



Communication study

The impact of watching educational video clips on analogue patients' physiological arousal and information recall

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ABSTRACT

Objective: Investigating the influence of watching three educational patient–provider interactions on analogue patients' emotional arousal and information recall.**Methods:** In 75 analogue patients the emotional arousal was measured with physiological responses (electrodermal activity and heart rate) and self-reported arousal.**Results:** A moderate increased level of physiological arousal was measured but not too much to inflict emotional distress. Recall of information was within the pursued range.**Conclusion:** Hence, physiological arousal is not expected to hinder the goals we pursue with our online intervention.**Practice implications:** Still, developers and researchers should remain attentive to the self-reported (conscious) and hidden (subconscious) emotions evoked by the content of educational video clips presented in self-help interventions. A moderate increased level of arousal is preferred to increase the learning capacity. However, too much arousal may decrease the learning capacity and may cause distress, which should obviously be avoided for ethical reasons.

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1. Introduction

The complex and emotionally loaded nature of communication in oncology care challenges health care professionals (HCPs) as well as patients. Reaching effective communication is of great importance for optimal care and it supports patients in coping with their disease and disease-related concerns [1–4]. So far, research and training in communication competences have primarily been focused on HCPs, but to establish effective communication both parties need to participate actively [5]. This shift, from provider-centred to a more relationship-centred interaction style, has relevance for patients' conversational contribution [6–8]. To support patients in their communication, various educational tools have been developed, such as fact sheets, question prompt sheets and brochures [9].

With the rise of web-based initiatives aiming to support and empower patients, educational video clips provide additional opportunities. Communication behaviour and desired attitudes can be modelled in video clips, with proven instructional effectiveness [10,11]. Patient activation programs that studied the effect of modelled communication behaviour show promising results on patient participation in medical communication and satisfaction [12–15]. The educational clips used in these studies are based on narratives in which the modelled communication behaviour and strategies are embedded. Narratives provide illustrative examples of patients' experiences. Identification with narrative characters has shown to be important to recall the central information of educational clips [16]. This promotes the use of realistic simulations. Yet, the context of the communication and identification with the (video) patient can also evoke emotional arousal [17]. This is especially evident in oncology care. Web-based self-help interventions are mostly used without the feedback or presence of a professional. Therefore it is important to investigate the emotional impact of the educational clips thoroughly [18]. A moderate increased level of arousal caused by increased attention is appropriate. However, too much arousal should obviously be avoided for ethical reasons. Moreover, for the educational purpose

Abbreviations: EDA, electrodermal activity; HCP, health care professional; HR, heart rate; SCL, skin conductance level; SCR, skin conductance response; STAI, State–Trait Anxiety Inventory.

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it is important to investigate if the central message of the video clip is remembered as intended.

We recently developed a pre-visit computer-tailored intervention (PatientTIME) aimed at increasing patient participation in oncology care [19]. Patients can use this intervention to prepare their medical consultations. The central source of information is provided via educational clips of simulated physician–patient encounters. The provided selection of clips is individually tailored to previously identified communication barriers (e.g. asking attention for concerns, checking information) [20]. In the video clips different communication strategies are demonstrated during simulated encounters. The goal of the video clips is to give patients examples of communication strategies, helpful to overcome their communication barriers. Correct recall of the provided information is important because it is a prerequisite for patients who have the intention to apply the modelled behaviours in the consultation room. Yet, if the video clips evoke too much emotional arousal this goal might be missed.

Emotional arousal can be measured in different ways. Before and after watching video clips, the self-reported emotional state can be measured with questionnaires. This method is relatively easy to apply and frequently used to measure emotions. However, emotions also involve subconscious reactions, which may be overlooked by the participant. These reactions are not reflected in self-reported data, but can be indexed by continuously monitored physiological responses [21]. Physiological responses are important components of emotional experiences [22]. Moreover, they are expected to influence the recall of provided information [23].

In the current study we first investigated analogue patients' emotional arousal evoked by watching educational clips, using both self-reported and psychophysiological measures. Second, we evaluated whether the modelled communication strategies were remembered as intended (the cognitive experience).

2. Method and materials

2.1. Design

An experimental study was set up whereby participants watched three short video clips selected from the PatientTIME intervention. In the video clips a video patient demonstrates different communication strategies during an oncology consultation. Emotional arousal was measured before, during and after watching the video clips. Recall of information was measured after watching the video clips.

2.2. Participants

Men and women (>18 year) with a good understanding of the Dutch language were recruited via online research advertisements

and via leaflets at libraries and supermarkets. Applicants with a history of a heart disease were excluded as this could influence the measured heart rate (HR) signal. People with malignant lymphoma were also excluded because they were invited to the overarching study, which focused specifically on this target group. Participation was voluntary and subjects obtained a €10 gift voucher and the opportunity to have their travel expenses be reimbursed.

For ethical reasons we did not include patients for this experiment. Instead the analogue patient approach was used. Analogue patients are healthy participants who are instructed to identify with the video patient and assess the video clips as such. Recent studies conclude that this method is a valid alternative for clinical patients in communication research [24,25]. Patients also seem to have similar psychophysiological responses when they watch their videotaped consultation compared to when they are taking part in that consultation [26].

2.3. Stimuli

Three short video clips were selected from the online patient communication intervention PatientTIME [19]. Each clip centres around a communication barrier, which the targeted patients with malignant lymphoma have indicated to experience as difficult in a previous study [20]. The video-patient is a 50 year old women diagnosed with malignant lymphoma.

In each video clip she demonstrates best practices of different communication strategies (Table 1).

2.4. Measures

2.4.1. Background characteristics

Background characteristics (e.g. age, gender, education) were gathered before the experiment.

2.4.2. Quality check

The quality of demonstrated video clips may influence the recall of information. To validate the quality of the video clips, participants were asked to assess the style, structure and understanding of the video clips by means of twelve questions on a seven point Likert scale. The average score of the twelve quality questions was calculated after checking the internal validity. The internal consistency of the 12 quality items was good (Cronbach's $\alpha = 0.88$).

Additional to this quality check, participants were asked to what extent they could identify with the video-patient (seven point Likert scale, 1 = not at all, 7 = very much).

2.4.3. Self-reported arousal

The pre- and post-self-reported momentary anxiety was assessed with the validated Dutch state version of the STAI (State-Trait Anxiety Inventory, 10 four point Likert scaled items) before and after watching the video sequence (Fig. 1) [27–29]. Total scores range from

Table 1
Characteristics of the educational clips.

Topic	Duration (s)	Related communication barrier	Central information, i.e.; demonstrated communication behaviour (best practice)
Receiving bad news	59	Being overwhelmed by emotions/not able to hear what is explained	- Interrupting the doctor/asking to pause - Indicating that the explanation was not heard - Showing emotional need for support
Explaining worries and concerns	62	Not getting attention for worries and physical complaints	- Explaining/emphasizing physical complaints and worries - Asking for a physical examination - Prioritizing questions/things to discuss
Checking and understanding complex information	79	Not understanding the given information	- Taking notes - Asking for clarification - Checking if the information was understood correctly

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