

Procedure to Validate Sexual Stimuli: Reliability and Validity of a Set of Sexual Stimuli in a Sample of Young Colombian Heterosexual Males

Procedimiento para Validar Estímulos Sexuales: Confiabilidad y Validación de un Conjunto de Estímulos Sexuales en una Muestra de Jóvenes Hombres Heterosexuales Colombianos

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Abstract

Penile plethysmography – or phallometric assessment – is a very relevant evaluation for sexual health. The objective of this research is to suggest a guideline to validate sexual stimuli and validate a set of sexual stimuli to assess “normative” sexual behavior in Colombian young heterosexual men. Six videos of 3:15 minute-long were used. A total of 24 men were assessed. Objective sexual arousal, the International Index of Erectile Function-5, Self-Assessment Manikin, Multidimensional Scale to Assess Subjective Sexual Arousal and socio-psycho-sexual questions were used. The results showed three sexual excerpts which were clearly superior to the others – something discordant with the subjective opinion of researchers. These three sexual excerpts generated internally consistent measurements; moreover, good indicators of external validity have been observed with statistically significant differences as expected. Furthermore, with a small healthy Colombian young population, it has been shown that the three stimuli produce objective sexual arousal if used together.

Resumen

La pletismografía peneana - o la medición falométrica - es una importante forma de evaluar la salud sexual. El objetivo de ésta investigación es sugerir un procedimiento para validar estímulos sexuales y validar un set de estímulos sexuales para evaluar comportamientos sexuales “normativos”, en formato de video, en hombres colombianos jóvenes y heterosexuales. Se utilizaron seis videos de 3:15 minutos de duración. Se evaluó un total de 24 hombres. Se evaluó la excitación sexual objetiva, el cambio rápido en la temperatura periférica, el pulso y se empleó el Índice Internacional de Función Eréctil-5, el Self-Assessment Manikin, el Multidimensional Scale to Assess Subjective Sexual Arousal y preguntas socio-psyco-sexuales. Los resultados muestran tres videos sexuales cortos, los cuales fueron notoriamente superiores a los otros evaluados y diferían de la opinión subjetiva de los investigadores. Estos tres videos sexuales generaron medidas de consistencia interna; además, se observaron buenos indicadores de validez externa con diferencias estadísticas significativas, según lo esperado. Se demostró que, al menos, en una pequeña muestra de jóvenes colombianos sanos los tres estímulos producen excitación sexual objetiva si se emplean juntos.

Keywords

Penile plethysmography; factorial structure; phallometric assessment; reliability; validity; sexual stimuli.

Palabras Clave

Pletismografía peneana; medición falométrica; fiabilidad; validez; estímulos sexuales.

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1. Introduction

Penile Plethysmography (PPT), also called phallometric assessment, allows to measure male sexual arousal to stimuli under controlled conditions Freund (1963). There are two ways to measure the erection response in men: volumetric measurements and penile circumference measurements. Volume measurements utilize a device that surrounds the penis and measures the extent of erection as air is forced out of the device (Fernandez, 2009; Janssen, 2011). Circumference measurements are carried out with instruments that calculate the change in penile circumference. The latter are the most widely used measurements today Marshall (2014), in addition to the fact that they are recommended for men who respond adequately to sexual stimuli, although they are less reliable in men with a poor response (Kuban, Barbaree, & Blanchard, 1999; Parada & Germé, in press).

PPT has been used with different research purposes. Studies are observed which evaluate different types of sex offenders, including child molesters (Marshall & Marshall, in press; Michaud & Proulx, 2009), rapists Looman and Marshall (2005), sexual sadists (Marshall & Yates, 2004; Proulx, Blais, & Beaugard, 2006) and exhibitionists Kolářský and Madlafousek (1983). Other studies have measured the effect of substance use on sexual response (George et al., 2006; Harte, 2014), distractions to sexual stimuli Anderson and Hamilton (2014), cognitive mechanisms linked to arousal Both, Laan, and Everaerd (2011) or implications of arousal in condom use Janssen et al. (2014). All these aspects are relevant to sexual health, and it is important to have reliable and valid assessment methods, as this may impact theory testing, decisions regarding the effectiveness of a psychological treatment, experimental verification of the impact of one or more independent variables, etc. Carretero-Dios and Pérez (2007).

Despite the relevance to sexual health of all issues addressed by PPT, most of these issues share a limitation: standardization and validation of stimuli. Absence of standardized stimuli has been recently pointed out by Marshall (2014) as one of the points to be improved. There are many studies that have used different types of stimuli, such as video clips of mating bonobos, nude exercise, masturbation, video clips of copulation Chivers, Seto, and Blanchard (2007), films of heterosexual sexual contact Rellini, McCall, Randall, and Meston (2005), video clips of explicit homosexual sexual contact Chivers, Rieger, Latty, and Bailey (2004) amongst others. For more information see Chivers, Seto, Lalumière, Laan, and Grimbois (2010). This diversity of stimuli makes validation a difficult task, albeit one of great importance. Difficulty in standardizing stimuli is no new issue. In fact, Howes – in 1995 or Marshall, Serran and Yates – in 2003 had already pointed out some limitations in standardizing stimuli or methodologies used. Although these limitations are still present Marshall (2014) a series of articles are being produced today which are more methodological in nature (Carvalho et al., 2013; Cerny & Janssen, 2011; Chivers et al., 2010; Trotter, Rouleau, Renaud, & Goyette, 2014) with the aim of gradually improving

some of these shortcomings. However, as recalled by Marshall (2014), the phallometry (or rather the stimuli utilized) to date have virtually no psychometric validation. Therefore, the objective of this instrumental, quasi-experimental study Montero and León (2007) is to present a procedure to validate sexual stimuli, as well as obtain validity and reliability of a set of sexual stimuli to assess “normative” sexual behavior in Colombian. Then our hypothesis is: H1) the selected set of stimuli will increase significantly the subjective and objective sexual arousal in a sample of young heterosexual Colombian men in comparison with a set of neutral stimuli.

2. Method

2.1 Participants

The initial sample consisted of 88 men. All participants were students and were contacted at the facilities of our university. The students chose to participate after being briefed on the study. Participants were sent a survey generated in Typeform © by WhatsApp © and / or e-mail. Of the initial sample, only Fifty-seven participants met the inclusion criteria. Inclusion criteria were as follows: being of age, being exclusively or primarily heterosexual according to the Kinsey scale, having a normal erectile function according to the score of the International Index of Erectile Function (IIEF-5, Rosen, Cappelleri, Smith, Lipsky, & Peña, 1999) and – self-reportedly – having a non-problematic sexual function, not using psychoactive substances, not having diagnosed psychological diseases nor taking medication related to sexual dysfunction problems. Of the 57 students, a total of 24 men decided to participate in the experiment.

Age ranged from 18 to 29 years ($M = 21.69$; $SD = 3.00$). The sample was randomly divided into two groups, each of 12 participants. Group A was exposed to sexual stimuli S1, S3 and S5, and group B was exposed to sexual stimuli S2, S4 and S6. No significant differences were found in terms of belonging to group A or B with regard to age $t(22) = 0.64$, $p = .52$, date of last sexual contact $X^2(5) = 4.00$, $p = .549$, frequency of sexual contacts within the last month $X^2(4) = 2.06$, $p = .723$ and scores in the IIEF – 5 $t(21) = 1.70$; $p = .10$.

2.2 Materials

2.2.1 Sexual stimuli

Participants were presented with six sexual excerpts and three neutral excerpts which lasted 3 : 15 minutes and 3 : 00 minutes respectively. More information as to the selection and edition of videos can be found in the procedure section.

2.2.2 Physiological responses

Signals were recorded with the MP150 data acquisition central module, and with the software program AcqKnowledge IV, version 4.4.0 (Biopac Systems, Inc. USA). Three physiological measurements were used:

- Objective Sexual Arousal (OSA) was evaluated with a penile plethysmography using a strain gauge of Indium Gal-

lium (I-G), which is connected to the DA100 C module. Initial evaluation was performed with an 80 – 90 mm circumference plethysmograph. In cases in which the initial circumference was greater than 110 mm, a pause was made and a new sensor – or one with greater circumference – was calibrated. Participants placed the sensor themselves at the base of their penis, following standardized instructions. Each instrument was disinfected in pursuance of national and international standards.

2.2.3 Scales

- Sociodemographic and psychosexual questions. A semi-structured interview was used in order to assess age, sex, educational level and city of residence, among others. Biopsychosexual information was also evaluated thus. Questions were asked regarding sexual orientation (Kinsey Scale), last sexual contact and frequency thereof, the existence of a stable partner, medical substance / drug use, psychological problems and sexual problems (self-reported).
- International Index of Erectile Function-5 (IIFE-5; Rosen et al., 1999) based on: Rosen et al. (1997). The translation into Latin American Spanish by Pfizer was used (with permission from <http://www.pfizerpatientreportedoutcomes.com>). This is a brief instrument that assesses erectile function by means of five items answered on a six-response choice Likert scale. The maximum score is 25 points, 21 being the cutoff. Scores between 22 and 25 are indicative of good erectile function. This questionnaire was virtually presented with the semi-structured interview (using the Typeform © platform) one week prior to the evaluation at the laboratory. Cronbach's alpha of the IIEF-5 in this research project was .65.
- Self-Assessment Manikin (SAM; Bradley & Lang, 1994). This is a pictorial scale where a manikin is shown in order to indicate the affective reaction of a person to a given stimulus. The SAM is answered on a 9-point visual analog scale. Valence (SAM-V) also known as pleasure, Arousal (SAM-A) and Dominance (SAM-D) are available. However, for the purposes of this study, only SAM-A and SAM-V were used. Higher scores indicate greater activation and pleasure, respectively.
- Multidimensional Scale to Assess Subjective Sexual Arousal (MISSA Moshier, Barton-Henry, & Green, 1988). The dimensions used – as translated into Spanish Sánchez-Fuentes, Arcos-Romero, Sierra, Moyano, and Granados (2014) – were subjective sexual arousal and subjective genital sensations. For the first dimension, we used the 5-item version to be answered on a 7 – response choice Likert scale. The second dimension is a single-item measurement; this is a self-assessed measure of the intensity of genital sensations. A 7 – response choice Likert scale was used for this dimension (instead of the typical 11 – response choice Likert scale) because the orgasm alternatives were suppressed. Both dimensions were considered globally in

this research as an indicator of Subjective Sexual Arousal (SSA). Cronbach's alpha in this study was .82.

2.3 Procedure

2.3.1 Selection of stimuli

The selection of sexual stimuli was performed through the following process:

In the first stage, videos of commercial websites of sexual content were chosen with the following inclusion criteria: the videos should show a heterosexual encounter between a man and a woman with non-genitalized erotic scenes (showing the game of seduction and foreplay) and sexually explicit scenes; the sexual encounter should be mutually agreed; it should have at least one minute of oral sex from him to her (cunnilingus), one minute of oral sex from her to him (fellatio) and a minute of coital sex; facial, body and vocal expressions of the actors should be natural and not exaggerated; the videos had to be recently shot, and there should be no musical background. Regarding technical specifications, it was requested that the video clips be full HD videos at 1080p; scenes should be set in interiors and sober spaces with high levels of clarity and sharpness. Sixteen videos that met these criteria were chosen.

The second phase involved the preliminary assessment of the selected videos. For this purpose, four members of the research team, males of age, should watch the video clips and record some responses produced by them, on a scale from 0 to 10 (0 being reflective of no degree whatsoever, and 10 being reflective of the highest degree of response). Responses produced were evaluated in six categories: the degree of sexual arousal, erection, desire to participate in the video scenes, sexual pleasure produced by the video, sexual satisfaction and comfort produced during viewing: The six videos which had the highest average scores were chosen.

Subsequently, the videos were edited using the software program Sony Vegas Pro 12 ©, with a HQ 1920x1080 – 24p - 35 Mbps VBR output, to adjust the videos to a duration of 3 minutes and 15 seconds. The initial 15 seconds showed scenes of non-genitalized erotic content, then a minute of cunnilingus, one minute of fellatio and one minute of vaginal penetration. Thus we created the six sexual stimuli which were used in the pilot study (SS1, SS2 ... SS6).

Concomitantly, three neutral stimuli (NS1, NS2 and NS3) were used and edited under the same technical conditions of the sexual stimuli. Each neutral stimulus was 3 minutes long, contained images of plants, flowers and landscapes, and was accompanied by soothing music. These stimuli were presented at the beginning of the sequences, and in between each of the sexual stimuli. The presentation of NS after each SS aimed to reduce and normalize the physiological responses caused by the sexual stimuli, before exposure to the next stimulus.

2.3.2 Experimental design

The SS were assigned to two groups, controlling the preliminary evaluation, in hierarchical descending order. Thus, the video with the best assessment was SS1; SS2 was the second

highest score and SS6 the sixth best rating. To ensure that sexual stimuli remained balanced between the two groups of participants, stimuli SS1, SS3 and SS5 were assigned to be exposed to Group A of participants, and stimuli SS2, SS4 and SS6 were assigned to group B. The three neutral stimuli were used with the participants of both groups.

Each group of participants viewed six stimuli (three SS and three NS) in an alternating sequence (NS1 - SSx - NS2 - SSx - NS3 - SSx). The sequences of presentation of SS for each group were balanced, in such a manner that each of the sexual excerpts was presented the same number of times, in each of the positions. Thus, six types of stimulus presentation sequences were created for each group, and two participants in each group were exposed to one of the sequences.

2.3.3 Responses evaluated

OSA was assessed by measuring penile circumference. Three measurements were obtained: percentage of average circumferential increase of the penis in mm, time in seconds that it takes to achieve an increase of 5% in mm circumference compared to the average of previous Neutral Stimuli (NS), and period above 5% increase. A 5% increase in mm circumference was used as threshold as was done previously George et al. (2006).

SSA was evaluated through the MISSA scale. The items appeared on the monitor after the presentation of each of the SS and before exposure to the next NS.

Items in the SAM-A and SAM-V scales appeared on the monitor after each SS and after the NS.

2.3.4 Presentation of stimuli and measurements

Each participant was summoned to the laboratory at a time which would not interfere with their daily activities. Equipment was prepared before participants arrived; the physiological measurement instruments were also prepared and the plethysmograph was calibrated.

The participant was accompanied and shown around the laboratory, which consists of two rooms: one control room (where computers and the core data collection modules were located), and an adjoining – or testing – room. The testing room has a desk with a monitor to present all stimuli and scales, a comfortable chair with armrests and sensors of physiological measures. These rooms are separated by a door that was closed while the experimental session was conducted. The testing room had good natural lighting conditions (through a window with opaque glass and blackouts) as well as artificial lighting (white light controlled from the control room at the beginning of the session). The testing room is acoustically isolated (both from external noise and noise from the control room); temperature conditions varied – during the experiment – ranging from an average minimum 20.55°C and an average maximum of 22.85°C. Communication between the two rooms was carried out through an intercom.

Upon entering the laboratory, each participant was briefed in the control room as to the purpose of the study; the procedure was explained and an informed consent was obtained

should the participants who expressly stated their interest in continuing to partake in the study. Instructions were given on proper placement of the plethysmograph (a template with graphical information was made available to be read by the participant if required). The participant was asked to remain seated on the chair for the duration of the study and to read intently the instructions which would gradually appear on the monitor.

The study began when the participant confirmed being ready. A period of at least three minutes of stability was used as the Base Line (BL). After this, the participant was asked through the intercom to start reading the instruction which appeared on the monitor. When the study was completed, the participant was instructed to remove the sensors and the penile plethysmograph and prepare to leave the testing room. Placement and removal of the sensors was done in such a manner as to prevent cross-contamination. Concerns were clarified and information was given about the process.

2.3.5 Instructions

Instructions, stimuli and questionnaires appeared on the monitor as programmed by means of the software program Open-Sesame (Mathôt, Schreij, & Theeuwes, 2012). The first instruction was to watch the video clips intently. An instruction to answer several questions appeared on the screen afterwards (the questions were related to the items of the different scales applied). The questions were to be answered using the computer mouse or keyboard.

2.3.6 Ethical Considerations

All protocols for cleanliness, disinfection and cleaning of equipment, instruments and surfaces were followed as defined by local, national and international health institutions. After the measurements of each participant, the penile plethysmograph was put under aseptic conditions as per the aforesaid regulations.

The informed consent process was maintained throughout the study, and willingness to participate in the study was respected. A copy of the informed consent was submitted along with the electronic invitation, including information about the objective of the study and the procedure to follow; for this reason, some expressed their desire not to continue. In addition, participants were explained the procedure and concerns were clarified upon arrival at the laboratory, and participants were asked about their interest in continuing to partake in the study and sign the consent. Participants were explained that, should they desire to withdraw from the study at any moment, they could do so without any problem.

Additionally, the 15-second excerpt of non-genitalized erotic content in the SS was used to facilitate the decision to withdraw from the study, if the contents of the visual material would not prove comfortable for participants.

A confidentiality agreement was also signed to safeguard the sound development of the whole study. Participants were given the opportunity to request, if they so desired, information about the performance of the study. For this purpose,

a report with the results and scope was submitted to them. An independent ethics Institutional review board revised and approved the project associated to this work (2014 – 003 n° 95103141).

3. Results

Table 1 shows the results obtained for each of the eight variables considered for the six SS selected for the final phase of this study. Of the eight variables, three are indicative of objective sexual arousal (percentage of average circumferential increase of the penis, time it takes to achieve an increase of 5% compared to the average of the stimulus N preceding stimulus S, and period above 5% increase). In addition, two variables assess the subjective component of arousal: one of them is a general measure of arousal (SAM Arousal) and the other is sexual (Subjective sexual arousal). Finally, valence was assessed using SAM Valence. In order to perform the evaluation in a simple manner, and since we gave equal importance to all these variables, a ranking has been created to assess which SS generates more arousal-activation-pleasantness. The excerpt which ranks first in each of the indicators will be awarded 6 points, 5 points will be given to the next ranking SS, and 4, 3, 2, 1 respectively. Table 2 shows the consistency of scores and how stimuli 2, 4 and 6 have ranked in all indicators.

Subsequently, and after selecting the 3 best SS, we proceeded to give validity and reliability to them. Thus, for the applicable cases, comparisons were made between the baseline, neutral stimuli and erotic stimuli (or only the last two).

The only measurement of objective sexual arousal that could be compared inferentially was average penile circumference (since an increase of 5% was not achieved in any case with the NS, which could in turn be considered as an indicator of validity). In this case, statistically significant differences were observed $F(2, 81) = 14.13$, $p = .00$, $\omega^2 = 0.24$ (high effect size according to Cohen, 1988 Classification). Post-hoc differences (Tukey) show that differences were found both between erotic stimuli and between neutral and with the baseline ($M_{Baseline} = 96.25$; $SD = 10.69$, $M_{Neutral} = 97.73$; $SD = 10.20$, $M_{Sexual} = 115.69$; $SD = 20.66$). Finally, statistically significant differences were found in SAM Arousal ($t(70) = 6.82$, $p = .00$; $d = 1.60$), with an average for NS = 3.33 ($SD = 1.97$) and 6.36 ($SD = 1.79$) for erotic stimuli. These differences were not significant for SAM Valence ($t(70) = 0.77$; $p = .43$). Furthermore, when these three stimuli were presented together to young people without sexual problems, the whole sample except one (91.66%, $n = 11$) experienced objective sexual arousal.

Subsequently, reliability of the SS selected was calculated, employing Cronbach's alpha. The results show alpha values of .90 for both percent average increase in penile circumference, i.e. .84 for the time it takes to achieve an increase of 5% as compared to the average of the previous neutral stimulus to erotic stimuli and duration of the period, and .80 for the duration of the period of increase above 5%. In addition,

SAMA and SAMV were also reliable; .86 and .68 respectively. Finally, internal consistency for the stimuli selected was calculated using Subjective Sexual Arousal, and the alpha value was .85.

4. Discussion

This study aimed to complete one of the most comprehensive validations carried out to date on a set of audiovisual erotic stimuli. Based on the results, we had observed that the three Sexual Stimuli selected in this research are reliable, valid and – if administered together – are capable of generating a response of arousal in this small sample of Colombian young and functional men nonetheless those data cannot be generalized to other subsamples attending to this study limitations. Also, the importance of conducting this type of studies is highlighted since there is great variability in results in the initial 16 stimuli. For example, of the six excerpts tested at the laboratory, the three sexual stimuli with the lowest score (those not selected) have shown a much lower capacity to generate sexual arousal. This does not seem to have any relation to the subjective evaluation of our team. Therefore, it could be a mistake to assume that a stimulus will be effective only because the researchers assume so. Thus, it is necessary to follow up on the psychometric work done on phallometry (O'Donohue & Letourneau, 1992).

In addition to validating the stimuli, we are validating in this work a protocol to validate stimuli (at this time, at least to our knowledge, there is no publication for it). As noted, this approach appears to be effective in having efficacious erotic stimuli, as well the neutral stimuli are also effective in order to return to arousal levels observed in the base line.

Despite the relevance of the topic discussed here, this study is not exempt of limitations. We believe that the sample size is small and limits the extrapolation of information observed here. Having a larger sample would have significantly improved analysis. Another limitation lie in the design used. Perhaps a within-subject studies would have solved some problems, however viewing six sexual stimuli consecutively, it could penalize the responses to the last viewed videos. So, with the limitations involved, we decided to control some of the most important variables regarding erection and performing a between-subjects study. Other limitations would be the lack of control of variables as drugs (including alcohol and tobacco) that could affect results; and also we should have controlled which parts of the stimuli are generating more arousal.

From our results it could be concluded that it is necessary to have a considerable initial pool of stimuli, having defined technical and form-related issues. Due to high costs in the laboratory evaluation, the first screening could be done in a more subjective manner. However, different types of quantitative variables must be taken into account when determining which stimuli are more effective. Stimuli that have proven valid and reliable have been obtained with this approach. On the other hand, significant differences have been observed

Table 1. Descriptives for Each Sexual Excerpt.

Average Δ I-G	Time to reach 5% Δ	Duration of Erection	T^a Slope	BPM	Subjective Sexual Arousal	SAM Arousal	SAM Valence
<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>
S1 6.17 (5.72)	85.52(56.52)	96.70(62.18)	-0.000077(0.0018)	80.00(7.95)	19.25(4.93)	4.75(1.28)	5.58(1.72)
S2 20.32 (15.43)	62.36(57.83)	132.18(60.03)	-0.000199(0.0011)	70.86(13.58)	27.75(3.38)	6.83(1.46)	7.83(1.19)
S3 6.98 (6.58)	110.03(65.84)	69.97(64.74)	0.000360(0.0022)	80.18(8.48)	19.00(4.99)	4.66(1.72)	5.33(2.05)
S4 18.47(16.46)	61.74(66.99)	128.18(64.84)	-0.000690(0.0018)	69.49(12.36)	24.41(5.94)	6.50(1.56)	7.33(1.43)
S5 7.31 (8.04)	107.23(65.75)	73.07 (70.71)	-0.000470(0.0013)	78.80(8.11)	18.91(4.52)	4.83(1.69)	6.08(1.08)
S6 17.74(16.29)	65.93(64.63)	117.88(70.50)	-0.000217(0.0010)	71.17(14.35)	22.66(6.00)	5.75(2.22)	6.75(1.86)

Note. S1, S2 ... S6 are sexual stimuli, M = Mean, SD = Standard Deviation. Objective Sexual Arousal was assessed using: Average IG $\Delta\%$ (mean increase – from neutral stimulus – of the penile circumference), Time to reach 5% Δ (Time it takes to achieve an increase of 5 percent in penile circumference) and Duration of Erection (duration of erection above 5% increase in penile circumference). Overall physiological arousal was assessed with: Temperature Slope and Beats Per Minute (BPM). Subjective arousal was assessed With Subjective Sexual Arousal and SAM Arousal (Self-Assessment Maniquin, Arousal). Finally, Valence SAM was used to evaluate pleasantness of the stimuli. The selected stimuli are shown in bold.

Table 2. Final Ranking According to 8 Variables Considered.

	Scores	Total Score
S2	6+5+6+3+5+6+6+6	43
S4	5+6+5+6+6+5+5+5	43
S6	4+4+4+4+4+4+4+4	32
S5	3+2+2+5+3+1+3+3	22
S1	1+3+3+2+2+3+2+2	18
S3	2+1+1+1+1+2+1+1	10

Note. S1, S2... S6 are sexual stimuli.

both in penile circumference and subjective sexual arousal, which indicate arousal response. Furthermore, absence of differences in SAM Valence would indicate that sexual stimuli are as pleasant as neutral stimuli are. As we have shown with this validation, it appears that a sexual response would be achieved if the subject is male, young and functional. Finally, the stimuli utilized on this study have shown reliable.

If any researcher would use the current stimuli, they could contact us and after paying for the original videos to the correspondent film companies we will be pleased to provide them a copy of the excerpts used in this study. We do not have commercial interest or conflict interest in this study.

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Conflict of Interest

The authors declare that they have no conflict of interest. We do not have any commercial interest regarding those videos.

Ethical approval

“All procedures performed in studies involving human participants were in accordance with the ethical standards of the

institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.” An independent ethics Institutional review board revised and approved the project associated to this work (2014 – 003 n°95103141).

Informed consent

“Informed consent was obtained from all individual participants included in the study.”

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