

Peter S. Houts, Cecilia C. Doak , Leonard G. Doak , Matthew J. Loscalzo. (2006).

The role of pictures in improving health communication: A review of research on attention, comprehension, recall, and adherence.

Patient Education and Counseling, 173-190.

L'articolo studia il modo in cui combinare figure e testo ha un effetto sulla comunicazione in campo sanitario.

1. Introduction

Communication between health professionals and patients is inherently problematic.

Professionals want to communicate clearly, but tend to use technical terminology because it is precise, because it is familiar, and often because there are no exactly equivalent non-technical words available. Furthermore, they often try to communicate more information than patients can process.

Patients, even those with well developed language skills, find it difficult to process medical information because they are unfamiliar with medical terminology, because they are preoccupied with their symptoms, and because they are upset which makes concentration difficult.

While people at all literacy levels have problems understanding and using health information, people with limited literacy skills are especially in need of help.

They need help in understanding written information and, because they place more reliance on spoken explanations, they need help in remembering what they hear.

Comunicazione
problematica

Medici: usano
terminologia tecnica

Pazienti:
Non familiari,
preoccupati non
concentrati

Problemi di literacy

Bisogno di aiuto per
capire e ricordare

FIGURE

- L'articolo valuta l'effetto delle figure in combinazione con testi scritti od orali.

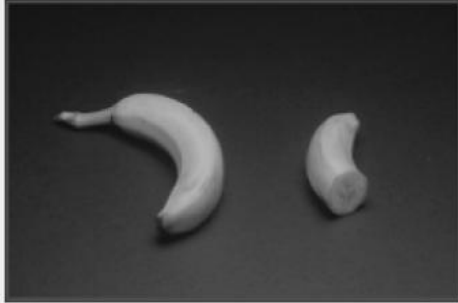
Written message

When mother drinks alcohol, baby drinks alcohol. Alcohol crosses the placenta and circulates in the bloodstream of the fetus.

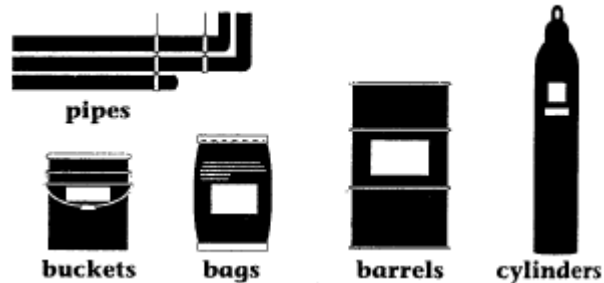
Visual message



Figure 1
Clear Labels May Allow Images to Communicate Important Concepts Without Having to Read Additional Text

TOO MUCH	RIGHT SIZE	TOO MUCH	RIGHT SIZE
			

You can find chemicals in different kinds of containers.



Rassegna che analizza 4 aspetti della comunicazione:

1. attirare l'**attenzione** al materiale
2. aiutare a **comprendere** le informazioni presentate
3. migliorare il **ricordo** del messaggio
4. aumentare la possibilità' (likelihood) che si agisca in accordo con il messaggio (**adherence**).

La rassegna secondo gli autori e' in accordo
con la teoria del processamento
dell'informazione di McGuire

[1] McGuire MJ. (1999). Constructing social
psychology: creative and critical processes.
Cambridge University Press.

Mcguire, 1999

Propone una matrice per spiegare il processo di comunicazione/persuasione, con 5 variabili di input:

1. source,
2. **message characteristics.**
3. channel,
4. receiver
5. response target

e 13 variabili di output:

exposure, **attention**, liking, **comprehension**,
cognitive elaboration, skill acquisition, agreement,
memory, retrieval, decision making, **acting on the decision**,
cognitive consolidation, and proselytizing.

Metodologia:

- (Houts et al.) Rintracciano studi che confrontano: testo con testi+figure.
- Prendono in considerazione le differenze nel livello di istruzione dei soggetti.
- Trovano 19 studi di educazione della salute (health education) e centinaia di studi in educazione, psicologia, marketing.

Risultati..

Si tratta di ricerche con assegnazione casuale al gruppo sperimentale e al gruppo di controllo

Ma:

Outcome measures were largely self-report which raises the possibility of respondents biasing reports to please investigators.

In some cases investigators reported trends without statistical test results ...

The small number of studies on some topics limits the generalizations ...

not all findings are consistent with each other.

As a result, we have proposed hypotheses rather than conclusions from this review.

More research is needed on all the topics discussed here

....

1.attenzione:

Not all health communications are read by people who could benefit.

Racks of informational brochures in doctors' offices are often ignored and, even when brochures are given to patients by health professionals, not all are read.

Even spoken instructions by health professionals are not Always attended to by patients or families because they are stressed, distracted, or confused.

One contribution of **pictures** to health education is to **attract the attention of patients and families and to stimulate them to attend to the information.**

Non date
Non lette
Non
ascoltate
Non capite

Le figure
attraggono
l'attenzione
Stimolano a
seguire le
info.

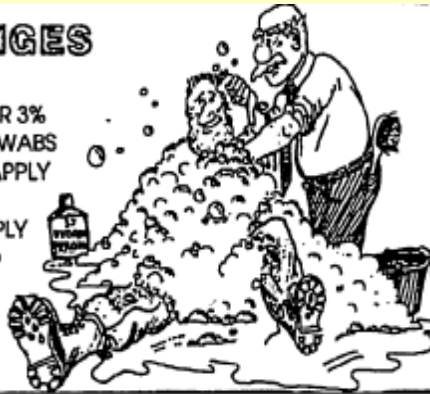
Trovano 1 studio in HE che confronta
l'attenzione data al testo con l'attenzione
data al testo con figura.

[2] Delp C, Jones J. Communicating
information to patients: the use of
cartoon illustrations to improve
comprehension of instructions.
Acad. Emerg Med 1996;3:264–70.

DRESSING CHANGES

TWICE A DAY:

WASH INJURY WITH SOAP AND WATER OR 3% HYDROGEN PEROXIDE USING COTTON SWABS OR STERILE DRESSINGS. NEXT YOU MAY APPLY A THIN LAYER OF ANTIBIOTIC OINTMENT (BACITRACIN, NEOSPORIN, ETC.). RE-APPLY STERILE DRESSING FOR FIRST 2 DAYS AND THEN AS NEEDED TO PROTECT WOUND. REPLACE DRESSING IF IT BECOMES WET.



COMPLICATIONS

IF YOUR WOUND BECOMES

RED, SWOLLEN,

SHOWS **RED STRIAKS,**
OR PUS, OR BEGINS TO HURT MORE
INSTEAD OF LESS AS DAYS GO BY,
HAVE IT CHECKED BY A DOCTOR.



SCARRING

ALL WOUNDS SCAR. THE FINAL APPEARANCE OF A SCAR CANNOT BE JUDGED UNTIL AT LEAST 6 MONTHS. SUNSCREEN APPLICATION TO THE INJURED AREA FOR THE FIRST 6 MONTHS WILL LESSEN THE EXCESSIVE COLORATION AND LESSEN THE VISIBILITY OF THE SCAR.



Delp e Jones studiano 234 pazienti che arrivano al pronto soccorso con delle ferite.

Dopo il trattamento e prima delle dimissioni, ricevono delle istruzioni stampate sulle cure da fare a casa. 1/2 hanno anche le figure.

Tre giorni dopo :

- intervistati per telefono hanno letto le istruzioni (misura di attenzione)?

se l'hanno fatto gli vengono poste domande su informazioni date nel materiale (recall)

e inoltre gli viene chiesto cosa hanno fatto per prendersi cura delle ferite (adherence).

Table 1

Effects of text alone vs. text plus cartoons on patient attention, recall, and adherence: $N = 234$ (from Delp and Jones [2])

	Text plus cartoons (%)	Text only
Read instructions (attention)	98	79 ^b
Answer all four wound care questions correctly (recall) ^a	46	6 ^b
Adherence to wound care instructions ^a	77	54 ^b
Subset analyses of patients with less than high school education		
Adherence to wound care instructions ^a	82	45 ^b

^a Analyses only included patients who had read instructions.^b Differences between groups statistically significant $p < .05$.

i pazienti che ricevono l'handout con le figure tendono di piu' a leggerlo, a ricordarlo e a seguire le istruzioni.

Parrebbe esserci anche una differenza tra i pazienti con diverso grado di istruzione: chi ha un basso livello di literacy ha particolarmente bisogno dell'aiuto delle figure.

Anche se decorativa...

Due volte al giorno:

lavare la ferita con il sapone e l'acqua o con idrogeno peroxide usando una garza sterile. È poi possibile applicare un velo di antibiotico.

Riapplicare una garza sterile per i primi 2 giorni e dopo se ce ne è bisogno. Sostituire la garza se si bagna.



Houts et al. affermano di non aver trovato studi nel marketing o nell'educazione sull'effetto delle figure sull'attenzione al materiale.

- *Torneremo su questi argomenti...*

2. Comprensione

I pazienti hanno difficoltà a capire...

a... reason is the inherent complexity and uncertainties involved in the topics being discussed.

.., health professionals may...speak in broad generalizations to patients who want specific information that applies to them, personally.

At the same time, patients are in a stressful environment where there is a power imbalance, educational imbalance, and where they are fearful of appearing stupid and fearful of rejection or abandonment.

As a result, they are hesitant to admit that they do not understand directions or the reasons for medical interventions.

Complessità
Sbilanciamento

Non
riconoscono di
non aver capito

illiteracy

Problema accentuato dal basso livello di lettura:

Gazmararian et al. [9] reported, in a study of 3260 enrollees in a national managed care organization in the United States, that 23% of the English-speaking and 34% of the Spanish-speaking respondents could not adequately read and comprehend medical information in their spoken languages. They also found that these problems were especially prevalent among minority, low income and low education populations (Gazmararian, 1999)

- Il livello di abilità di lettura medio di un cittadino Americano è circa dell'8-9 classe (terza media)
- Però le istruzioni per la cura della salute hanno un livello di leggibilità di livello 10 od oltre; i documenti per acconsentire ad un'operazione sono spesso a livello di laureato.

Analfabetismo funzionale, in Italia

- http://it.wikipedia.org/wiki/Analfabetismo_funzionale
- Con il termine **analfabetismo funzionale** si designa l'incapacità di un individuo di usare in modo efficiente le abilità di [lettura](#), [scrittura](#) e [calcolo](#) nelle situazioni della vita quotidiana. In generale, l'[analfabetismo](#) è l'incapacità di leggere o scrivere frasi semplici in una qualsiasi lingua. Si parla talvolta, meno comunemente, di [illetteratismo](#), termine usato perlopiù in ambito scientifico.

- gli adulti funzionalmente analfabeti non possono operare efficacemente nella società moderna e non possono svolgere adeguatamente compiti fondamentali come riempire una domanda d'impiego, capire un contratto legalmente vincolante, seguire istruzioni scritte, leggere un articolo di giornale, leggere i segnali stradali, consultare un dizionario o comprendere l'orario di un autobus.

(Per approfondire)

- In Italia:
<http://www.internazionale.it/firme/articolo.php?id=18612>
- + risultati PISA SIALS
- Formula di leggibilità
- <http://labs.translated.net/leggibilita-testo/>

soluzioni

Semplificare la lingua (ma non basta)

Le figure: 6 studi

Esempio:

Austin et al. [18], using an experimental design similar to Delp and Jones, studied 101 patients receiving treatment for lacerations in an emergency department of a rural trauma center. Subjects were randomly given discharge instructions with or without pictures. A blinded interviewer later asked subjects questions designed to assess their comprehension of the instructions. The median number of correct responses was five. **Patients who received text plus pictures were 1.5** times more likely to give 5 or more correct responses than those who received just text (65% versus 43%), $p = .033$. In addition, they found that this effect was especially pronounced among **nonwhites**, patients with **no more than a high school education, and women**.

Istruzioni per
il dopo-
ospedale,

Intervista

Più risposte
corrette se si
ha il testo
con le figure.

Nonwhite,
low school
donne

Figure 1.

Illustrated discharge instructions for patients with lacerations.



Keep wounds clean and dry.
Leave bandage in place.
Return in two days so we can check it.

Elevate wound(s) above the level of
the heart to reduce swelling and pain.



Watch for the common signs of infection: pain, pus, swelling, redness, fever, and red streaks. If any of these signs are seen, return to the emergency department immediately.



If you have received a tetanus booster, be aware that some people experience pain and mild swelling at the site of the injection. Local heat may reduce the swelling, and aspirin or acetaminophen can relieve the pain. Allergic reactions to the tetanus immunizations are rare. However, if you develop shortness of breath, a rash, or itching over the body, return to the emergency department at once. You will need a booster in 10 years, or in 5 years if you receive a severe injury or laceration.



Telephone taken up was considered unsuccessful. If the patient had no telephone, the chart listed a wrong number, the patient had moved, or there was no answer after three attempts.

There were no statistically significant differences in sex, race, age, education, or percent receiving discharge instructions with illustrations among the patients interviewed in the ED compared with patients interviewed by telephone. Therefore, for analysis, patients interviewed in the ED were combined with patients who were interviewed by telephone.

Figure 2.

Questionnaire to assess comprehension of discharge instructions for patients with lacerations.

Correct	Incorrect	
☐	☐	1. Is it better to keep the wound moist or dry?
☐	☐	2. Above what level should you elevate your wound to reduce swelling?
☐	☐	3. What are common signs of infection (one point for each correct response):
☐	☐	Pain
☐	☐	Redness
☐	☐	Pus
☐	☐	Fever
☐	☐	Swelling
☐	☐	Red streaks
☐	☐	4. How soon should you return if your wound looks infected?
☐	☐	5. Are allergic reactions to tetanus immunizations rare or common?

Altri esempi (comprensione)

- Michielutte et al [19] donne, alto/basso livello di literacy / prevenzione cancro
- Mansoor e Dawse[20] con soggetti del Sud Africa
- Hammeen-Anttila et al. [21] bambini
- Leiner et al. [22] – cartone animato, donne, ispaniche
- Morrow et al[23] , inferenze (quante pillole prese in 24h?)

Molte sono le ricerche nel campo dell'educazione e della psicologia.

Per riassumere Houts et al. fanno riferimento a rassegne:

Levie WH, Lentz R.

Levie WH.

Fillippatou D, Pumfrey PD.

Carney RN, Levin JR.

All of these reviews agree that the weight of evidence indicates that pictures can facilitate comprehension.

However, the relationship between pictures and comprehension is complex.

Levie and Lentz [5], review of 155 experimental studies comparing text plus pictures with text alone, concluded that comprehension was consistently better when pictures related to information in the text. However, pictures that are *unrelated* to text have no beneficial effect on comprehension.

On average, students reading materials with pictures learned one-third more,

learning gain was five times greater in delayed recall than in immediate recall;

was more pronounced for poor readers than for good readers;

pictures facilitate understanding spoken information more than they help in understanding written prose.

In discussing the use of complex pictures, they recommend prompts and guidance to help the reader process the picture correctly.

For example, magnify the key action or correct procedure, draw a circle around the key point, add arrow(s) to point to what to look at, and use bright, contrasting colors for key points.

(aiuto nell'identificazione delle informazioni importanti)

Fillippatou and Pumfrey [24] & Carney and Levin [25]:

- ..importance of proximity between text and pictures and/or the use of captions to help students interpret pictures and in guiding viewers to the most important parts of pictures.
 - ...there are situations, where pictures can interfere with comprehension, especially among beginning or very poor readers.
 - ..Readers may use the picture to guess the intended meaning, often incorrectly, and think that they understand the message.
- Pictures may distract attention away from printed words, especially among poor readers who, research has shown, are more likely to attend to irrelevant aspects of the pictures

Moll [26]

Readance and Moore [27],

suggest that simple drawings are most effective in facilitating comprehension.

Cartoon -> matchstick drawing -> photo

The advantage of simple drawings over more complex pictures may be due to their minimizing distracting details.

Research has shown that people with low reading skills are more likely to attend to irrelevant details in illustrations than are people with higher reading skills

Figure facili o difficili?

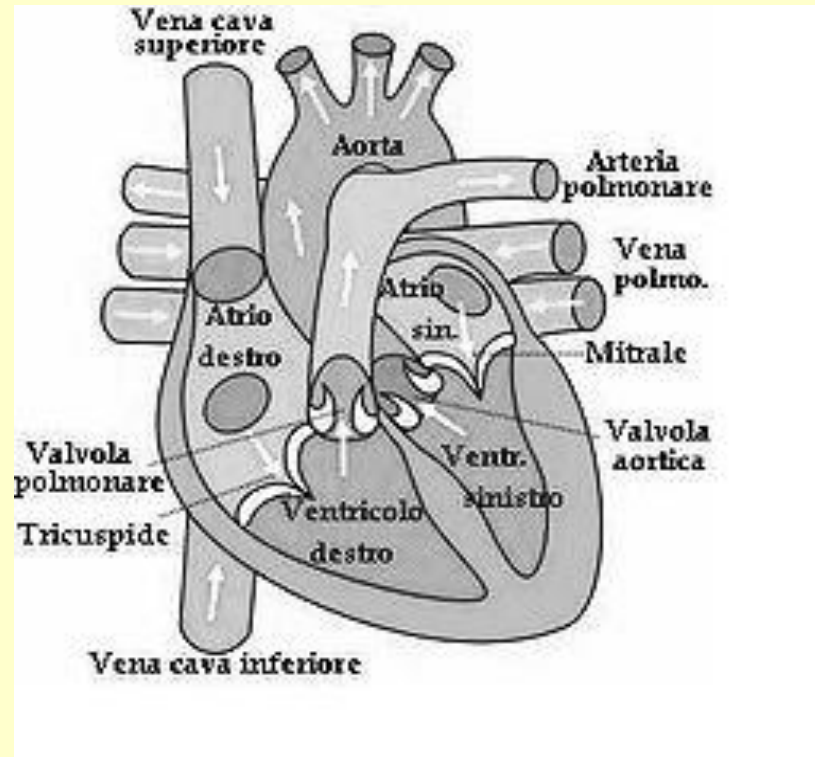
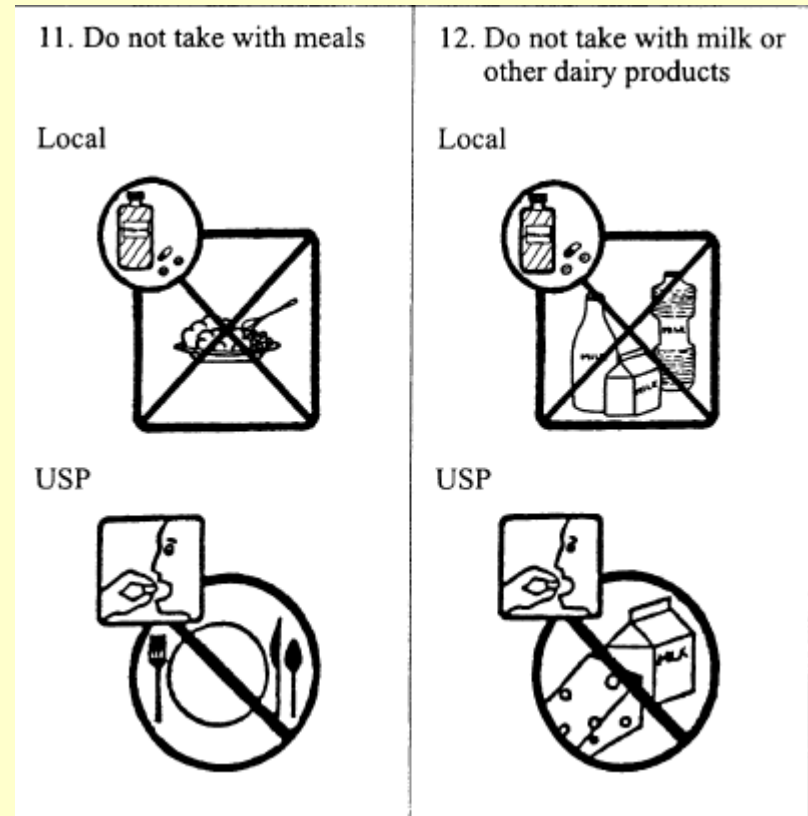


Figure standard / culture locali

Dowse e Ehlers studiano l'uso di figure costruite consultando gruppi di persone non letterate nel Sud Africa

risulta che c'è una preferenza e che la comprensione è migliore per le figure fatte tenendo conto della cultura locale



3“Recall”—can pictures help people remember information in health education materials?

Once a health message is understood, people must **remember** the message in order to use it. Health professionals frequently give important information by **speaking**, but usually **only once**. Studies show that **patients remember from 29 to 72%** of what doctors tell them, and the more information the doctor presented, the lower the recall rate [7]. And even with written instructions, most people read them only **once** and **then rely on their memories** when taking health actions. Even if they do refer back to the original document, they must first remember the type of information available and where to find it. Therefore, improving patients' recall of medical instructions can play an important role in helping them cope with illness.

Free recall o cued recall

Il ricordo puo' essere verificato attraverso un **free recall** (si chiede di ripetere quanto ascoltato o letto senza suggerimenti),
o un **cued recall** (paired associate learning: viene dato uno stimolo per stimolare il ricordo)

Nell'educazione alla salute vengono usati entrambi.

Free recall

5 studi (3 trovano effetti positivi quando si presenta la figura)

Es. Sojourner and Wogalter

[30] who compared recall of medication information presented as just text, just pictures, and text with pictures where the text and pictures presented the same information (N = 216). They found that free recall was higher for the text with picture condition than for either of the other conditions.

Their study also compared responses of young group (mean age of 19) to older group (mean age 68). While the older group had lower recall in general, the picture/text condition had superior recall for both age.

In campo educativo: multimedia effect...

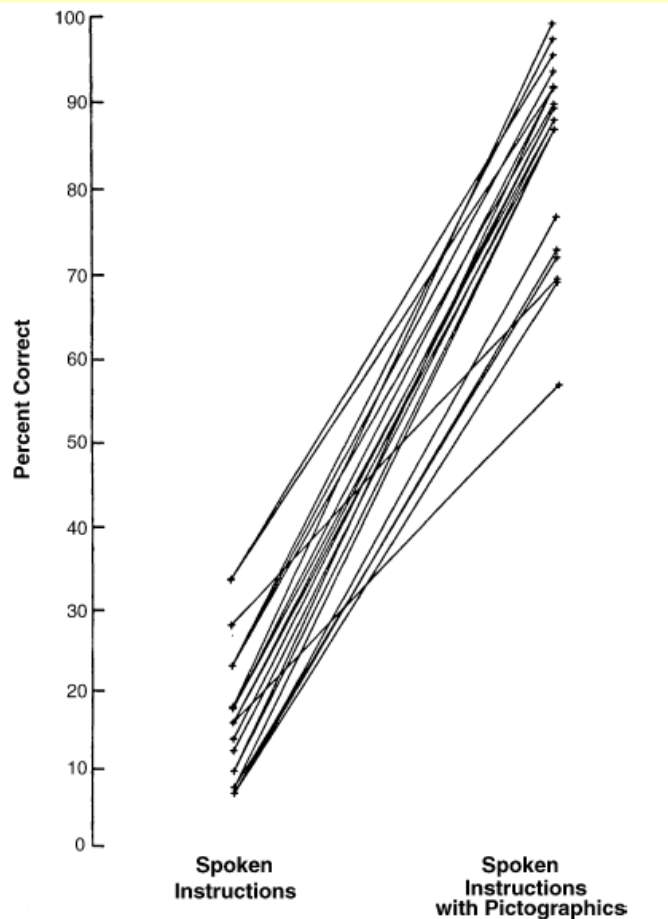
Cued recall

pictures are present during both learning and recall.

A clinical example would be a health professional telling a patient or family caregiver how to treat a bed sore while viewing matching pictures and then giving them copies of the pictures to take home to serve as reminders of what was said. This use of pictures could be especially helpful to patients with very limited reading skills who have to rely entirely on memory of spoken instructions in managing their symptoms.

Houts (36, 37)

Testo orale vs testo orale con figure



Presentano a 21 soggetti due liste di istruzioni (una con figure e l'altra senza) seguite da un compito distraente e poi da un recall

Con le istruzioni orali si e' avuto un ricordo del 15% e con le istruzioni orali + le figure si e' avuto un ricordo dell'85%
dopo 1 mese 72%

4. Adherence – le figure influenzano le intenzioni e il comportamento delle persone?

Behavior or “adherence” is the final and most important outcome for health education.

It is not enough to notice, understand, and remember a message.

The person must carry out the recommended actions.

Adherence involves two steps: accepting the message as something the person should act on and then actually carrying out the recommended actions (intenzione e azione).

Aderenza: 3 studi sull'*intenzione*, 2
sull'*azione*

Es. Ngoh e Shepherd:: si danno indicazioni
orali su come prendere una medicina
(donne non letterate, Camerun rurale).

4 giorni dopo una visita a casa, si contano
le pillole rimanenti:

chi ha le figure prende il 90% delle pillole
prescritte (il controllo 78%)

Kripalani et al.
2007

aiuto alla memoria
aumenta
l'aderenza?

Date: <u>03-15-06</u>		Name: <u>Jane Doe</u>		GMH# 01234567	
Names of Pills	What It's For	 Morning/ Breakfast	 Afternoon/ Lunch	 Evening/ Dinner	 Night/ Bedtime
Lisinopril 20 mg 1 pill once a day	Blood Pressure 				
Simvastatin (Zocor) 40 mg 1 pill at bedtime	Cholesterol 				
Metformin 500 mg 2 pills twice a day	Diabetes/ Sugar 				
Gabapentin (Neurontin) 300 mg 1 pill every 8 hours	Nerve Pain 				
Aspirin EC 81 mg 1 pill once a day	Heart 				

Aderenza - risultati

- + difficile da studiare, conclusioni complesse,
- Talvolta aumentano le risposte positive
- ma il tipo di illustrazione può provocare delle risposte diverse:
- se genera avversione o paura si possono avere delle risposte di evitamento.

Seligman et al. (2007), Facilitating Behavior Change With Low-literacy Patient Education Materials, *Am J Health Behav.* 2007;31(Suppl 1):S69-S78.

- **Come produrre informazioni che facilitano l'aderenza?**

Social cognitive theory suggests that patient education materials designed to activate patients toward healthier behaviors ought to

- (1) improve **knowledge** of the health effects of behavior change,
- (2) positively influence outcome expectations,
- (3) emphasize facilitators to behavior change,
- (4) address impediments to behavior change, and
- (5) enable the creation and achievement of short-term goals

4 meccanismi:

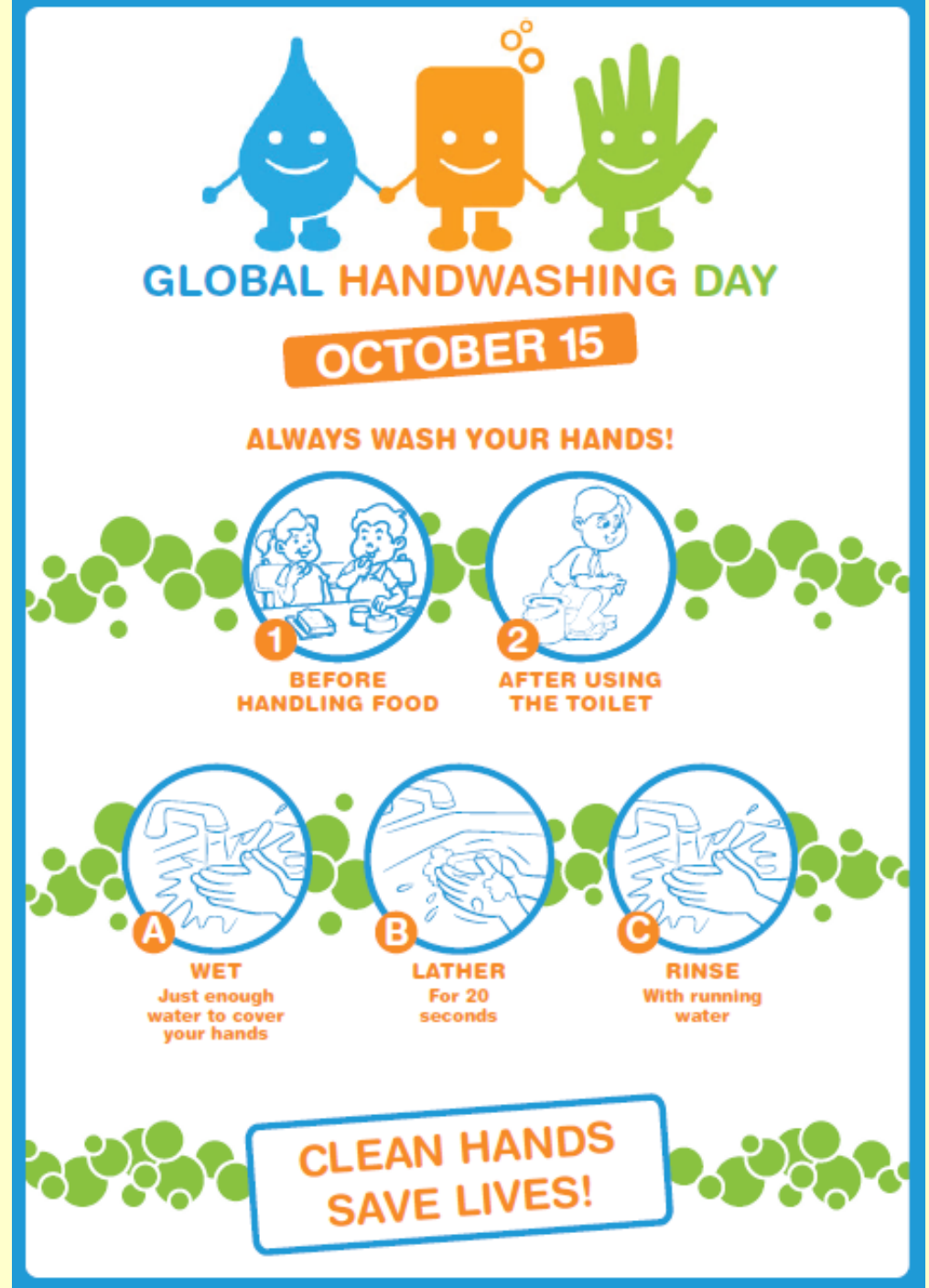
1. dare informazioni
2. Aumentare la paura della malattia
3. Aumentare il senso di rischio
4. Aumentare l'auto-efficacia

Seligman et al.

- Cambiare la percezione dell'auto-efficacia,
- Non spaventare
- Dare abilità e convinzione di poter assumere il controllo sulle abitudini
- Processo in 6 passi:
- Working team, (pochi concetti chiave), short-term goal, strategie di design, intervista..

Efficace?

<http://www.globalhandwashingday.org/Poster.asp>



Efficace? Guida al comportamento?



Si capisce?

<http://www.salute.gov.it/servizio/galleria.jsp?lang=italiano&id=691&dad=s&men=campagne09&label=aids2009>



(Houts) Nelle conclusioni si forniscono delle indicazioni pratiche:

- usare le figure
- usare figure semplici
- semplificare il linguaggio
- guidare l'analisi (vicinanza, didascalie)

(analizzeremo questi suggerimenti con l'aiuto dell'MID (multimedia instructional design))