The MI-HEART Project: Information Technology (IT) for One-to-One Tailored Patient Communication

Rita Kukafka, Dr.PH., MA,§, Yves A. Lussier, P. Eng., M.D.§
Vimla L. Patel, Ph.D. , and James J. Cimino, M.D.

Department of Medical Informatics, Columbia University, New York, NY

Objective: To report on the how-to of the tailoring strategies used in the MI-HEART project.

Background and Significance: Tailored communications are defined as any combination of strategies and information intended for one specific person, based on characteristics that are unique to that person, related to the outcome of interest, and derived from individual assessment.[1]   The promise is that communications tailored to variations that exist between different individuals on factors known to influence health related decisions and behaviors will be superior to mass produced materials that consist of generic health information. The first generation of empirical studies testing tailored communications against generic materials has generally shown this to be the case. In health education, studies have shown that tailored materials are more effective than non-tailored ones in helping individuals change behaviors such as smoking, diet, physical activity, cancer and cholesterol screening.

How Tailoring Works in MI-HEART: The MI- HEART application is essentially an expert system that utilizes empirically based decision rules for selecting an appropriate message from a database of stored messages, referred to as the "message library" (Figure 1). The basis for the selection of a message is the tailoring variables and their values in an individual's data record. The individual's data record is populated from the patient's medical record, supplemented by an on-line questionnaire completed by each participant at baseline. We constructed the on-line tailoring questionnaire to obtain measurements for each individual's status on the variables underlying the decision to seek help when responding to AMI symptoms. The selection of these variables was based on an explicit theoretically derived decision-making model for responding to AMI symptoms, described in detail elsewhere.[2] We included all the variables in our decision model with a wide enough range of response options to capture most of the variation among individuals. Variations in responses to these measures provide the basis for tailoring our communications in that each response item for

each measure is linked by a decision rule to a unique communication. Writing tailored messages for MI-HEART required the authoring of hundreds of different text messages and graphics for each variable and response option. The process demanded effectively translating the background research and underlying decision model into communications to favorably influence each cognitive variable for a particular individual at varying stages of decision-making.

Figure 1: MI-HEART Message Library

Variable	I_PR_Rate
Topic	Perceived risk of having heart disease or a heart disease over 10 yrs. compared to others of the same age, race and sex
Communication Objective	To modify perceptions of optimistic risk

This variable I^PR^Rate which is perceived risk is combined with the objective risk as determined by the MI-Heart risk calculator. This variable (I^OR^Rate) has the possible response values of Low, Average, High. When combined:
If I^PR^Rate = a or b and if I^OR^Rate = L; then Mess^PR^Rate^1
Else; if I^PR^Rate = a or b and if I^OR^Rate = A; then Mess^PR^Rate^2
Else; if I^PR^Rate = a or b and if I^OR^Rate = H; then Mess^PR^Rate^3
Else; if I^PR^Rate = c and if I^OR^Rate = L; then Mess^PR^Rate^4
Else; if I^PR^Rate = c and if I^OR^Rate = A; then Mess^PR^Rate^5
Else; if I^PR^Rate = c and if I^OR^Rate = H; then Mess^PR^Rate^6
Else; if I^PR^Rate = d or e and if I^OR^Rate = L; then Mess^PR^Rate^7
Else; if I^PR^Rate = d or e and if I^OR^Rate = A; then Mess^PR^Rate^8
Else; if I^PR^Rate = d or e and if I^OR^Rate = H; then Mess^PR^Rate^9

References

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§   These authors contributed equally to this work