

# **The effect of sexual auditory stimuli on physiological arousal and response inhibition in women**

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## ***Abstract***

*The aim of current study was twofold. The first aim was to validate a new paradigm in which auditory fragments were presented could enhance sexual arousal in women. Arousal was measured by changes in pupil size. The second aim of this study was to examine if sexual arousal leads to a decrease in response inhibition. It was hypothesized that participants confronted with sexual auditory stimuli would have a higher state of sexual arousal and thus a bigger increase in pupil dilation compared to participants confronted with neutral auditory stimuli. Furthermore, it was hypothesized that a decrease in response inhibition would occur when participants became sexually aroused. A total of 34 female participants enrolled in a 2 within (performance: before and after audio fragments) x 2 between (content: sexual or neutral audio fragments) design. Participants performed an inhibition task, listened to auditory sentences and performed the inhibition task a second time. Results show that pupil size was significantly bigger in both conditions when presented with auditory stimuli. Unexpectedly, no significant differences were found in pupil size during the sex condition as compared to the neutral condition. In addition, there was no significant difference in performance on the inhibition task between the sexual and neutral condition. Although there were no significant differences found in the objective measurements of arousal, subjective measurements showed that participants in the sexual condition did feel more aroused after hearing the voices and rated the voices as more attractive than in the neutral condition. This shows that the use of auditory stimuli could be a useful way to examine arousal with a few alterations to the stimuli and a larger sample size.*

## **Introduction**

Sex drive is a vitally important motivational force in human behavior (Ariely & Loewenstein, 2006). Although sex is such an important factor, it has not been extensively researched (Georgiadis, Kringelbach & Pfaus, 2012). There still lies a taboo on this topic and sex experiments are prone to cause more avoidant processes due to shame or negative affect instead of sexual arousal (Gillath & Canterbury, 2012).

The few studies that have been conducted on this subject all used non-interactive sexual stimuli to evoke sexual arousal. In most cases, pictures of attractive and unattractive people are shown to participants or they are presented with photographs of sexual behavior between couples (Hazlett et al, 2000; Georgiadis et al, 2012). Another common method to induce sexual arousal is by showing pornographic movies or by self-stimulation. It is interesting to note that no previous experiments used sexual stimuli directed at the individual, while it could be expected that people react differently to sexual stimuli when they are personally involved.

Thus, the first aim of current study was to investigate whether interactive sexual stimuli could evoke sexual arousal in experimental settings more effectively. In the light of this aim a new set of auditory stimuli were developed. To validate these stimuli physiological measurements of pupil dilation were used.

The second aim of this study was to examine the effect of sexual arousal on inhibition of response in women. The influence of sexual arousal on cognitive processes has not yet been studied extensively, although these two concepts interact (Ariely & Loewenstein, 2006). Geer and Melton (1997) observed that the decision-making process is slower when people are presented with sexual content, compared to neutral content and called this the 'Sexual Content-Induced Delay'. They argued that this delay is due to the fact that processing of sexual content requires greater cognitive capacity compared to neutral content which leaves less available cognitive resources to process other stimuli.

This bigger demand on cognitive capacity might alter several important behavioral processes linked to human sexual interaction, such as response inhibition (Ariely & Loewenstein, 2006). Response inhibition is the suppression of actions that are inappropriate or unwanted in a specific context, and interfere with goal-directed behavior. The ability to inhibit of responding to distracting stimuli is essential for maintaining focus, which makes inhibitory control a core process in attentional functioning (Mostofsky & Simmonds, 2008). In addition, response inhibition is part of the response selection process, which is critical for an accurate performance (Roberts et al., 1998 in Menon, Adleman, White, Glover & Reiss,

2001). To date, no studies have examined the direct relationship between response inhibition and sexual arousal, while response inhibition plays an important role in sexual interaction.

### **Aim 1: Sexual arousal and the measurement of sexual arousal**

As previously discussed, various sexual stimuli have been used in the past to evoke sexual arousal. To add to this knowledge, several studies have found that form and content of sexual stimuli used have significant influence on the amount of sexual arousal, and that this differs in male and female subjects. A review of previous literature conducted by Schmidt & Sigusch (1973) indicated that men in general are more easily aroused after exposure to sexual visual or narrative stimuli, and women react in a more instable and avoidant manner. Another difference is the context of the sexual situation. Kinsey and colleagues (1953, in Schmidt, 1975) found that the context of the sexual situation is of much more importance for women than for men. They reported that explicit sexual stimuli evoked more arousal in men than in women, and romantic sexual stimuli evoked more sexual arousal in women than in men.

Experienced subjective sexual arousal is not always in concordance with measurements of physiological or genital arousal. In addition, this seems to differ between sexes, being that concordance is much higher amongst men than amongst women (Chivers, Reiger, Latty & Bailey, 2004). Therefore, previous research has often used physiological measurements alongside subjective measurements of sexual arousal. When humans experience physical sexual arousal bodily changes take place in cardiovascular function, respiratory rate, vasocongestion (in females), and erection (in males), which are influenced by the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS) (Basson, 2002).

Most research that has been done on sexual arousal involved neuroimaging techniques or physiological methods like skin conductance, facial EMG and genital measurements (Gillath et al, 2012; Janssen et al, 2000; Hazlett et al, 2000; Beaugard, Lévesque & Bourgoin, 2001). In short, during a state of sexual arousal, neuroimaging studies have shown an increase of BOLD signals in the right amygdala; right anterior temporal pole; hypothalamus; inferotemporal cortex; extrastriate visual cortex; cerebellum; and superior parietal lobe (Beaugard, Lévesque & Bourgoin, 2001).

Another measurement of sexual arousal is the measurement of pupil dilation through infra-red eye tracking. There is increasing evidence that sexual arousal is facilitated by the sympathetic nervous system (Exon et al., 2000; Lorenz et al, 2012). The eye contains two muscles that control the diameter of the pupil: the dilator and the sphincter muscle. These two

muscles are both influenced by the activation of the parasympathetic or the sympathetic nervous system. Increasing sympathetic activity influences the dilator muscle by increasing its activation and therefore prompting dilation of the pupil. The inhibition of parasympathetic activity decreases activity in the sphincter muscles. This causes the pupil to dilate as well, which shows that pupil dilation is linked to sympathetic activity. Multiple studies show that pupil size is modulated by the sympathetic nervous system during emotionally arousing stimuli (Bradley & colleagues, 2008; Partalaa & Surakka, 2003). Bradley and colleagues (2008) co varied skin-conductance measurements with pupil dilation measurements which also supported the hypothesis that pupil dilation reflects emotional arousal associated with increased sympathetic activation. Dabbs (1997) presented auditory sexual, neutral and aggressive stimuli to participants, and found pupil dilation in only the sex condition in both males and females. These results indicate that auditory stimuli can be suitable to evoke sexual arousal. When sexual arousal is measured using pupil dilation, auditory stimuli are more suitable in contrast to visual stimuli due to increased light when the latter are used.

## **Aim 2: Sexual arousal and response inhibition**

As stated earlier, the influence of sexual arousal on the cognitive function response inhibition has not yet been studied directly. Ariely and Loewenstein (2006) investigated the influence of sexual arousal on self-reported measurements of 'self-control' in men and found that sexual arousal has a negative influence on self-control. When asked to judge or make hypothetical decisions about several social situations, male subjects with a higher level of sexual arousal subjectively reported a greater willingness to engage in risky sexual activity. In addition, higher arousal caused subjects to take more morally dubious decisions in order to produce sex. Ariely and Loewenstein (2006) argued that the reason might be that the intensity of the motivation to have sex is enhanced by showing sexual stimuli. Sexual arousal that is elicited seems to narrow the focus of motivation, creating a kind of tunnel-vision. This leads to the situation where other goals not related to sexual fulfillment become overshadowed by the motivation to have sex (Blanton & Gerrard, 1997).

Baron and Bell (1977) measured the effect of sexual arousal in males on another behavioral component, namely aggression inhibition. The results of this study show that exposure to mild sexual stimuli inhibits aggressive behavior. However, higher levels of arousal facilitated aggressive behavior. This suggests that sexual arousal influences the extent to which certain inhibitory actions are possible.

Previous research suggests that a decrease of inhibition evoked by sexual arousal

might be an explanation for increased sexual aggression and a decrease in moral judgments in men. This lack of inhibition when sexually aroused might be the core of current sexual problems such as the occurrence of sexual transmitted diseases, unwanted pregnancies and date-rape offenses (Ariely & Loewenstein, 2006; Baron & Bell, 1977). However, few studies have examined this relationship and the studies mentioned above exclusively investigated males. To add to the knowledge on sexual arousal and response inhibition, the current study will therefore focus on female subjects.

### *Measuring inhibitory control and associated brain regions*

In contrast to earlier research, this study will examine inhibitory processes not by behavioral or subjective measurement but by using a cognitive paradigm. In this manner, inhibitory control is measured using tasks in which participants have to control their responses during incongruent trials. An example of such an inhibition task is the Go/NoGo (GNG) task. This task consists of a quite simple paradigm that is used to study error processing, response competition, and response inhibition (Menon et al., 2001).

To summarize, this study will examine the effect of sexual arousal on response inhibition in female subjects, using audio fragments of male voices who communicate to participants in a direct manner. Pupil dilation will be measured to indicate sexual arousal. The performance on the response inhibition tasks will be compared within and between groups, to examine the relationship between sexual arousal and response inhibition. As previously discussed, no prior research has examined sexual arousal and behavioral inhibition in a direct manner or in females, which is why this study could provide a new perspective.

### **Hypotheses**

In line with Exon and colleagues (2000), Lorentz and colleagues (2012), Partalaa & Surakka (2003), Dabbs (1997) and Bradley and colleagues (2008), it is expected that when presented with auditory sexual stimuli, female participants will experience higher levels of sexual arousal compared to subjects who are presented with non-sexual auditory stimuli. As a result, greater pupil dilation is expected in the sexual condition compared to the non-sexual condition.

In concurrence with research done by Blanton & Gerrard (1997) on sexual arousal and self-control, it is expected that a decrease in performance on the inhibition task will occur due to sexual arousal compared to performance on the inhibition task when not sexually aroused.

## **Methods**

### *Participants & design*

34 healthy adult heterosexual Dutch female psychology students were recruited to take part in a between-subjects design with sexual vs. neutral contents as between subjects factor, and performance on the GNG task as a within subjects factor (i.e. before vs. after audio fragments) through advertisement at Utrecht University. Participants were assigned to either the control or the experimental condition in a counterbalanced fashion. In return for participating in the experiment all participants received one student participation credit.

### *Procedure*

Upon arrival, participants were instructed about the task. Consequently, they were made aware of the fact that ending participation in the experiment was allowed at any time if they wished to do so and were asked to sign an informed consent form. Participants first performed a GNG task. After completing this task, the participants completed the audio task, which was either sexual or neutral. The sentences used in this task were articulated in the Dutch language. In the sexual condition the participants heard sexual sentences articulated by different males which were expected to induce sexual arousal. Examples of used sexual sentences are: ‘You make me very horny’ and ‘I want to have sex with you’ (See Appendix I). In the control condition participants were presented with neutral sentences articulated by males, which were not expected to induce any altered mood state. Examples of used sentences are: ‘I just had lunch’ and ‘Could I borrow your pen?’. After the audio task, participants performed a second GNG task (session 2) which was similar to the first GNG task. Finally participants were asked to fill in the POMS-questionnaire (McNair, Lorr, & Droppleman, 1971) and a short sex questionnaire which consisted of six questions about their subjective state of sexual arousal. The answers in both the POMS-questionnaire and the sex questionnaire could be given in a scaled fashion ranging from 100 (very much) tot -100 (not at all). The duration of the complete experiment was 40 minutes. All tasks were programmed in E-Prime 2.0.

### *Audio fragments*

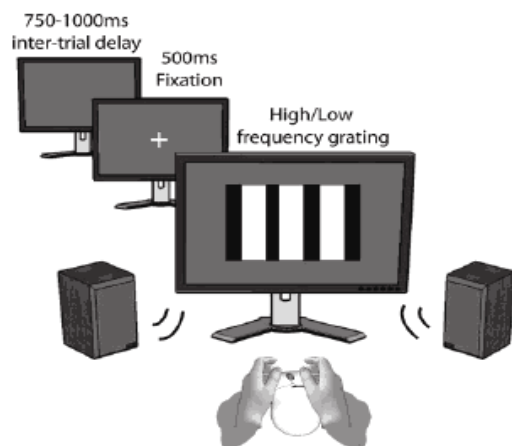
To create audio fragments male students were recruited through advertisement at Utrecht University and were asked to articulate twenty sentences (See Appendix I). Afterwards, the audio recordings of eight male and eight female voices were selected. In return for participating, they received either money (4 euro) or 1/2 student participation credit. Students

who participated in the recording sessions signed an informed consent form and were excluded from the actual experiment.

### *GNG task and audio task*

A GNG task similar to the one used by Hofman and Schutter (2012) was used to assess inhibitory control. Every participant started with three practice trials, followed by 200 experimental trials. Participants were instructed to perform both accurately and quickly. During the task, high-and-low frequency gratings (800x800 pixels) were presented on a computer screen ( $\pm 100$  cm distance), and participants had to react using the right or left mouse button. Response inhibition was required when presented with a 1000 Hz tone (50 dB, 400 ms). This tone was presented during 20% of all trials, and in 80% of the total number of trials a tone was presented with a low frequency and volume. A single trial (Figure 1) started with a fixation cross during 500 ms (black background), followed by grating presentation (1000 ms) and a delay (750-1000 ms interval). The total duration of the GNG task was eight minutes approximately.

The audio task consisted of a total of twenty-five trials and started with a welcome screen followed by instructions. In each trial participants were asked to focus on a black fixation cross (11500ms) in the middle of the computer screen (in order to measure pupil size) while listening to two different sentences (3000 ms per sentence). The audio fragments were presented through headphones. After listening to the sentences, the participants were asked to indicate if the voices of the two sentences were the same. Key press 'Z' was required for yes and 'M' for no. Between each trial the eye-tracker controlled whether the eyes were in the correct position. The background color during the entire task was gray to insure that pupil dilation was not influenced by the brightness of the computer screen.



**Fig. 1.** A single trial in the Go/NoGo task (Hofman & Schutter, 2012).

### *Apparatus*

Pupil size measurements were recorded using a Tobii-1750 binocular infrared eye-tracker. (sampling at 50 Hz, 0.5° accuracy; Tobii Technology, Danderyd, Sweden) with an integrated LCD display (8-ms response time). Data that consisted of more than 50% invalid eye measures was excluded from the analysis.

### *Data reduction and analysis*

Pupil dilation of each participant was determined by calculating mean pupil dilation of measurements made during two occasions: while participants were presented with a fixation cross and while presented with audio fragments. Consequently, to compare pupil dilation for each participant, mean pupil dilation was analyzed using a one-way repeated measured analysis of variance (ANOVA). In addition, mean difference in pupil dilation was calculated by subtracting mean pupil dilation during audio fragments from mean pupil dilation during the fixation crosses. To compare the difference in mean pupil dilation in both conditions (sexual and neutral) an independent samples t-test was used.

To determine whether the amount of errors made in both GNG tasks before and after listening to the audio fragments significantly differed between the sexual and neutral condition, a Fisher's exact test was used. Furthermore, an independent samples t-test was used to assess differences in perceived mood of participants in the sexual and neutral condition. Finally, to compare the answers from the sex questionnaire between both groups an independent samples t-test was used. Pearson correlation was used to test whether the answers on the sex questionnaire correlated with mean difference in pupil dilation.

## **Results**

### *Data exclusion*

A total of 7 participants were excluded from GNG task analysis because they did not comply with the instructions. Two participants were excluded from pupil dilation analysis due to technical failure.

### *Pupil size*

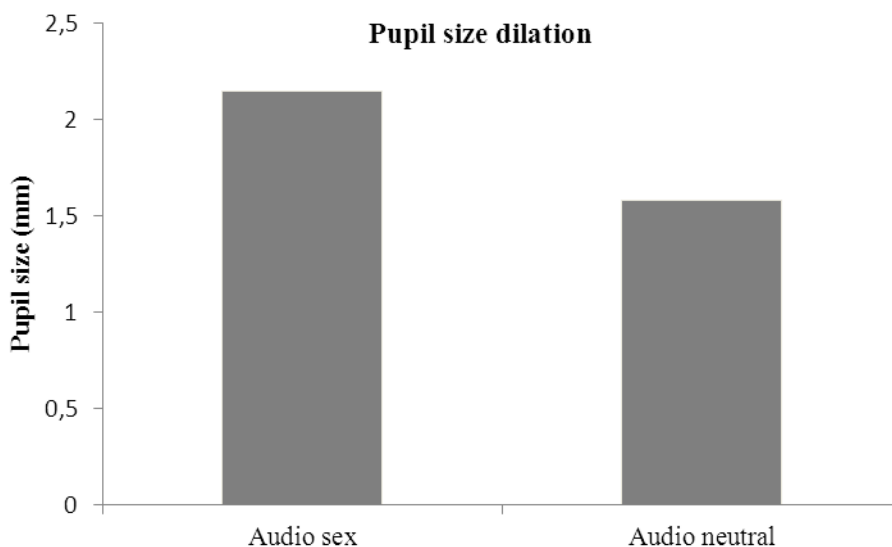
A one-way repeated measured analyses of variance (ANOVA) was used to compare pupil size of each participant. Shapiro-Wilk statistics indicated that the assumption of normality was not violated in the first measurement of pupil size ( $p > .05$ ). However, Shapiro-Wilk statistics indicated that the assumption of normality was violated in the second measurement



of pupil size ( $p < .05$ ). Despite the fact that the data was not normally distributed in one of the conditions, ANOVA was used to analyze the data.

The repeated measures ANOVA results showed that there was a significant difference in pupil size during the sentences compared to the fixation cross,  $F(1, 30) = 15.15$ ,  $p < .05$ ,  $\eta^2 = .33$ . The pupil size (mm) of participants was significantly increased during the second measurement ( $M = 3.03$ ), compared to the first measurement ( $M = 2.85$ ). The ANOVA results showed no significant differences in pupil size with respect to the sexual ( $M = 3.0$ ) and neutral ( $M = 3.08$ ) condition when presented with the auditory stimuli,  $F(1, 30) = .35$ ,  $p > .05$ .

The first repeated measures ANOVA indicated that the pupil size during audio increased in both conditions, which gave reason to subtract the second pupil size measure from the first measure to calculate the difference in pupil size dilation. To compare the difference in pupil dilation in both conditions an independent samples t-test was used. Although not significant  $t(30) = -.59$ ,  $p > .05$ , a higher value for pupil dilation was found in the sexual condition ( $M = 2.15$ ,  $SD = 3.59$ ), compared to the neutral condition ( $M = 1.58$ ,  $SD = 1.00$ ) (see figure 2), which could indicate that current study is possibly underpowered.



**Fig. 2.** Mean difference in pupil size from participants in the sexual and neutral condition during the presentation of auditory stimuli. Results were not significant.

### *Go/NoGo task*

Descriptive statistics indicated that the assumption of normality was violated. Due to this and the small sample size ( $N = 27$ ), a Fisher's exact test was used to determine whether the amount of errors made in both GNG tasks before and after listening to the audio fragments significantly differed between the sexual and neutral condition. The Fisher's exact test

indicated that the failed inhibition of response on both the first and second GNG task did not differ significantly between the two conditions ( $p=0.704$  and  $p=0.706$  respectively).

### *POMS questionnaire*

To assess if there were any differences in perceived mood of participants in the sexual and neutral condition, participants indicated their current mood on a scale (-100 to 100) on questions related to six different subscales (anxiety, anger, depression, tension, fatigue and vigour). An independent samples t-test was used to compare the questionnaire answers from participants in both conditions.

The Shapiro-Wilk statistics was not significant, indicating that the assumption of normality was not violated. Levene's test was not significant, indicating that equal variances can be assumed. Results from the t-test indicated that there was no significant difference in the current perceived mood of the participants on any of the topics, in the sexual and neutral condition.

### *Sex questionnaire*

Participants were asked to answer six questions about the auditory stimuli used and their subjective state of sexual arousal. They had to answer the questions in a scaled fashion ranging from (-100 to 100). An independent samples t-test was used to compare the answers in the sexual and neutral condition.

Preliminary assumption testing revealed that equal variances can be assumed for all six questions. Three out of six questions yielded significant results on the t-test.

Results from the t-test indicated that participants in the sexual condition ( $M= -29.35$ ,  $SD= 36.83$ ) significantly felt less comfortable (question 2) than participants in the neutral condition ( $M= -71.18$ ,  $SD= 44.87$ ),  $t(32) = -2.97$ ,  $p < .05$ ,  $d = 0.02$ .

Furthermore, participants in the sexual condition ( $M=-45.41$ ,  $SD=46.48$ ) significantly reported a higher level of sexual arousal while hearing the male voices compared to participants in the neutral condition ( $M=-75.29$ ,  $SD=37.85$ ),  $t(32)=-2.06$ ,  $p<.05$ ,  $d=0.02$ .

Lastly, participants in the neutral condition ( $M=30.59$ ,  $SD=44.48$ ) significantly found the heard sentences more credible (question 5) compared to the sexual condition ( $M= -28.06$ ,  $SD= 36.62$ ),  $t(32)=4.197$ ,  $p<.05$ ,  $d=0.03$ .

The t-test conducted on the remaining questions gave no significant difference between the two groups (see table 1).

**Table 1.** Means (M), standard deviations (SD's) and t-test with degrees of freedom (df), significance (*p*) and effect size (*d*) of the six questions. 1 = neutral condition, 2 = sexual condition.

Question	Mean score (SD)	Independent samples t-test (df), <i>p</i> , <i>d</i> .
1. Did you find the voices attractive?	1. 3.71 (41.609) 2. 23.82 (40.877)	t(32) = 1.422 <i>p</i> = 0.165
2. Did you feel uncomfortable while hearing the voices?	1. -71.18 (44.87) 2. -29.35 (36.83)	t (32) = -2.97 <i>p</i> <.05 <i>d</i> = 0.02
3. Did you need to put more effort in the second inhibition task compared to the first?	1. 28.29 (49.339) 2. 32.41 (50.467)	t(32) = 0.241 <i>p</i> =0.811
4. Did you feel sexually aroused while hearing the voices?	1. -75.29 (37.853) 2. -45.41 (46.479)	t(32) = -2.055 <i>p</i> <.05 <i>d</i> = 0.02
5. Did you find the voices credible?	1. 30.59 (44.482) 2. 28.06 (36.615)	t(32) = 4.197 <i>p</i> <.05 <i>d</i> = 0.03
6. Did you enjoy participating in this experiment?	1. 6.82 (44.517) 2. 28.35 (49.098)	t(32) = -1.339 <i>p</i> =0.190

Pearson correlation was used to assess the linear relationship between the answers on the sex questionnaire and mean difference in pupil dilation (pupil size second measurement – first measurement) for both groups. No significant correlations were found.

## Discussion

By using audio fragments of people who communicate directly to participants, we strived to enhance sexual arousal in experimental settings in a different manner than previous research has done. Also, no studies so far have examined the direct relationship between response inhibition and sexual arousal, while response inhibition plays an important role in sexual interaction.

The first aim was to validate whether the auditory fragments enhanced sexual arousal in women. This was measured by changes in pupil size and subjectively by questionnaires concerning the audio fragments. In this study only females participated considering that the effect of sexual arousal on response inhibition in women has never been examined before. Therefore, female participants were an interesting focus group.

Results show that pupil size was significantly bigger in both conditions when presented with auditory stimuli. Unexpectedly, results showed no significant difference in pupil size during presentation of the auditory stimuli between conditions. However, figure 2 shows that mean difference in pupil size of participants in the sexual condition was bigger than mean difference in pupil size of participants in the neutral condition. This gives rise to the thought that more participants might give a significant result.

Second, instead of a between-group design a within-group design could yield significant results. When using pupil dilation as a measurement of sexual arousal, it would be interesting to compare pupil dilation in a within-subjects design to account for individual physiological differences. Finally, future research could include a more direct measurement of sexual arousal such as vaginal pulse amplitude in women. To validate whether the auditory stimuli in fact induce sexual arousal or arousal in general as was the case in the current study.(Lorenz et al., 2012).

Results from the sex questionnaire (Table 1) show that the voices of the auditory stimuli were perceived as more attractive during the sexual condition as compared to the voices in the neutral condition despite the fact that the voices of both conditions were the same. This difference was not significant. However, there was a significant difference in perceived comfort between both groups. The participants in the neutral condition felt less uncomfortable than participants in the sexual condition, although both groups did not feel very uncomfortable in general. The difference in comfort between conditions could be explained by the explicit nature of the stimuli. Previous literature indicated that explicit sexual stimuli would arouse males more than females (Schmidt & Sigusch, 1973; Kinsey et al, 1953. In Schmidt, 1975). Future research could use more romantic and less explicit sexual sentences for female target groups.

The subjective sexual arousal induced by the auditory stimuli significantly differed between groups. Participants of the neutral condition were not aroused at all after hearing the voices. Participants in the sexual condition also answered not feeling aroused after hearing the voices but not as negative as the people in the neutral condition. All participants were relatively positive about the credibility of the voices. Mean answers were 30 in the neutral condition and 28 in the sexual condition respectively. Overall, the answers to the questionnaire afterwards show that participants did not rate the voices very attractive, did not feel aroused when hearing the voices and that they did not feel uncomfortable after hearing the audio fragments.

Results from both the subjective and objective measurements of sexual arousal show that the audio fragments did not appear to induce sufficient sexual arousal in this study . However, this study did show the effectiveness of auditory stimuli to induce arousal. In addition, subjective measurements indicated that the sexual auditory stimuli were perceived as more attractive and more arousing. It would be interesting to expand on this findings in future research.

The second aim of this study was to examine the interaction between sexual arousal and response inhibition. This was measured with a double GNG task. Results show that there was no significant difference in performance before and after presenting the audio fragments in both conditions. This might be because we did not obtain significant differences in objective measurements of physical arousal due to the small sample size. Unfortunately, we had to exclude a large group because they did not comply with the instructions of the GNG task. The sample size of 27 participants might not have been big enough to yield significant differences. Future studies could include more participants to create a bigger sample and therefore a bigger chance of significant differences. Results showed that there was no significant correlation between the questions to measure subjective arousal (Table 1) and the mean difference in pupil size in both conditions. This could also be due to the small sample size.

## **Conclusion**

The first aim of this study was to validate audio fragments. Results show that pupil size was significantly bigger in both conditions when presented with auditory stimuli. However, current study indicated that there was no significant difference in pupil size in the sexual condition. Therefore we were not able to validate whether our audio fragments induced sufficient objective physical arousal. However, there was a significant difference in subjective arousal, a larger sample size and a within-groups design could yield different objective outcomes in the future.

The second aim was to examine the interaction between sexual arousal and response inhibition. There was no significant difference in performance (before and after the audio fragments) on the GNG task between both conditions. Therefore, we were not able to indicate an interaction between sexual arousal and response inhibition in women. To summarize, with slight alterations these audio fragments could be an important tool to conduct experiments concerning sexual arousal.

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## Appendix I

### *Used sentences for the audio fragments (in Dutch)*

#### **Neutral sentences**

Volgens mij doe ik dezelfde studie als jij doet.

Studeer jij ook in Utrecht?

Ik wil graag heel even je telefoon lenen.

Zou jij een opdracht met mij willen maken?

Heb jij misschien een pen voor me?

Ik heb net geluncht.

Ik zou graag een kop koffie lusten.

Ik ga naar zo naar de supermarkt.

Ik ga dit weekend uit.

De week gaat altijd zo snel voorbij.

#### **Sexual sentences**

Ik wil seks met jou.

Ik wil graag met je naar bed.

Ik word erg opgewonden van je.

Van jou wordt ik zó geil.

Wil je alsjeblieft met mij naar bed?

Ik heb zin in seks.

Ik ben erg opgewonden.

Ik kan alleen maar aan seks denken.

Ik hou van seks.

Ik had dit weekend echt goede seks.