Australasian Medical Journal 2009, 1, 10, 97-103

An Affective/Effective Graphic Tool for Pain Self Care

Felix Ofori Dartey[1], Prof. Tom Cassidy[1], Dr. Frances Cole[2], Dr. Peter Knapp[3].

[1] The School of Design, The University of Leeds, UK.
[2] Pain Rehabilitation Specialist, Bradford Teaching Hospitals, Bradford, UK.
[3] The School of Healthcare, The University of Leeds, UK.

RESEARCH

Please cite this paper as: Dartey F, Cassidy T, Cole F, Knapp P. An affective/effective graphic tool for pain self care. AMJ 2009, 1, 10, 97-103. Doi 10.4066/AMJ.2009.127

Corresponding Author:
Felix Ofori Dartey
The School of Design
The University of Leeds
United Kingdom
Sd07fod@leeds.ac.uk

Abstract

Background: Patient Information materials are used by healthcare providers and professionals to inform people about their conditions and help the patients make decisions.

Methods: The aim of this project was to design a patient information leaflet to educate patients with chronic pain and low literacy skills understand their condition and make informed decisions. After a number of iterative trials an affective/effective patient information leaflet (PIL) was designed employing a visual metaphor, which was both affective and effective to encourage patients to understand and take their medication correctly. The PIL was evaluated among both healthcare professionals and patients. The healthcare professionals evaluated the clarity of information the PIL is conveying. Patients also evaluated the readability and comprehension of the information the PIL is conveying.

Results: The data suggests that with the inclusion of the right visual metaphor the patients were able to identify with it and that encouraged them to read the PIL and adhere to the treatment therapy.

Conclusion: Using visual metaphors to facilitate healthcare communication to low-literacy patients may aid adherence.

Background

Poor adherence to prescribed therapy is regarded worldwide as a major public health problem, since it constitutes a significant barrier to effective treatment of many acute and chronic diseases. The consequences of poor adherence are inadequate health outcomes and increased health care costs [1][2][3]. This has a direct impact on the patient's condition since the patient is not able to follow the treatment plan and make decisions which leads to poorer health and worsens the disease.

Patient information material, such as leaflets, are the most widely and commonly used method for passing on health information [4]. They support the information communication during consultation with the health practitioner [5]. Patients are known to retain only about 20% of what they hear [6] , this combined with the oral information received from the healthcare practitioner coupled with the written information in the form of a leaflet should strengthen the patient's knowledge and confidence, increase their involvement in healthcare decisions and increase their adherence to the prescribed treatment therapy [7],[8],[9].

Research in psychology and marketing indicates that humans have a cognitive preference for image-based, rather than text-based, information[10]. Visual aids such as pictograms stimulate the imagination and offer an alternative means of recalling instructions without involving the written word. To facilitate the communication of health information to people with limited literacy skills, the material should be written at an appropriate reading level in a simple format using basic text, and it should incorporate graphic or pictorial aids such as pictograms to complement the written text. Accurate interpretation of pictorial material requires a degree of visual literacy, which refers to the ability to understand, create and use visual symbols for thinking, learning and communicating[11]. Metaphor is reflected in our everyday language. Metaphor is for most people a device of the poetic imagination and the rhetorical flourish – a matter of extraordinary rather than ordinary language[12]. Visual metaphors cannot be described adequately in formal terms only. Rather, they must be considered as visual representations of metaphorical thoughts or concepts [13].

The objectives of this project were to design, develop, and evaluate graphic tools to encourage patients to take their medication effectively.

Methods

Study site and study population

The study was set in Bradford in North Yorkshire, a cosmopolitan city with a cross section of diaspora communities, mainly South West Asians and Eastern Europeans. The study was conducted at Horton Park Primary Care Trust of the NHS in Bradford, which provides pain clinics for people with chronic pain and low literacy skills. In consultation with the healthcare professionals, one clinic was recruited for the study. The design team would have liked to have used a larger group but the medical staff felt that they wanted to trial the project for only one group and then roll the design solution out gradually. The participants (patients) had at least basic English language communication skills but English was their second language. All were taking medications for chronic pain management.

Interview Process and Data Collection

The designer being "participant as observer" was introduced to the focus group by one of the physiotherapists who explained the aim of the study. The presence of the designer could have led to bias. In order to reduce the risk of this, the designer circulated among the participants during exercises. The designer had to maintain a balance between collecting data and avoiding introducing bias. The designer introduced himself and explained the purpose of the interview. To ensure patients' confidentiality and participation, no Dictaphones or video cameras were used for the interviews.

The clinic interviewed consisted of ten participants, six patients and four healthcare professional being three physiotherapists and a consultant. The patients were asked:

1) *What medication are you on?*
2) *What is your dosage?*
3) *How often do you take your medication?*
4) *Do you understand what is going on within your body?*
5) *What activities do you engage in?*

The first three questions were asked to ascertain if the individual understood the management of their drugs. The fourth question was asked to see if the individual had an understanding of their medical condition and the fifth question was used to get to know the individual better so that the flow of information would increase. The healthcare professionals were also interviewed to ascertain what they perceived as being the problem. The participants' answers were used as the input for the development of the graphic tool(s).

Though there were no honorariums at the end of the interviews, the participants especially the patients were very happy to participate as they were able to voice out their concern to a neutral person and they were keen to help with the project.

Analysis of Interview Results

From the answers the patient participants gave for question 1, it was found that the participants did not understand their diagnosis or conditions. Some did not understand why they (the patients) were all attending the same clinics but are not taking the same drugs. On question 2, again the same issues reflected, why they were all attending the same clinic but on different dosages.

At question 3, some of the respondants noted that after taking a day or two's dosage their pain subsided and therefore they did not see the need to continue the drug therapy. Others stated that they did not continue because they were scared of the side effects or becoming addicted. Some also said, they did not feel or see any change in their condition after a day or two's dosage and thought the medication was not effective or that simply there was no need for it. With question 4, there were also those who had still have not come to terms with the fact that they have chronic pain and thus did not understand what was going on within their body.

Methodology

It was decided that any graphic tool that could be used to help advise the patients should have a metaphor that they could easily understand and identify with. The first metaphor tried was that of a five aside football game as football is common in England and because early meetings with the medical staff had led the designer to think that the target audience were young men. This was before the interviews and clinic attendance whence it became obvious that this was incorrect and this idea was therefore dropped. The second metaphor tried was that of "baking a cake". The healthcare participants liked this idea and were even encouraging the development of a DVD using this metaphor in an avatar form, however it was realised that it did not actually suit the patient group whose cultural background meant that they were unlikely to be involved in baking .

A final 'Flower Caring' Pain Self Care' concept was developed as it was considered that very few people would not have encountered events where flowers or plants could be on the point of dying and then brought back to full bloom by the care and attention of a gardener using a watering can. A watering can icon containing water is used to denote the medication taking by the patient. A plant food icon also stands for the knowledge and information the patient gets from the doctor. A pain score tool was also developed incorporating tick boxes and facial grimaces to make it easier for the patients to be able to score correctly. The pain score tool was calibrated in two different ways that is; a score of 0 – 10 and Mild, Moderate and Severe calibrations. The facial grimaces were also added to make it easier for them to make an accurate scoring. Facial grimaces were coloured with white signifying no pain; pale yellow and yellow - mild pain. However, the yellow also overlapped into moderate pain. The orange colour also signifies moderate pain. The orange-red and the red signify severe pain. The clock

faces were separated to enable the doctors to write down the medication at the times they want the patients to take them. This concept was developed into a leaflet which folds into A5 size. The front page consists of the 'Starting your drug' day clock face and a pain score tool. The inside front page also contain the 'Starting your drug' night clock face and a pain score tool as well. Pages 3 and 4 are a repeat of the process under the title 'Keep Going'. Starting their medication, together with the patient, the healthcare professional determine the pain score of the patient and the right medication is prescribed and the time for taking them marked on the clock faces. Day dosage marked on the day clock face and night on night clock face. The night before their next clinic, the patient marks his/her pain score on the pain score tool and takes it to the clinic. The process is repeated for other half of the leaflet being 'Keep Going' with your medication. Depending on the score of the patient the correct medication and dosage is prescribed.

Results and Discussion

The feedback from the consultant and a number of her colleagues who have used this tool was:

- It helps patients to see when they currently take their medication, so *timing* and what relationship it has with their pain levels. They can see the way they take the medication is unhelpful e.g. they put off taking the medication before the pain levels get too high or already high and then wait even longer before they take medication.
- It helps to improve the timing of the medication in relationship to their changing pain levels so they can be ahead of the rising pain levels.
- It helps them to understand the use of medication over a 24-hour period: a day and a night.
- It helps the *conversation* between the clinician and the patients about timings of taking different types of drugs and forms of drugs for pain.
- It helps patients see that *helpful behaviour* such as better pacing of activities would also help; so reduce their unhelpful behaviour so improve self management.
- It works well in clinician time scales of ten minutes or so.

The study indicates that the use of visual metaphor had a significantly positive influence on patients understanding of instructions and hence adherence to treatment therapy. The affective and effective graphic tools enabled the patients to realize that their timing for taking medication was not helpful and that, they have to adhere to the prescribed treatment therapy. The affective and effective pain score tool helped the patients visualize their pain levels effectively and encouraged them to take the medication on time. From the study, it could be deduced that the tools helped the conversation between the clinicians and the patients about timing. The tool (the patient information leaflet) also helped to reveal to the patients helpful behaviour such as better timing of activities.

Conclusion

In this study, attention was paid to educating the patients about their diagnosis and what adhering to medication treatment therapy does to their conditions. Though many patient information leaflets have sought to do this, the success of this study was influenced by the incorporation of the right visual metaphor which engaged the patients thus enabling them to understand their condition and relate to it and also encouraged them to adhere to the prescribed drug treatment therapy. The journey towards the right metaphor was both challenging and interesting and offered the design team and the medical staff great opportunities for collaborative creative thinking and innovation. Using visual metaphors to facilitate healthcare communication to low-literacy patients stimulates the mind and aids adherence, however, it requires verbal explanation from the health professionals. It should also be developed in collaboration with the target community taking into account their cultural settings.

References

1. *Adherence to long-term therapies: Evidence for Action*. World Health Organization 2003 p 13.
2. Nichols-English, G. & Poirier, S. (2000) *Optimizing Adherence to pharmaceutical care plans*. Journal of American Pharmacist Association, 40, p475 - 485
3. Dowse, R. and Ehlers, M. (2001) *Medicine labels incorporating pictograms: do they influence understanding and adherence?* (http://eprints.ru.ac.za/576/01/Medicine-labels.pdf accessed 07/11/2009)
4. Dowse R. and Mansoor, L.E. (2003) *Effect of Pictograms on Readability of Patient Information Materials.* The Annals of Pharmacotherapy. (http://www.theannals.com/cgi/content/full/37/7/1003.pdf accessed 07/11/2008)
5. Kenny, T., Wilson, R.G., Purves, I.N., Clark, J. S., Newton, L.D. Newton, D.P. & Moseley, D.V. (1998) *A PIL for every ill? Patient information leaflets (PILs): a review of past, present and future use*. Family Practice. Vol 15, pp. 471-479
6. *Communicating with patients who have limited literacy skills.* Report of the National Work Group on Literacy and Health (1998). The Journal of Family Practice. Vol 46. Dowden Publishing Co., Inc. USA pp. 168-176
7. Kitching J.B. (1990) *Patient Information leaflets – the state of the art.* Journal of Royal Society of Medicine. 1990 May; 83(5): pp. 298–300.
8. Dowse R. and Mansoor, L.E. (2003) *Effect of Pictograms on Readability of Patient Information Materials.* The Annals of Pharmacotherapy.
9. Katz, M. G., Kripalani, S. & Weiss, B. D. (2006) *Use of pictorial aids in medication instructions: A review of the literature.* American Journal of Health-System Pharmacy, Vol. 63, Issue 23, pp2391-2397.
10. Doak, C.C., Doak, L.G. & Root, J.H. (1996) *Teaching Patients with Low-literacy Skills,* Second Edition, J.B. Lippincott, Philadelphia, pp91-128.

11. Lakoff, G & Johnson, M.(1980) *Metaphors we live by*. University of Chicago Press. Chicago
12. El Refaie E. (2003) *Understanding visual metaphor: the example of newspaper cartoons*, Visual Communication, Vol. 2, No. 1, pp75-95.
13. Dickinson, D., Raynor, D.K. & Duman, M. (2001) *Patient Information leaflet for medicines: using consumer testing to determine the most effective design.* Patient Education Counseling, Elsevier, Vol. 43. pp 147-159

AUTHORS' CONTRIBUTIONS

All authors contributed equally to all aspects of the study.

PEER REVIEW

Not commissioned; externally peer reviewed

CONFLICT OF INTEREST

The authors declare that they have no competing interests

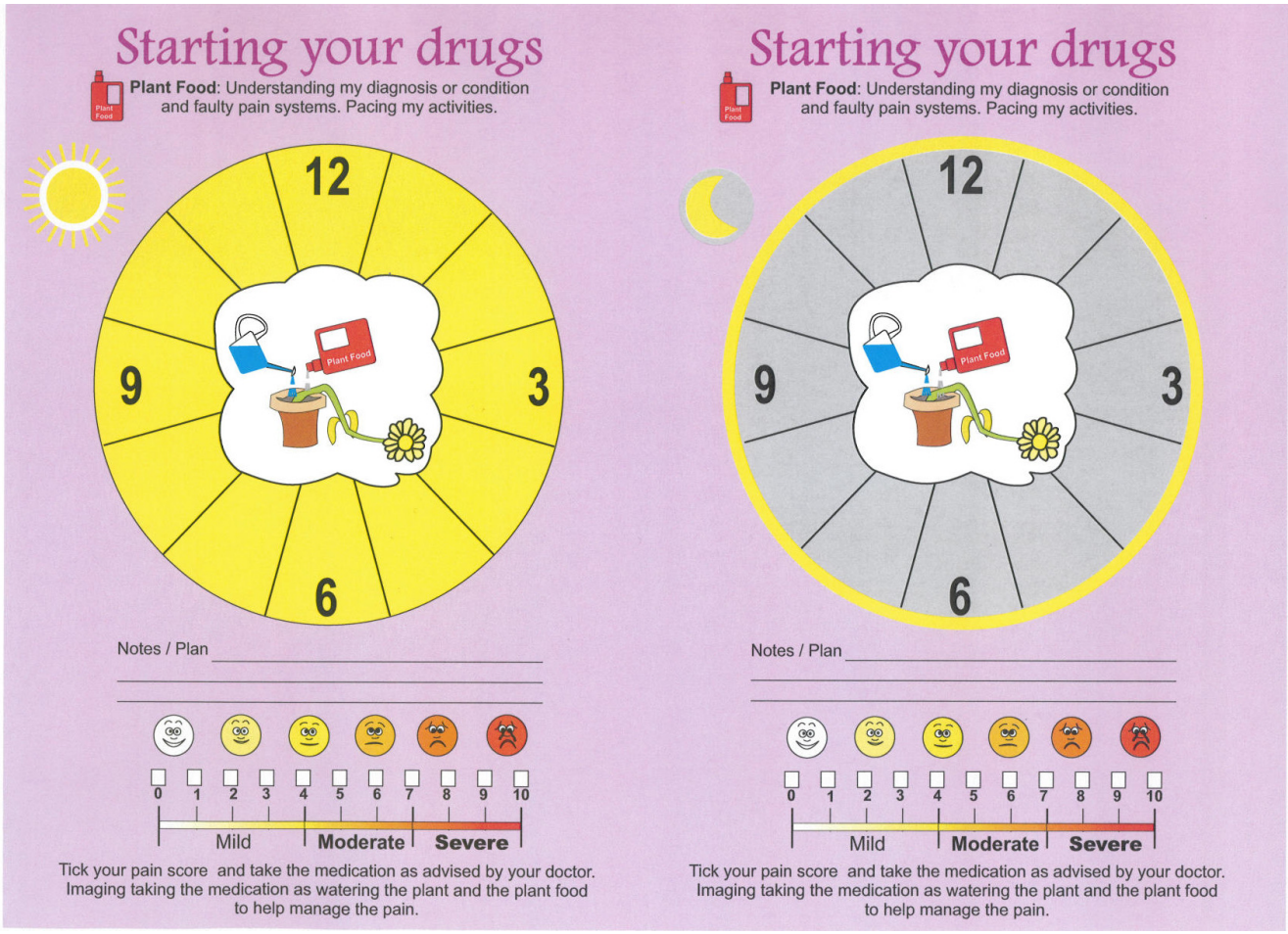

Figure 1: Pages 1 and 2 showing the 'Starting your drugs' day time and night time clocks.

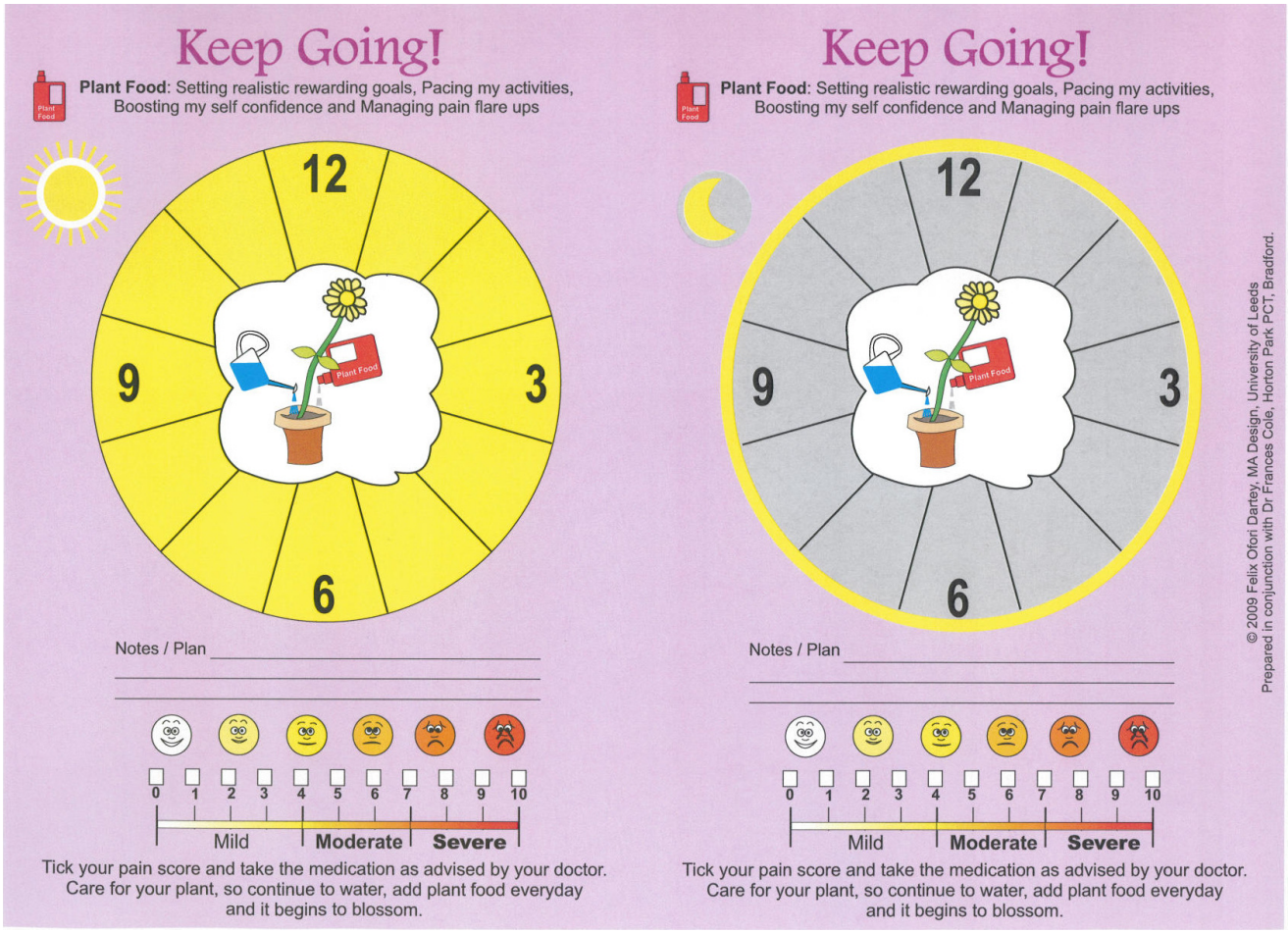

Figure 2: Pages 3 and 4 showing the 'Keep Going!' day time and night time clock.

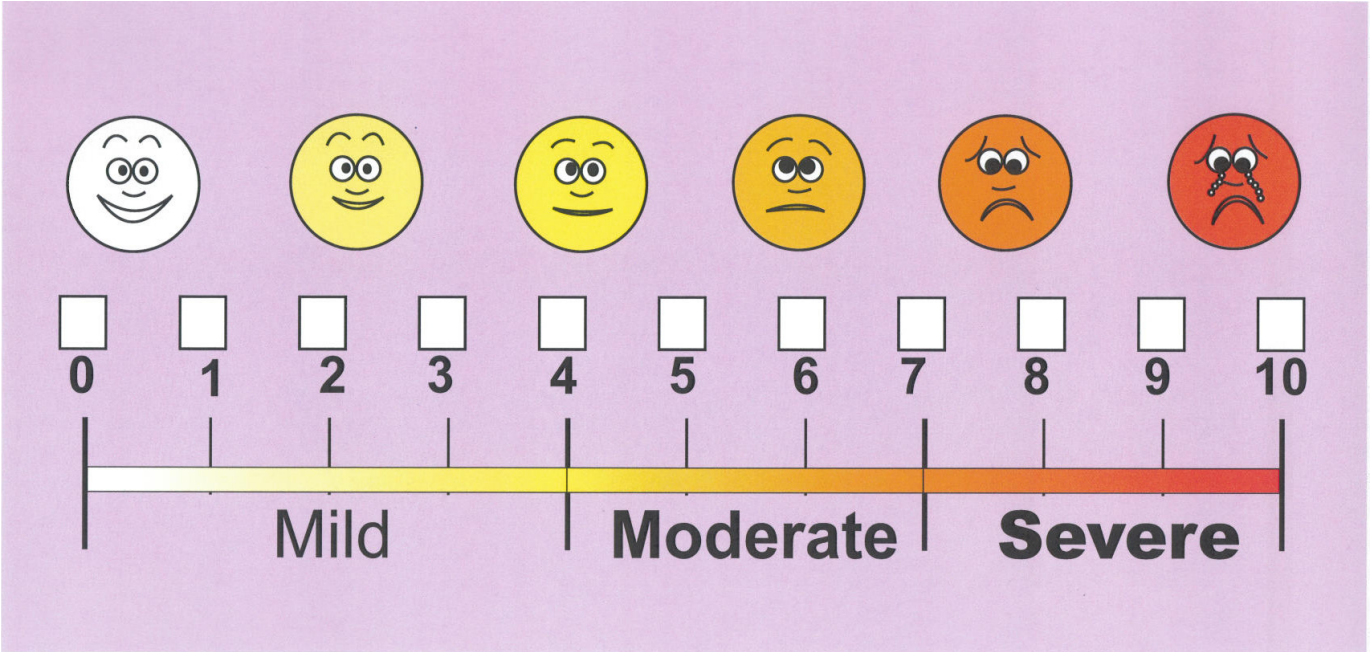

Figure 3: An affective and effective Pain Score Tool.