of linguistic skills of immigrants leads to difficulty in understanding the medication instructions, a non-adherence to the therapy and medication errors. Adding pictograms to written and oral information may improve comprehension. Fifteen pictograms from the USP and a corresponding set of fifteen pictograms from the FIP were evaluated by 50 participants from the Chinese community in two regions of Portugal. The pictograms were shown to the participants with a random order by the paper survey. Most of the pictograms in this study were well understood by the Chinese population. The correct answers rate range from 32% to 90%. Eighteen of the 30 pictograms researched complied with the ISO (International Organization for Standardization) legibility criterion, 10 pictograms were from the USP compared with 8 from the FIP. The results showed that the USP version was a little better interpreted than the FIP version. Almost all participants of this study (96%) thought that it was a good idea to have pictograms on the medicine box because they will improve the understanding of medicine instructions and help them to remember how to take the medicines and precautions, being particularly useful for patients who do not speak Portuguese language. The healthcare authorities in Portugal should introduce rules that lead to the proper use of pictograms, especially in low literacy population and immigrants.

Keywords: Pictogram; Medicines; Chinese population; Portugal

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Abbreviation

IBS – Immigration and Borders Service

USP – United States Pharmacopeia

FIP – International Pharmaceutical Federation

SPSS – Statistical Package for the Social Sciences

PRC – People's Republic of China

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1 Introduction

Portugal is becoming a more multicultural society. As a nation open to other cultures for many centuries, with the current human migrations, the tendency to receive foreigners is increasing. One of the cultural minorities growing faster in Portugal is the Chinese population. According to the 2011 census, in the last decade, the Chinese population increased rapidly, more than five times between 2001 and 2011, growing from 2176 to 11458 people (1). To the latest data from the Portuguese Immigration and Borders Service (IBS) report of 2015, China is considered the 5th most representative foreign community, with a total of 21339 people (2).

The Chinese community tends to keep their way of living, being closed in their family circle (1, 3). Since, social relations outside this circle are scarce, there are additional difficulties in learning the Portuguese language, even in its lay forms. According to a study (2008) conducted in the Chinese population living in Lisbon shown that only 10% of the Chinese people speak Portuguese and 84% have difficulty understanding what is said (4).

The education levels of the population – originally from China, even if covering a wide age range – (i.e. from 15 to 64 years old) is low for most people living in Portugal (1). The proportion of the population with no schooling is 15.7%, with basic education (1 – 9 years of schooling) is 61.3%, and with secondary and higher education is 22.9% (1). Regarding the health literacy level, i.e. "the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions" (5-9), the studies on the Chinese population are rare (7). Nevertheless, according to a study (2008) held by the Chinese Ministry of Health in China, 93.52% of Chinese residents in homeland have a low literacy level (7, 10, 11).

Patients with low health literacy and schooling have more difficulty in understanding prescribed information (12-14), including dosage instructions, frequency (15, 16), medication labels and leaflets (17), and potential adverse reactions (16). Furthermore, their condition of immigrants, sometimes their illegal status (3), low language proficiency (3, 15, 18), economic (18) and cultural factors (19) turn hard the access to health care services and information.

Difficulties in understanding the medication instructions leads to a non-adherence of the therapeutic (9, 13, 14), medication errors (12), less effective treatment (12) and hospitalization/ re-hospitalization increase (8, 13, 20), resulting in an augmentation of health care costs (13, 21, 22).

Generally, medication instructions during dispensing at pharmacies are given through oral communication and written information on the drug packaging (17, 23). However, research shows that most of the spoken instructions are forgotten by the patients a few minutes later (12, 17).

Taking this into consideration, pictograms - a pictorial drawing containing informative labels with instructions and precautions about the use of medication, including quantity per dose and frequency (9, 12, 16, 24, 25) - can be an essential communication tool as a complement of verbal and written information, in order to improve medication instructions comprehension, especially for illiterate people and patients who do not command the dominant language (12, 13, 17, 26). This is the case, for example, of Chinese immigrants.

However, until now there are no studies to validate if the cultural minorities living in Portugal, such as the Chinese population, do really understand internationally available pictograms, such as those from the United States Pharmacopeia (USP) and International Pharmaceutical Federation (FIP) ones.

1.1 Aim of the study

The main objective of this study was to evaluate the understanding and potential utility of pharmaceutical pictograms from the USP and FIP systems, with identical meanings, among Chinese population living in Portugal.

2 Materials and methods

2.1 Type of study

The present observational study followed a cross-sectional design, issuing a survey instruments.

2.2 Study sample

A convenience snowball sampling strategy was used, comprising participants from the Portuguese Chinese community, including members of both genders, aged 18 years and above. The inclusion criteria selected – individuals with different levels of education and that have lived a minimum of 6 years in China (27).

2.3 Period and place of study

The data for this study were collected between April 2017 and July 2017 in the Lisbon and the Tejo Valley, as well as Porto regions. These urban areas offer a great concentration of Chinese people, according to the 2011 census of the Portuguese National Statistics Institute (1). Interviewed sites included streets, Chinese shops and Chinese restaurants of these two regions.

2.4 Survey instrument: the pharmaceutical pictograms

The most studied pictograms from USP set were identified through the analysis of published articles (13, 17, 28-33). All USP pictograms were divided into two groups. One group of pictograms usually presenting higher percentage of correct answers (first group) and another one with lower percentage (second group). For the study a set of representative pictograms (33) was selected which covering different concepts including dose, frequency and precautions. To have a balance od degree of difficulty, both easy and difficult pictograms were selected. Thus, 8 pictograms were selected from the first group and 7 from the second group, 15 in total.

Overall, 30 pictograms were tested: fifteen from USP and other fifteen taken directly from the web-site of FIP (Picto-Rx software), assessed by the research team as having identical meanings to each USP pictogram.

Each pictogram was followed by three subtitles, which meaning was correct for one of the options, being the other two less optimal or wrong descriptions of the pictogram.

2.5 Pilot study

In the pilot study, a panel of six participants was used to help define the wrong options for each pictogram. This pilot study was conducted through a face-to-face interview with participants with the same inclusion criteria of the final group.

All of 30 selected pictograms were shown to the participants, with a size of approximately 3 cm × 3 cm, and with no previous explanation of the meaning of individual images. The researcher showed the pictograms to each participant individually and asked the following question: “If these images were in a medicine box, what would you understand?”.

The pictograms that were answered correctly, it was shown to the participant a set of options similar to those that already existed in published studies (17, 21, 33) and asked the following question: “What other interpretation could also be correct for the image?” Therefore, these six participants served to make sure that the options made sense to these participants.

The wrong answers and the other interpretation given by the participants were taken into account, and from there the two other added options for each pictogram were developed. This process was particularly important for the FIP pictograms which had no published studies.

2.6 Data collection

A paper survey was developed for data collection. The questionnaire was created in Portuguese language for two reasons: (1) if the Portuguese pharmacies used pictograms, their meaning would probably be subtitled in Portuguese, and (2) living in Portugal, the participants are more likely to have to communicate in Portuguese.

The questionnaire was structured with three parts. The first part consisted of sociodemographic questions, the second part included a sample of 30 pharmaceutical pictograms to be evaluated, while the third part consisted of obtaining participant's opinions on the usefulness of pictograms for the correct use of the medicines and suggestions to improve the present study (see annex A1).

The questionnaire was printed in black and white. Each pictogram of the questionnaire had the size of approximately 3 cm × 3 cm, placed in random order and with no previous explanation of the meaning of individual images. For each pictogram three options of answers were proposed for their meaning, but only one of them was correct. The correct one is the existing subtitle of the pictogram (translated into Portuguese) and the two added options were obtained from the pilot study. From the three proposed options for each pictogram, the participant had to choose what best described the image.

The questionnaire administration was followed by a field researcher, with options read by to the participants looking confused or requesting for help. At the end of each interview, the correct options were explained. To begin with, participants were informed of the research's goals and signed a free informed consent prior to the participation (see annex A2).

All data was transferred into a database, with the pictogram answers classified as correct or incorrect. To test the degree of comprehension of the pictograms, have been used the International Organization for Standardization (ISO) 3864 (1986) legibility test, which considers a pictogram legible when 67% the answers from the participants are correct (13, 21, 29, 34).

2.7 Statistical analysis

Data processing was performed in the software *Statistical Package for the Social Sciences* (SPSS) for Windows OS, version 24.0. Descriptive analyses were used for data summary components. Chi-square tests were performed for significant differences in interpretation between the USP and FIP pictograms, to assess the effect of sociodemographic variables on the understanding of pictograms. For the T-Student tests, a mean score was calculated for USP and FIP pictograms. T-Student tests were conducted to test significant differences between the sociodemographic variables for the mean number of pictograms correctly interpreted. Level of significance was set at 5% level and confidence interval was 95%.

3 Results

3.1 Sociodemographic data

In total, fifty surveys were collected from the Portuguese Chinese community. The sociodemographic characteristics of the 50 participants are shown in Table 1 (See annex A3). Forty-seven of the participants (94%) had Chinese nationality and 64% were born in the Chinese province of Zhejiang. There is no connection between nationality and place of birth because PRC (People's Republic of China) does not allow dual citizenship and most of Chinese people born in Portugal choose Chinese nationality. There was an even distribution of males (46%) and females (54%) and this characteristic is justified by the presence of couples who migrate together. The participants ages ranged from 18 to 71 years (mean 40.5) and most of them were aged between 41 to 50 years old (38%). Half the participants (50%) had received Basic level of education (1 – 9 years of schooling), where 34% of participants had completed between 7 and 9 years of schooling. Forty-four of participants (88%) completed their education in China.

Of the 50 participants, the time they have lived in the PRC range from 6 to 63 years, and the immigration time in Portugal ranges from 2 to 26 years (Table 2, see annex A4).

On a scale from 0 to 10 regarding their self-perceived ability to use the Portuguese language, where zero was "I cannot understand and speak Portuguese" and ten was "I understand and speak Portuguese fluently", the analysis obtained a result with an average of 4.06 (Table 2, see annex A4). Of the participants who answered between 1 and 5, it is expected they showed difficulties in reading the pictograms subtitles in Portuguese.

To investigate the implementability of the pictograms, some health variables were researched. Thirty-eight of the participants (76%) had general practitioner in Portugal, only 6 participants (12%) had chronic diseases, and 72% had taken medicines less than one time per month (Table 3, see annex A5). The majority (44%) preferred western medicine practice, however still 16% prefer as a 1st option the Chinese traditional medicine (Figure 1). Of the 16 participants (32%) that answered self-medication, 15 had purchased the medicines in pharmacies. (Table 3, see annex A5) A total of 42%

participants preferred the pharmacist to get advice in minor health problems. (Table 3, see annex A5)

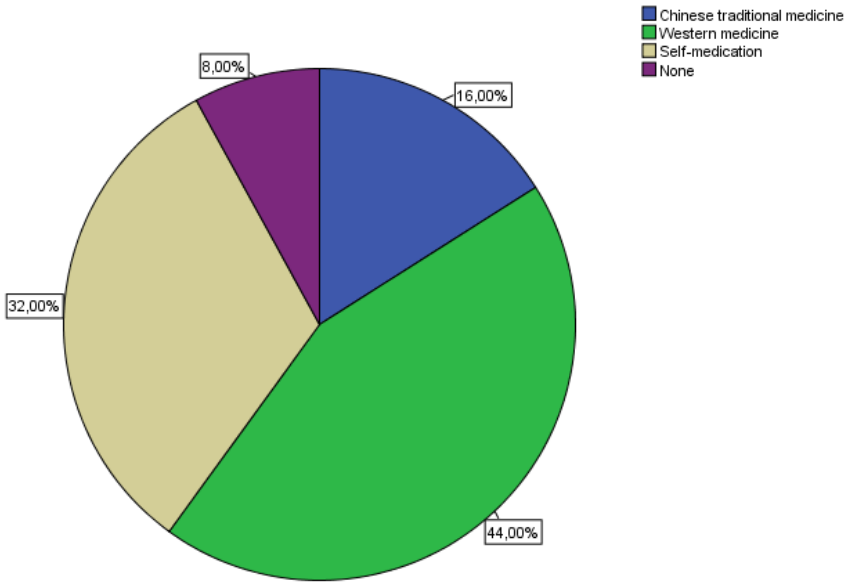

Figure 1. Type of medicine preferred by the participants

The chi-square test showed that there is no statistically significant difference between the self-perceived ability to use the Portuguese language and education level completed in PRC (χ^2=1.513; p=0.219).

3.2 Pictograms Comprehension

The percentage of pictograms correctly interpreted range from 32% (USP: “take with meals”) to 90% (FIP: “Do not break or crush tablets or open capsules”), with an average of 72% (table 4, see annex A6).

Eighteen of the 30 pictograms researched complied with the ISO (International Organization for Standardization) legibility criterion of ≥ 67 % correct interpretation. In these 18 pictograms, 10 were from USP and 8 were from FIP. The legible pictograms by this criterion ware Nos 2, 4, 5, 7, 9, 10, 12, 13, 14, 15, 19, 20, 21, 22, 27, 28, 29 and 30 (Figure 2).

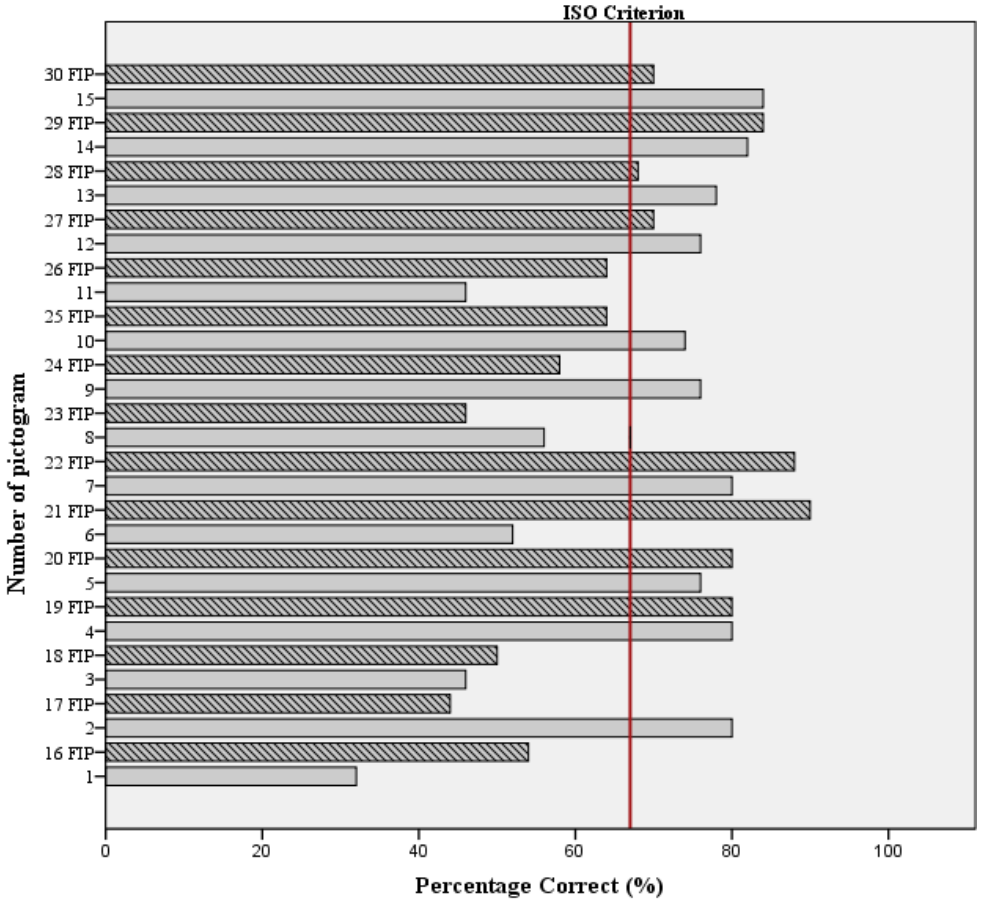

Figure 2. Correct interpretation percentages with ISO criterion. Number 1 to 15 corresponding USP pictograms and 16 to 30 corresponding FIP pictograms

From a total of 15 sets of 2 pictograms (one from USP and another one from FIP with same meaning), seven sets were legible for the ISO criterion of correct answers ≥ 76% (Figure 2).

The USP pictograms showed better interpretation score than the FIP pictograms in 7 cases (pictograms Nos 2, 8, 9, 10, 12, 13 and 15), where only one case (pictogram No 2) had a statistically significant different (χ^2 = 27.504; p < 0.001). In this case, the USP pictogram No 2 (*Do not store medicine where children can get it*) had a proportion of the 80% correct answer compared with 44% of the FIP.

The FIP pictograms had two cases (pictograms Nos 16 and 21) statistically better interpreted than the USP pictograms (χ^2 = 9.874; p = 0.002, χ^2 = 35.066; p < 0.001, respectively), where on the pictogram No 16 (*Take with meals*), the FIP version obtained a proportion of the 54% correct answers compared with 32% of the USP and

on the No 21 (*Do not break or crush tablets or open capsules*), the FIP version obtained a proportion of the 90% correct answers compared with 52% of the USP.

The pictogram "*Do not take if pregnant*" is the only one case where both versions had the same proportion (80%) of correct answer.

The analysis showed no statistically significant association between age group (< 50 years and ≥ 50 years) and pictogram comprehension, and between family income and pictogram comprehension ($p \geq 0.05$).

Analyzing the influence of gender in the interpretation of the pictograms, only FIP pictogram No 28 *(Insert into vagina)* had a statistically significant result ($\chi^2 = 7.966$; $p = 0.005$), where female gender obtained a proportion of the 46% correct answers compared with 22% of the male.

Regarding to the educational factor in the interpretation of the pictograms, the chi-square test showed that who had 10 or more years of schooling had a greater number of the correct answers; in the USP pictograms No 6 *(Do not break or crush tablets or open capsules)* and No 8 *(Do not take with meals)*, and the FIP pictogram No 16 *(Take with meals)* ($p < 0.05$). The opposite was shown in the USP pictogram No 5 *(Store in refrigerator)*, the chi-square test showed that who had basic education level had a greater number of the correct answers ($\chi^2 = 4.612$; $p = 0.032$).

More importantly, the ability to use the Portuguese language was found to be influencing interpretation just for two pictograms: those having a higher self-perceived ability scored also better in the USP pictogram No 6 *(Do not break or crush tablets or open capsules)* and the FIP pictogram No 27 *(If this medicine makes you dizzy, do not drive)* ($\chi^2 = 3.907$; $p = 0.048$ and $\chi^2 = 4.082$; $p = 0.043$, respectively).

Concerning USP pictograms, the t-student test showed that there is no statistically significant difference between the mean of correct answers for the meanings of the pictograms for male and female conditions ($t = -1.556$; $p = 0.126$), as well as for low level of education and high level of education conditions ($t = -1.272$; $p = 0.210$). On the other hand, a statistically significant difference was found between low ability and high ability to use the Portuguese language and the mean of correct answers for the meanings of the pictograms ($t = - 2.522$; $p = 0.015$).

For the FIP ones, the same test was performed for the same variables that were used for the USP and no statistically significant difference was found ($p > 0.05$) between groups assuming good or bad Portuguese proficiency.

3.3 Pictograms misunderstanding

According to the criterion of legibility adopted in this study, twelve pictograms are not conformed by ISO criterion. In some cases, the lack of clarity is pointed out as one of the reasons for misunderstanding pictograms. One example is pictogram No 1 from the USP *(Take with meals)*, many of the participants (36%) responded "take before the meal" because of the presence of the small image in the upper left corner, which was meant to refer to as "take the medicine".

Pictogram No 17 from the FIP (*Do not store medicine where children can get it*) had a poor interpretation of 44%. Most of the participants had considered the image as abstract and ambiguous and they did not recognize that it was a child in the image and therefore considered the option "*do not walk or exercise after taking the medicine*" as the correct with a proportion of 34%.

Only 46% of the responses to pictogram No 23 from FIP *(Take on empty stomach)* were considered correct. All participants recognized the stomach, however the word "empty" on the stomach confused them and they considered the word means food or had some food in the stomach.

The three small images inside the main frame make the FIP pictogram No 24 *(Place 1 drop in left ear and 1 drop u right ear)* difficult to visualize. The participants had considered the pictogram small and it was difficult to distinguish the ear from the eye.

3.4 Opinion of pictograms on medicine packages or leaflets

Only 2 participants (4%) saw the pictograms before, one of them saw the pictograms in the hospital (showed by the doctor) and another one saw in the medicine leaflet.

Forty-eight participants (96%) responded that pictograms are relevant for understanding medication instructions because the presence of the pictograms on the medicine box may help them to remember how to take the medicines and precautions, and is useful for patients who do not speak Portuguese language.

4 Discussion

This study addressed the issue of medication use amongst a culturally diverse population that has over the years, increased in numbers, the Chinese immigrants in Portugal (1). The use of health care services by the Chinese population living in Portugal is reported as scarce, mainly because of the difficulty in communicating with health care providers (3). This study showed that most of the respondents had a self-perceived difficulty in speaking and understanding the Portuguese language, with learning the language been independent from the level of schooling in China. It seems more important to understand pictograms to have more experience living in Portugal then to be more educated in the home land, maybe a result from educational differences between the 2 countries.

A lack of language skills of Chinese immigrants will make it difficult for them to read the treatment guidelines, labels, leaflets (32) i.e. most written instructions given by professionals, including community pharmacists. Previous studies have shown that incorporating pictograms on the medicine label allows for a better understanding of important medication-related information than text-only materials (12, 13, 35). Thus, pictograms can be first step to bridge the linguistic gap and help to correctly understand the medicine instructions.

In this research, most of the tested pictograms were well interpreted by Chinese people living in Portugal. The mean percentage of correct understanding was 72%, 18 pictograms (60%) satisfied the understanding criterion of ISO 3864, and no pictogram was totally unreadable. While these results are not under the expected correct interpretation rates, it also uncovers that not always the pictogram might work as expected, introducing a source of hazard in medication use. Previous research has shown that a prior explanation of the pictogram meaning can increase the level of their understanding (31, 32).

The results demonstrated that there was a statistically significant association between gender and the understanding of one FIP pictogram, with females understanding the meaning easier than the males. However, the correspondent USP pictogram was equally well interpreted by both of genders, and thus, it will be potentially more useful.

It was found a statistically significant association between education level and understanding for three of the USP pictograms (Nos 5, 6 and 8) and one FIP pictogram (No 16). Three cases were better interpreted by who had higher education level, except one of the USP pictograms, it was better understood by people with a lower schooling level. This finding is due to the fact that people with higher schooling have a greater ability to decode graphic symbols, but people with basic education have more previous visual experiences in decoding of images (13). As well, the actual label in Portuguese might have been more difficult to red in the two USP and one FIP pictograms.

The results demonstrated that only the set of pictograms from USP had, on average, a better interpretation by those who had greater self-perceived to use the Portuguese language. Therefore, this finding may be due to the existence of a clearer relation between the image and the subtitle on USP pictograms compared with FIP ones.

Overall, the USP pictograms performed better than the corresponding FIP ones because the set of FIP pictograms had a greater number of cases that raised doubts regarding their meaning in this sample. The reasons that led to this misunderstanding may be the lack of clarity of image, ambiguity, visual skills and cultural values (21). Some of these failures can be corrected, and thus, improve the understanding of these pictograms by the target population. As shown in several studies the pictogram should be used as a complement to written and oral information, as they do not present enough detail to express all the pharmaceutical information (12, 13, 17, 28).

The Chinese immigrants thought that it was a good idea to have pictograms on the medicine box because they will improve the understanding of medicine instructions, help them to remember important medication information, including how to take the medicine and precautions, and a valuable rule to reduce linguistic differences and establish a good communication between health care providers and patients for a correct use of the medicine. These findings agree with those of previous research (17, 28, 35) .

Portuguese community pharmacies seem good place for the implementation of pictograms because Chinese immigrants are frequent users of these pharmacies in order to purchase medicines for their self-medication.

To implement the pictograms, the healthcare authorities in Portugal should introduce rules that lead to the proper use of these, especially in low literacy population and immigrants.

4.1 Limitations of the study

As the number of participants was relatively small, the results cannot be generalized to the entire Chinese population living in Portugal.

Other limitation is related to not testing the pictograms in a real-life situation, the participants had to imagine the presence of the pictograms in a medicine box (at first, they had some difficulty in imagining).

5 Conclusions

Most of the pictograms in this study were well understood by the Chinese population living in Portugal, although some of them were found to present variations in comprehension according to gender, education level, the perceived ability in using Portuguese language. Overall, the USP pictograms performed better than the corresponding FIP ones.

For the future research is recommended to evaluate the understanding of pictograms by Chinese immigrants in a real context (placing pictograms on medicine box) within Portuguese community pharmacies. Another recommendation is to evaluate the understanding in a larger sample of Chinese participants.

In short, the pictograms can increase medication understanding by immigrants with poor linguistic skills. Furthermore, the pictograms can help pharmacists or other health care providers to convey correctly medication instructions, thus increase medicine adherence and prevent medication errors. Nevertheless, these may need adaptations to fully accomplish their intended role.

This study was a contribution to start a new stage to improve the quality of health of the Chinese immigrants in Portugal.

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Annexes

A1. Survey

PictoPT

Avaliação de pictogramas farmacêuticos por utentes das culturas chinesa e hindu que falam português

O presente inquérito serve de base a um trabalho para tese de Mestrado Integrado em Ciências Farmacêuticas da Faculdade de Farmácia da Universidade de Lisboa.
Todos os inquéritos estão sobre um acordo de confidencialidade, não sendo divulgados para qualquer outro fim e todos os dados são tratados de forma agregada.

A sua resposta é fundamental para nós.

Desde já, muito obrigado! आपको बहुत बहुत धन्यवाद! 非常感谢!

Secção 1: Sócio-demografia

1. Idade: _____ anos

2. Sexo
   a) Masculino ☐
   b) Feminino ☐

3. Tem passaporte(s) de que país(es)?
   a) Português ☐
   b) Chinês ☐
   c) Hindu ☐
   d) Outro ☐ Qual/quais?_____

4. Local ou cidade onde nasceu? _____

5. Há quanto tempo reside em Portugal? _____ anos

6. Durante quanto tempo residiu na China ou Índia? _____ anos

7. Quantos anos de educação completou?

a) Sem escolaridade ☐
b) 1 - 4 anos ☐
c) 5 - 6 anos ☐
d) 7 - 9 anos ☐
e) 10 - 12 anos ☐
f) + 12 anos ☐

7.1. Em que país completou essa escolaridade?

a) Portugal ☐
b) China ☐
c) Índia ☐
d) Outro_____

8. De 0 a 10, considerando 0 "não consigo compreender nem falar em Português", e 10 "compreendo e falo Português fluentemente", como considera a sua facilidade em compreender e falar em Português?

9. Em média, quanto recebe a sua família, por mês?

a) <600€ ☐
b) 600-1000€ ☐
c) 1000-1400€ ☐
d) 1400-1800€ ☐
e) >1800€ ☐

10. Quando tem um ligeiro problema de saúde (por exemplo, uma constipação ou diarreia), a quem se costuma dirigir?

a) Família ☐
b) Amigos ☐
c) Farmácia ☐
d) Médico ☐
e) Outros_____

11. Tem médico de família em Portugal (por exemplo, num centro de saúde ou num consultório privado)?

a) Sim ☐
b) Não ☐

12. Tem alguma doença crónica? Qual/quais?

a) Sim ☐

12.1. Se sim, qual/quais? _____

b) Não ☐

13. Com que frequência toma medicamentos de farmácia?

a) Nunca ☐
b) Menos de 1 vez por mês ☐
c) Menos de 1 vez por semana ☐
d) 1-3 vezes por semana ☐
e) 4 ou mais vezes por semana ☐
f) Todos os dias ☐

14. Quando tem um problema de saúde, recorre a alguma das seguintes opções? Selecione todas as que se apliquem:

a) Medicina Tradicional Chinesa/Indiana ☐
b) Medicina Ocidental ☐
c) Auto-Medicação ☐
d) Nenhum ☐

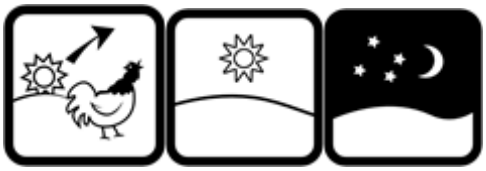
14.1. Se selecionou a opção c, na alínea anterior, onde costuma obter os medicamentos?

a) Farmácia ☐
b) Internet ☐
c) Outro local _____

Secção 2: Pictogramas

Pedimos agora que em cada uma das perguntas seguintes, assinale por favor com um "X" no ☐ da opção que considera que melhor descreve os desenhos/imagens/ilustrações respetivos.

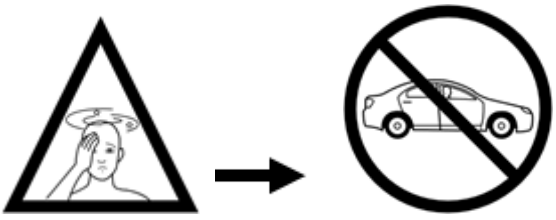
Muito obrigado! आपको बहुत बहुत धन्यवाद! 非常感谢!

1. 

a) Tome de manhã, ao meio-dia e à noite ☐
b) Tome ao pequeno almoço, ao almoço, e ao jantar ☐
c) Tome de manhã, à tarde ou à noite ☐

2. 

a) Ter atenção a esta medicação nas mulheres grávidas ☐
b) Repouse depois de tomar o medicamento ☐
c) Não tome este medicamento durante a gravidez ☐

3. 

a) Não conduza durante o tratamento com este medicamento ☐
b) Se tiver tonturas após a toma deste medicamento, não conduza ☐
c) Este remédio pode afetar a visão ☐

4. 

a) Tome o medicamento com o estômago vazio ☐
b) Não tome o medicamento de barriga vazia ☐
c) Tome o medicamento com as refeições ☐

5. 

a) Guarde o medicamento num local fresco ☐
b) Guarde o medicamento no frigorífico ☐
c) Guarde o medicamento no congelador ☐

6. 

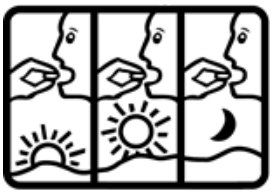
a) Mantenha o medicamento fora do alcance das crianças ☐
b) Evite a toma do medicamento por crianças ☐
c) As crianças não podem tomar este medicamento sozinhas ☐

7. 

a) Não tome o medicamento com álcool ☐
b) Não beba bebidas alcoólicas depois de tomar o medicamento ☐
c) Não beba bebidas alcoólicas durante o tratamento com o medicamento ☐

8. 

a) Tome o comprimido inteiro ☐
b) Não quebre ou esmague os comprimidos nem abra as cápsulas ☐
c) Não dissolva ou misture o medicamento ☐

9. 

a) Tome o medicamento ao pequeno almoço, ao almoço, e ao jantar ☐
b) Tome o medicamento de manhã, à tarde ou à noite ☐
c) Tome o medicamento 3 vezes ao dia ☐

10. 

a) Ter atenção com o medicamento nas mulheres a amamentar ☐
b) Se estiver a amamentar, não tome o medicamento ☐
c) Tome o medicamento após a amamentação ☐

11. 

a) Tome o medicamento antes da refeição ☐
b) Tome o medicamento após a refeição ☐
c) Tome o medicamento junto com alimentos ☐

12. 

a) Aplique o medicamento no ânus ☐
b) Insira o medicamento na vagina ☐
c) Insira o supositório ☐

13. 

a) Não tome o medicamento com alimentos ☐
b) Tome o medicamento fora das principais refeições ☐
c) Não coma depois de tomar o medicamento ☐

14. 

a) Tome o medicamento se tiver dificuldade em adormecer ☐
b) Não tome o medicamento quando estiver com sono ☐
c) O medicamento pode causar fadiga/sonolência ☐

15. 

a) Não tome o medicamento se estiver a amamentar ☐
b) Ter atenção com o medicamento nas mulheres amamentar ☐
c) Tome o medicamento após a amamentação ☐

16. 

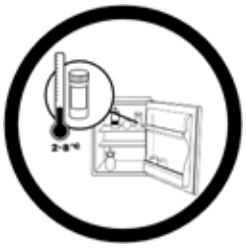
a) Não beba bebidas alcoólicas durante o tratamento com o medicamento ☐
b) Não tome o medicamento com bebidas alcoólicas ☐
c) Não beba bebidas alcoólicas depois de tomar o medicamento ☐

17. 

a) Desinfete sempre as mãos quando aplica o medicamento no ouvido ☐
b) Lava as mãos antes e após da aplicação do medicamento no ouvido ☐
c) Aplique apenas uma gota do medicamento no ouvido ☐

18. 

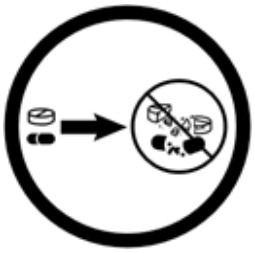
a) Evite a toma do medicamento por crianças ☐
b) Não ande ou faça exercício depois de tomar o medicamento ☐
c) Mantenha o medicamento fora do alcance das crianças ☐

19. 

a) Guarde o medicamento num local fresco ☐
b) Guarde o medicamento no frigorífico ☐
c) Guarde o medicamento no congelador ☐

20. 

a) Agite o medicamento antes de usar ☐
b) Não aperte o frasco ☐
c) Segure com força enquanto agita ☐

21. 

a) Não quebre ou esmague os comprimidos nem abra as cápsulas ☐
b) Pode tomar o comprimido dividido em pequenas partes ou as cápsulas abertas ☐
c) Não dissolva ou misture o medicamento ☐

22. 

a) Ter atenção com o medicamento nas mulheres grávidas ☐
b) Repouse depois de tomar o medicamento ☐
c) Não tome o medicamento durante a gravidez ☐

23. 

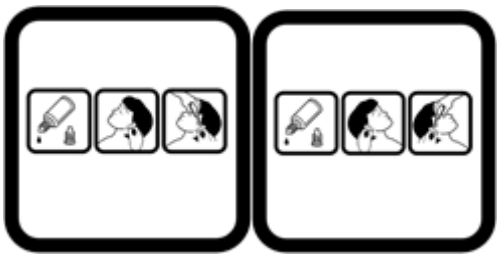
a) Tome o medicamento antes da refeição ☐
b) Tome o medicamento junto com alimentos ☐
c) Tome o medicamento depois da refeição ☐

24. 

a) Misture o medicamento com água ☐
b) Ingira muita água após a toma do medicamento ☐
c) Ingira o medicamento com um copo de água extra ☐

25. 

a) Não aperte o frasco ☐
b) Agite bem o medicamento antes de usar ☐
c) Segure com força enquanto agita ☐

26. 

a) Despreze a primeira gota, antes de aplicar em cada ouvido ☐
b) Aplique uma gota em cada olho ☐
c) Aplique uma gota do medicamento no ouvido esquerdo e outra no ouvido direito ☐

27. 

a) Lave bem as mãos antes e após a aplicação na vagina ☐
b) Lave as mãos antes de aplicar o supositório ☐
c) Desinfete as mãos quando aplica o medicamento na vagina ☐

28. 

a) Tome o medicamento quando tiver sono ☐
b) O medicamento pode causar sonolência ☐
c) Não tome o medicamento ao deitar ☐

29. 

a) Se tiver tonturas com a toma do medicamento, não conduza ☐
b) Não conduza durante o tratamento com o medicamento ☐
c) Não conduza após tomar o medicamento ☐

30. 

a) Tome o medicamento, dispersando o conteúdo na água ☐
b) Misture o medicamento em água ☐
c) Ingira o medicamento com água ☐

Secção 3: Questões adicionais

Por favor, responda brevemente às seguintes questões.

1. Alguma vez recebeu uma imagem ou ilustração como aquelas que viu nas páginas anteriores?

a) Sim ☐
b) Não ☐

1.1. Se sim, em que situação?

a) Medicação crónica ☐
b) Medicação de uma situação aguda ☐
c) Outro: _____

1.2. Qual era o problema de saúde? _____

1.3. Onde recebeu essa ilustração (local)?

a) Farmácia ☐
b) Hospital ☐
c) Outro local: _____

2. Se respondeu "Sim" na pergunta anterior, quem lhe forneceu a imagem ou ilustração?

a) Médico ☐
b) Farmacêutico ☐
c) Enfermeiro ☐
d) Outro:

_____

3.Considera as imagens ou ilustrações úteis para a correta utilização dos medicamentos?

a) Sim ☐
b) Não ☐

Por favor, justifique a sua resposta

_____
_____
_____
_____

4. Tem algum outro comentário, sugestão ou crítica?

_____
_____
_____

5. Numa escala de 1 a 5, sendo 1 “Não achei o questionário nada relevante" e 5 “Achei o questionário extremamente relevante”, qual é o seu grau de satisfação em relação a este inquérito?

a) 1 ☐
b) 2 ☐
c) 3 ☐
d) 4 ☐
e) 5 ☐

5.1. Pode explicar brevemente porque deu a resposta anterior?

_____
_____
_____

FIM

Muito Obrigado! आपको बहुत बहुत धन्यवाद! 非常感谢!

A2. Informed consent

CONSENTIMENTO INFORMADO

Exmo(a) senhor(a)

O presente inquérito serve de base a um trabalho para tese de Mestrado Integrado em Ciências Farmacêuticas da Faculdade de Farmácia da Universidade de Lisboa, realizada por Sensen Xu, sob a orientação do professor Afonso Cavaco.

O tema deste trabalho é **"Avaliação de pictogramas farmacêuticos por utentes das culturas chinesa que falam português"**. Tem como principal objetivo estudar o uso de pictogramas/imagens por pessoas estrangeiras, com a finalidade de reduzir os erros de medicação nas comunidades com maior dificuldade de compreensão da Língua Portuguesa.

Salienta-se que todos os dados recolhidos neste presente inquérito são totalmente confidenciais e é mantido o anonimato de todos os participantes.

A sua resposta é fundamental para nós.

Desde já, muito obrigado pela participação! **非常感**谢!

Eu, _____ declaro que tomei conhecimento e aceito em participar neste estudo.

_____ ___/___/_____

(rubrica do participante + data)

A3. Results – Table 1

Table 1. Sociodemographic characteristics of the survey participants (N=50)

	Number (%)
Gender	
Male	23 (46)
Female	27 (54)
Age (years)	
< 21	1 (2)
21 to 30	13 (26)
31 to 40	9 (18)
41 to 50	19 (38)
51 to 60	5 (10)
≥ 60	3 (6)
Nationality	
Portuguese	3 (6)
Chinese	47 (94)
Birth place	
Zhejiang (China)	32 (64)
Fujian (China)	14 (28)
Liaoning (China)	2 (4)
Braga (Portugal)	1 (2)
Porto (Portugal)	1 (2)
Education (level)	
No schooling	1 (2)
1 – 4 years	2 (4)
5 – 6 years	6 (12)
7 – 9 years	17 (34)
10 – 12 years	18 (36)
+ 12 years	6 (12)

Table 1. Sociodemographic characteristics of the survey participants (N=50) (continuation)

	Number (%)
Schooling country	
No schooling	1 (2)
Portugal	5 (10)
China	44 (88)
Income (Euro)	
No income	2 (4)
< 600	16 (32)
600 – 1000	21 (42)
1000 – 1400	7 (14)
1400 – 1800	2 (4)
≥ 1800	2 (4)

A4. Results – Table 2

Table 2: Sociodemographic characteristics and linguistic skill (N=50)

	Age (years)	Immigration Time in Portugal (years)	China Time* (years)	Portuguese Ability**
Mean	40.52	12.12	28.00	4.06
Median	43.50	11.50	27.50	3.00
Std. Deviation	12.47	5.57	12.36	2.81
Minimum	18	2	6	1
Maximum	71	26	63	10

*China Time = Time they have lived in the PRC; **Portuguese Ability = Self-perception in using Portuguese language.

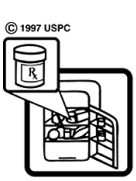
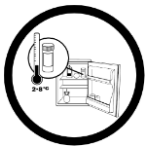
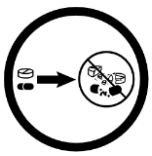
A5. Results – Table 3

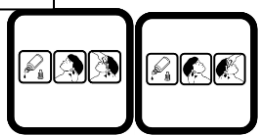
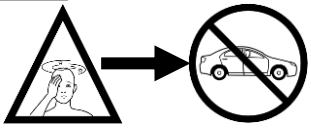
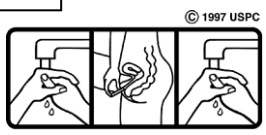
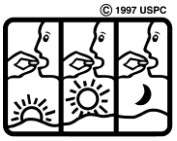
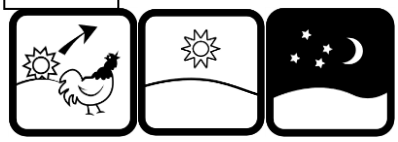
Table 3 Health characteristics of the survey participants (N=50)

	Number (%)
where purchased the medicine for self-medication	
No self-medication	**34 (68)**
Pharmacy	**15 (30)**
Bought in China	**1 (2)**
Whom to turn to get advice on minor health problems	
Family	**11 (22)**
Friends	**3 (6)**
Pharmacist	**21 (42)**
Physician	**14 (28)**
Myself	**1 (2)**
Medication Frequency	
Never	**5 (10)**
Less than 1 time per month	**36 (72)**
Less than 1 time per week	**6 (12)**
Every day	**6 (12)**

A6. Results – Table 4

Table 4 Number (%) of participants who correctly interpreted the pictograms

USP pictograms	Correct %	FIP pictograms	Correct %
No1  Take with meals	32	No16  Take with meals	54
No2  Do not store medicine where children can get it	80	No17  Do not store medicine where children can get it	44
No3  Do not drink alcohol while taking this medicine	46	No18  Do not drink alcohol while taking this medicine	50
No4  Do not take if pregnant	80	No19  Do not take if pregnant	80
No5  Store in refrigerator	76	No20  Store in refrigerator	80
No6  Do not break or crush tablets or open capsules	52	No21  Do not break or crush tablets or open capsules	90
No7  Shake well	80	No22  Shake well	88

USP pictograms	Correct %	FIP pictograms	Correct %
No8  Do not take with meals	56	No23  Take on empty stomach	46
No9  Wash hands/Place drops in ear/Wash hands again	76	No24  Place 1 drop in left ear and 1 drop in right ear	58
No10  This medicine may make you drowsy	74	No25  This medicine may make you drowsy	64
No11  Drink additional water	46	No26  Take with water	64
No12  If this medicine makes you dizzy, do not drive	76	No27  If this medicine makes you dizzy, do not drive.	70
No13  Wash hands/Insert into vagina/Wash hands again	78	No28  Insert into vagina	68
No14  Take 3 times a day	82	No29  Take in the morning, noon and nigh	84
No15  Do not take if breast-feeding	84	No30  Do not take if breast-feeding	70