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

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Highlights

- Realistic video clips are more and more used in online self-help interventions.
- This educational method may evoke conscious and subconscious emotional arousal.
- We investigated the recall, self-reported and physiological arousal of three clips.
- A moderate level of physiological arousal was measured.
- The recall of information was within the pursued range.

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.

ABBREVIATIONS

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

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], [2], [3] and [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], [7] and [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] and [11]. Patient activation programs that studied the effect of modelled communication behaviour show promising results on patient participation in medical communication and satisfaction [12], [13], [14] and [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 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] and [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).

[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], [28] and [29]. Total scores range from 10 to 40, whereas 17 is considered normal, 24 is an acute anxiety response to a stressful situation [27]. The self-reported arousal was corrected for missing values. As suggested by Spielberger [27], inventories missing two items or less were retained for analysis and a value of two was assigned to the missing items (two inventories had one missing) [27]. Internal consistency of the STAI inventories was high ($\alpha_{pre} = 0.88$, $\alpha_{post} = 0.90$).

[FIGURE 1]

2.4.4. Physiological arousal

Emotions, stress and thoughts can activate the autonomic nervous system (ANS), which increases physiological arousal [23] and [30]. The ANS consists of the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). SNS activation can be monitored by the EDA [22] and [30]. The electrodermal activity (EDA) and heart rate (HR) are the most frequently used measures to monitor the physiological arousal [22].
The electrodermal system is the most responsive system when studying the reaction of subjects to stimuli that elicit anxiety. When a participant is at rest, it is common for the skin conductance level (SCL) to change gradually. Emotional arousal may

increase the SCL; i.e. the skin momentarily becomes a better conductor of electricity. After an increase in conductivity, the level gradually decreases again. The typical range of the SCL is between 2 and 20 μS, but wide variation is seen between different subjects and even within the same subject [31].

Besides measuring these tonic changes, phasic changes (spikes) can be marked in an electrodermal signal. This skin conductance response (SCR) is a characteristic electrodermal response, usually occurring 1–3 s after a novel stimulus is introduced. Phasic SCRs are related to attention. When a subject is at rest, non-specific spikes occur typically between 1 and 3 min^{-1}[31].

Compared to the EDA measures, HR is different because it reflects a combination of sympathetic and parasympathetic activity [32]. Cognitive challenges, like remembering communication strategies, can induce changes in the cardiovascular response [33] and [34].

In the current study these physiological responses were measured before and during video watching. Via the BIOPAC MP150, the SCL was measured in micro Siemens (μS), the SCR in spikes per minute (spm) and the HR in beats per minute (bpm) with disposable gel finger electrodes. A Windows 7 operated computer collected the physiological data with Acknowledge 4.1 and Observer XT 10.0. In Observer the physiological data were synchronized with the video sequence.

In Acknowledge 4.1 the EDA and HR signals were prepared to transfer to STATA 13.0. To eliminate high frequency noise of the EDA signal, a low pass filter was applied (cut off frequency 1 Hz). Spikes in the EDA signal were detected using 0.05 Hz High Pass filter (baseline estimation window width 5 s, threshold level 0.05 μS).

The mean SCL and the amount of spikes per video clip were exported for analysis. The HR data were manually checked for noise. Six HR signals did not represent a typical rhythmic signal and were excluded from analysis. Too much or too sudden movements of the hand or failure in the electrodes may explain this error. The facilitator confirmed the first explanation. The mean HR per video clip was exported for analysis.

Because each individual has a different, physiological baseline activity and reactivity pattern, measures were compared to individually established baseline scores.

2.4.5. Recall

Recall of information was assessed with an open question ("*what do you remember from the video clip you just saw?*") and a prompted recall question ("*what does the patient do to communicate adequately with the doctor*"). A codebook with four categories (0 = no items correctly recalled, 3 = all items correctly recalled) was used to assess how many strategies (Table 1, column 4) were recalled correctly. Two researchers independently coded the recall answers of 25 of the 75 participants. The interrater agreement was substantial (Cohen's $\kappa = 0.71$) [35]. Subsequently, one researcher coded the remaining answers and in case of uncertainty, answers were discussed with a second researcher.

2.5. Procedure

Participants were welcomed and asked to wash their hands and wrists as a preparation for the EDA and HR measurement. The facilitator explained the experimental procedure and asked the participant to watch the video clips while identifying with the video patient. In other words, they were asked to act like an analogue patient [24]. Additionally, the facilitator explained that the video clips demonstrated parts of a medical encounter between a doctor and a cancer patient. After signing the informed consent form, participants were asked to fill in socio-demographic questions and the STAI. Then they were prepared for the EDA and HR measurement by attaching electrodes to the wrist and two fingers of the non-dominant hand. Before starting the video sequence (Fig. 1), the facilitator summarized the main instructions and left the participant alone to watch the sequence. During the experiment the facilitator observed the participants with video, to start the clips at the right moment and to check if the participant was not moving too much.

To increase participants' empathic involvement, the video sequence started with an introduction. This video clip displayed the video patient introducing herself and explaining her medical history (51 s). The baseline physiological measurements were taken during a neutral fishbowl clip (30 s), which was shown after the introduction clip. Then the first educational clip was shown. After this first educational clip the participant was asked to complete the recall questions. This procedure was repeated with the second and third educational clip. Time between viewing the clips was approximately 5 min.

Participants were continuously physiologically monitored. To counterbalance the order effect, the computer randomly assigned participants to one of the six possible orders of the three educational clips. At the end of the sequence, participants were asked to complete the STAI again and the evaluation questions. After the experiment they were debriefed by explaining the overarching goals of the experiment. The whole procedure lasted approximately 30 min and was tested and optimized through five pilot sessions with five participants, which were left out of the current analyses.

2.6. Analysis

Data were analysed with STATA 13.0. Descriptive statistics were used to describe the background variables, the arousal scores and the recall scores. A paired *t*-test was used to compare the self-reported arousal scores before and after the experiment. The physiological arousal scores were analysed with linear regression to control for the baseline measures and the possible effect of socio-demographic variables. To analyse differences in physical arousal levels between the three video clips, paired *t*-tests were used for the SCL and HR. The Wilcoxon signed rank test was used to analyse SCR, because this data demonstrated a skewed distribution.

3. Results

3.1. Background characteristics

The participants were for the greater part highly educated and relatively young. The overall quality of the video clips was on average assessed with a 5.0 on a seven point Likert scale ($\sigma = 0.96$). Participants indicated that they could identify relatively well with the video patient, 4.7 on a seven point Likert scale ($\sigma = 1.25$) (Table 2). No differences in reported capacity to identify with the patient were found between groups characterised by age, gender, level of education, experience with cancer or with medical encounters in oncology care.

[TABLE 2]

3.2. Self-reported arousal

Participants' self-reported arousal at post-measurement was not significantly different from their score before watching the video sequence ($p = 0.14$). Before the experiment 9 participants and after the experiment 10 participants reported a score of 24 or higher, indicating an acute anxiety response (Table 2). Four out of the ten participants that rated their anxiety as high in the posttest, also scored high on the pretest.

3.3. Physiological arousal

The mean SCL was significantly increased during all three educational clips in comparison with baseline. There were no significant differences in SCL between the three video clips. When controlling for socio-demographic variables in the regression analysis, gender appeared to be a significant confounder in clip 2; women had less increased SCLs compared to men.
The level of education appeared to be a significant confounder in clips 1 and 3. In clip 1 it suggested that a higher level of education resulted in a more increased SCL. In clip 3 the opposite was suggested.
Changes in SCR en HR compared to baseline were minor. The SCR during each educational clip was on average slightly lower in comparison to baseline. This difference was small but statistically significant in video clips 2 and 3. No significant differences were found in SCR between the three video clips. During video clip 2 the HR was significantly lower compared to baseline (Δ1 bpm) and in this video clip the HR was lower compared to video clips 1 and 3 (Table 3 and Fig. 2).

[TABLE 3] [FIGURE 2]

3.4. Recall

The information recall for video clip 1 (receiving bad news) was significantly lower than the recall for video clip 2 (explaining worries and concerns) and video clip 3 (checking and understanding), both $p < 0.00$. The information recall for video clip 2 was lower compared to video clip 3, but this differences was not significant ($p = 0.08$) (Table 2).

4. Discussion and conclusions

4.1. Discussion

In the present study the impact of watching educational video clips, encompassing patient–provider interactions in oncology care, was investigated on the emotional arousal and recall of analogue patients.
The self-reported arousal measures did not indicate an increase in anxiety. In conformity with the results from a comparable study [36], we did not find correlations between the self-reported arousal and the SCL. However, others did find a relationship between subjective and physiological measures [22] and [30].
Compared to baseline, the mean SCL was significantly increased during all three educational clips, indicating an increased arousal level. The changes in SCR and HR were minor.

The increase in SCL may indicate emotional arousal caused by the content of the educational clips. The SCR at baseline was slightly higher to what literature considered as normal (1–3 min^{-1}) [31]. This may indicate that taking part in the experiment induced some arousal and that participants were alert when starting the experiment. Another explanation is that the relatively short baseline measurements were influenced by carry over affects (see Section 4.2). While the experiment continued, the SCR decreased slightly, but remained close to the 3 spm. Habituation to the occurrence of the experiment may be an explanation for the decrease; i.e. participants may have started to anticipate to novel, but comparable stimuli in de video clips.

The mean HR did not increase during the educational clips. In one of the video clips a significant HR decrease was measured, but clinically this does not seem to be a relevant difference (1 bpm). To compare, in healthy untrained individuals the HR increases by 15 bpm one minute after standing up from a sitting position [37]. The presented stimuli may have been not ‘extreme’ enough to influence the HR, which is different from the EDA measures, controlled by the sympathetic and parasympathetic activity.

On average per video clip, two out of three demonstrated communications strategies were recalled correctly. Because per video clip all three strategies relate to the same communication barrier, we consider this score as sufficient for the educational purpose. The differences in recall scores may be explained by the differences in the emotional nature of the discussed information. The lowest recall scores were found in clip 1. This clip represents a fragment of a bad news consultation and an emotionally overwhelmed video patient. The impact of the discussed information may have distracted from the demonstrated communication strategies. In clips 2 and 3 the video patient demonstrates a more active communication style. This may have drawn the attention more to how things were said instead of what was being said. On the other hand, the physiological data do not demonstrate a significant difference in emotional reaction between the three clips. If the differences in recall resulted from the emotional content, we would expect to see this also in the physiological data, so further research is necessary to clarify the recall differences.

To conclude, the recall scores and the absence of strong physiological effects are positive, having the educational purpose and the autonomous use of the video clips in mind.

4.2. Limitations

Several limitations are related to the chosen method and measures. First, a limitation of the study design was the duration of the baseline measurement. The SCL decreased during the baseline measurements and did not seem to have levelled out at the end of the baseline assessment. The measurements during the neutral clips shown prior to the second and third video clip demonstrated a similar pattern. This indicates that these neutral clips might have been too short to return to baseline. This may have led to a negative bias in the effect looking at the delta scores and also enlarged the chance of carryover effects.

Second, the interpretation of physiological measures is not unambiguous. Novel stimuli can induce strong responses while habituation to a situation will level out the magnitude of responses [38]. Also, non-specific processes are always active (body movement, thoughts, background noises, etc.). Especially the SCL is highly sensitive and responds to many other stimuli [31]. Also the interpretation of changes in the HR is challenging. Excitement is known to increase the HR, concentration and attention can slow down the HR [39]. In the current study, participants were asked to identify with the video patient and they knew that they had to complete questions afterwards. This focus may have counterbalanced a possible increase in HR due to excitement. Third, a relatively large amount of participants (9) reported an acute anxiety response before the start of the experiment. A methodological limitation may explain these remarkable outcomes. The instructions given before the experiment included the explanation about identifying with the video patient. The self-reported anxiety questionnaire was completed after this instruction. Some participants may have completed the STAI while imagining how they would feel awaiting for an oncology consultation. Another explanation is that for some patients the experiment in itself and awaiting the first video clip was quite arousing. This would explain the high variance and the high scores prior to the experiment. Four participants that rated both pre and posttest above the threshold may be high trait anxious. We could not control for this as we did not measured the trait anxiety of the participants.

Fourth, the analogue patient paradigm is a validated method in communication research [24] and [25]. However, clinical patients may experience the video clips differently, because of various reasons (e.g. they have to deal with uncertainty, they have built a relationship with their physician, they have more knowledge about possibilities and consequences). Further research should evaluate how clinical patients experience the video clips or to what extent the paradigm limits generalizability.

At last, the relatively high level of education of the participants may have positively influenced the recall scores and makes it harder to generalize these results.

4.3. Challenges for further research

To get more insight in the effects of (sub) conscious emotions in communication research, the use of physiological data can be a complementary method to self-reported data [40]. However, this fairly new combination of research disciplines raises a variety of methodological challenges [36], [40] and [41]. There are different ways to measure, compare, analyse and interpret physiological responses, which makes it difficult to compare different studies. As a result of the lessons learned in the current experiment, a few challenges for future research are highlighted.

First, considering the large variety in individual reactivity, an accurate and lengthy baseline measurement seems essential. The challenge is to adapt the baseline measurement to the stimuli under study to avoid noise components as much as possible. During the baseline measurement in the present experiment, the participants were not given a task comparable with the task during the video clips under study (identify with the video patient), so we could not control for this. For the purpose of this study this was not an issue, but for future research it may be interesting to control for possible task-related arousal.

Second, the type and combination of physiologic measures needs to be chosen deliberately.

In the current experiment we chose to compare the mean SCLs and the total amount of SCRs. The rationale for this choice was the relatively short educational clips under study, combined with the fact that we were interested in the overall experience. This method does not identify specific arousing moments in the educational clips. If more detailed information is required about e.g. specific communication utterances,

analysing the slopes of the SCL [41] or searching for SCR patterns will give additional information.
Third, recent studies show that each emotion evokes a specific physiologic response pattern [42] and [43]. Fear and sadness were the predominant emotions in the presented educational clips. To accurately interpret physiologic data, it may be helpful to distinguish these emotions. In line with this, the self-reported emotional arousal measure should also be able to distinguish different emotions. The Self-Assessment Manikin (SAM, a non-verbal pictorial inventory), the Profile of Mood States (POMS, a self-rating scale consisting of 65 adjectives measuring 6 identifiable affective states) or a Visual Analogue Scale (VAS, 0–100 analogue scale) may be interesting measures to consider [44], [45] and [46].

4.4. Conclusions

In the current experiment analogue patients' emotional arousal and information recall while watching educational patient–oncologist interaction video clips were investigated, to ascertain that (1) the clips would not inflict emotional distress (ethical reason), and (2) the central information would be remembered as intended (educational purpose).
The educational clips evoked some arousal, but not too much to inflict emotional distress. Recall scores were sufficient for the educational purpose of the clips.
In the development of educational video clips aiming to support and empower patients, a realistic setting and story on the one hand, versus the (emotional) context on the other hand, may need to be well balanced. Developers and researchers should be aware of the conscious and subconscious emotions evoked by the content of educational clips presented in online self-help interventions.

Conflict of interest

None declared.

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TABLES AND FIGURES

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

Fig. 1. Video sequence.

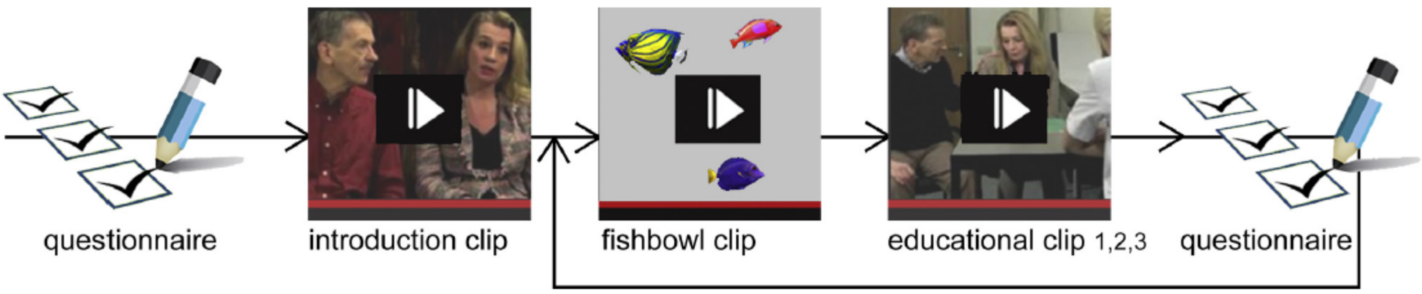


Table 2
Sample characteristics.

Characteristics participants	$n = 75$	μ	σ	Min	Max
Age		33.1	13.4	18	66
		N	%		
Gender	Male	31	41		
	Female	44	59		
Education	Low	3	4		
	Medium	10	13		
	High	62	83		
Relation to cancer	No	22	29		
	Yes, relative	51	68		
	Yes, myself	2	3		
Experience with consultations in oncology care	Yes	5	7		
	No	70	93		
Self-indicated health status	Excellent	10	13		
	Very good	31	41		
	Good	30	40		
	Average	4	5		
	Poor	0	0		
Quality assessment video clips (range 1–7)		μ	σ		
Quality measure total score W2–W13	$n = 75$ (α 0.88)	5.01	0.96		
Identification measure *"(How well could you identify with the video patient?")*	$n = 74$	4.68	1.24		
STAI[*] (scale 1–4)		μ	σ	Min	Max
STAI pre	$n = 75$ (α 0.88)	17.07	4.57	10	32
STAI post	$n = 75$ (α 0.90)	17.88	5.02	10	36
Information recall (range 0–3)		μ	σ		
Clip 1 (receiving bad news)	$n = 75$	1.87	0.68		
Clip 2 (explaining worries and concerns)	$n = 75$	2.27	0.76		
Clip 3 (checking and understanding)	$n = 75$	2.45	0.72		

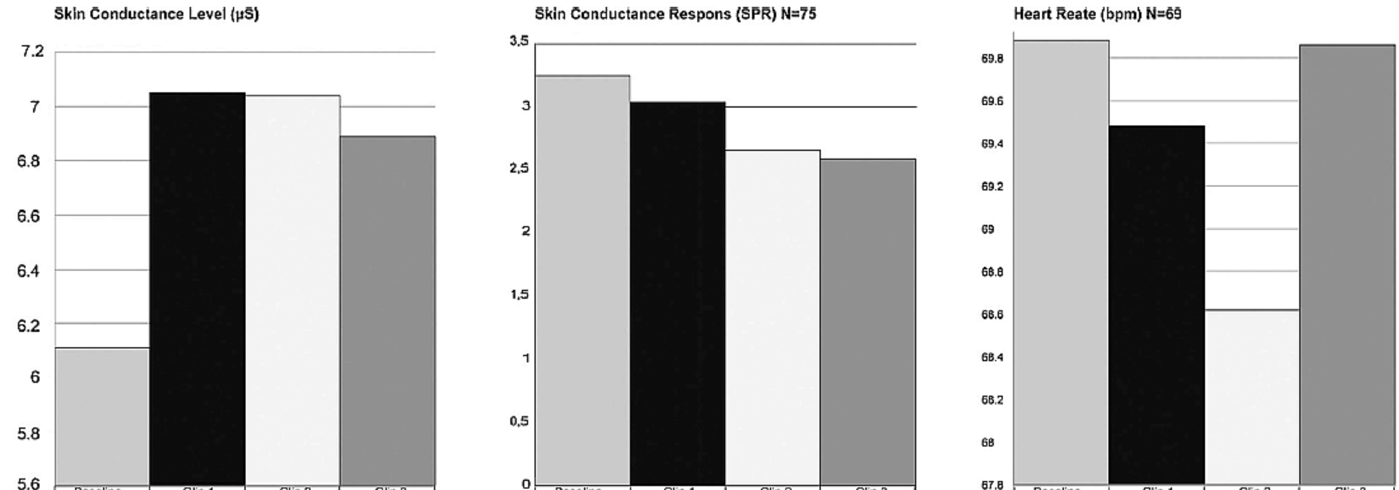
[*] t-test for paired samples; $p = 0.14$

Table 3. : Physiologic arousal.

		SCL (μS) $n = 75$	ΔSCL	SCR (spm) $n = 75$	ΔSCR	HR (bpm) $n = 69$	ΔHR
Baseline	μ (σ)	6.11 (2.94)		3.25 (2.61)		69.88 (9.46)	
Clip 1	μ (σ)	7.05 (3.39)	.94 (1.72)	3.04 (2.69)	−.22 (2.29)	69,48 (10,13)	.39 (3.18)
	p^*	$p < 0.00$		$p = 0.67^{**}$		$p = 0.30^*$	
Clip 2	μ (σ)	7.04 (3.46)	.93 (1.70)	2.66 (2.30)	−.60 (2.10)	68.62 (10.41)	−1.3 (3.4)
	p^*	$p < 0.00$		$p = 0.01^{**}$		$p < 0.00^*$	
Clip 3	μ (σ)	6.89 (3.60)	.78 (1.52)	2.59 (2.40)	.66 (2.11)	69.86 (10.23)	−.02 (3.33)
	p^*	$p < 0.00$		$p = 0.01^{**}$		$p = 0.97^*$	

* p-values, t-test for paired samples: baseline vs clip.
** p-values, Wilcoxon signed rank test: baseline vs clip.

Fig. 2. Physiologic arousal.



	Baseline	Clip 1	Clip 2	Clip 3
SCL (μS)	6,11	7,05	7,04	6,89
σ	2,94	3,39	3,46	3,60
Δ	-	0,94	0,93	0,78
p*	-	<0,00	<0,00	<0,00

*p-values, t-test for paired samples. Baseline vs Clip

	Baseline	Clip 1	Clip 2	Clip 3
SLR(spm)	3,25	3,04	2,66	2,59
σ	2,61	2,69	2,30	2,40
Δ	-	0,22	0,60	0,66
p*	-	0,67	0,01	0,01

*p-values, Wilcoxon signed rank test. Baseline vs Clip

	Baseline	Clip 1	Clip 2	Clip 3
HR (bpm)	69.88	69.48	68.62	69.86
σ	9.46	10.13	10.41	10.23
Δ	-	0.39	1.30	0.02
p*	-	0.30	<0.00	0.97

*p-values, t-test for paired samples. Baseline vs Clip