Physiology & Behavior 177 (2017) 169–175

Contents lists available at ScienceDirect

Physiology & Behavior

journal homepage: www.elsevier.com/locate/physbeh

Touch between romantic partners: Being stroked is more pleasant than stroking and decelerates heart rate

Chantal Triscoli[a,b,*], Ilona Croy[c,d], Håkan Olausson[d,b], Uta Sailer[e]

[a] Dept. of Psychology, University of Gothenburg, Gothenburg, Sweden
[b] Dept. of Clinical Neurophysiology, Sahlgrenska University Hospital, Gothenburg, Sweden
[c] Dept. of Psychotherapy and Psychosomatic Medicine, Technische Universität Dresden, Dresden, Germany
[d] Center for Social and Affective Neuroscience, Dept. of Clinical and Experimental Medicine, Faculty of Health Sciences, University of Linköping, Linköping, Sweden
[e] Dept. of Behavioral Sciences in Medicine, Institute of Basic Medical Sciences, Faculty of Medicine, University of Oslo, Oslo, Norway

ARTICLE INFO

Keywords:
Romantic partners
Touch
Pleasantness
Heart rate

ABSTRACT

Introduction: Touch has been found to entail positive effects in the person receiving it, whereas effects on the person giving touch have previously been unexplored. We investigated whether stroking the partner also is a pleasant experience for the person performing it, and whether it has similar effects on well-being and autonomic nervous function as being stroked or stroking oneself. Furthermore, we compared the hedonic and autonomic nervous effects of stroking the partner and self-stroking.

Methods: In the first experiment, 40 subjects stroked the forearm of their respective partner, while ratings of pleasantness were obtained from both Stroker and Receiver. Heart rate was monitored throughout the session and stroking velocity was tracked. The participants could not see each other faces during the experiment to avoid feedback. In experiment 2, the design was replicated with 20 subjects, and self-stroking and rest conditions were added.

Results: Both stroking the partner and self-stroking were performed within a velocity range optimal for activating C-tactile cutaneous afferents. Being stroked, stroking the partner, and self-stroking were all perceived as pleasant. However, being stroked entailed the significantly highest pleasantness ratings, and being stroked was the only condition that significantly decreased heart rate. Individuals in satisfying relationships were more pleased to be touched by their partner and showed a greater decline in heart rate when being touched.

Discussion: The data demonstrated a role for affective touch in the regulation of heart rate when being stroked. The absence of autonomic effects when providing the stroking may be due to the absence of visual feedback from the person being stroked. The high pleasantness of giving and receiving touch may foster affective tactile interactions among romantic partners, thus reinforcing the relationship.

1. Introduction

Touch may induce a variety of physiological and psychological changes in the individual receiving it. For example, blood pressure decreases during partners' handholding and hugging [22], cortisol level decreases after short sessions of massage therapy [15] and neck and shoulder massages between partners [9]. Heart rate decreases in adults being touched on the wrist [10,11], in children whose dorsal forearm is gently stroked [13], in hospitalized patients who receive comforting touch, for example by a nurse holding their hand [42], and also in primates during the receipt of grooming [2]. Besides physiological measures, reduced anxiety is observed in healthy subjects [36] and hospitalized patients [24] after sessions of therapeutic touch, and in married women when allowed to hold their husband's hand during a stressor ([6]). Finally, reduced motor activity and less behavioral stress (e.g., gasping, grunting and moving) are seen in preterm infants after 15-min-sessions of gentle human touch [23,35].

While the beneficial effects of receiving touch are well documented, effects on the person touching have been largely neglected. It seems reasonable to assume that people continue stroking and touching each other, as well as enjoy touching pets and certain types of materials [30,31,39], because the stroking causes positive feelings and potentially even has beneficial effects on the autonomic nervous system. Along these lines, touching pets has been found to decrease heart rate [17,18,48] (but see also [29] for contradicting results).

However, tactile interactions between individuals are usually

* Corresponding author at: Department of Psychology, University of Gothenburg, Box 500, 40530 Gothenburg, Sweden.
E-mail address: chantal.triscoli@psy.gu.se (C. Triscoli).

http://dx.doi.org/10.1016/j.physbeh.2017.05.006
Received 27 February 2017; Received in revised form 19 April 2017; Accepted 2 May 2017
Available online 03 May 2017
0031-9384/ © 2017 Elsevier Inc. All rights reserved.

characterized by a wide range of movements, with different velocities and pressures. It appears probable that these different characteristics of touch differently affect the individual receiving touch. For example, it has been shown that the perceived pleasantness and intensity of stroking depends on its velocity [34]. Stroking applied with velocities in the range of 1–10 cm/s is typically rated as more pleasant than very slow or very fast stroking [28,34]. At the same time, this is the velocity at which a specific class of unmyelinated, slowly-conducting (~1 m/s) low-threshold mechanoreceptors, called C-tactile (CT) afferents, responds with the highest discharge rate [1,34]. Since CT-fibres are also most active at stimuli with skin temperature [1], and gentle touch between romantic partners is spontaneously performed within the C-tactile optimal velocity range [7], it has been suggested that the C-tactile system evolved in order to code the affective aspects of touch [32]. Therefore, one may assume that CT-optimal touch plays a particular role in both the psychological and physiological state of an individual. Indeed, brush strokes performed on the forearm at C-tactile optimal velocity elicit a significant decline in heart rate in adults [37] and infants [13].

Nevertheless, it has previously not been investigated if pleasant touch at CT-velocity also affects the touch giver. Although CT-fibres have not been detected in the palm of the hand yet [32], subjects rate touch of the palm at CT-optimal velocity as similarly pleasant as on areas that contain CT-fibres [33]. Therefore, the present study aims to monitor touch velocity while looking at the effects in both the receiver and the touch giver.

We examined the stroking velocities used when stroking your partner (experiment 1) and when stroking oneself (experiment 2). We also determined if stroking between romantic partners has beneficial physiological effects on heart rate, for both the Stroker and the Receiver (experiment 1), and if these effects can be observed for self-stroking (experiment 2). Finally, the effect of potential predicting factors on stroking velocity, pleasantness perception, and heart rate were measured and analyzed over the pooled data from both experiments. Such potential predicting factors were relationship satisfaction, general attitude towards social touch, and mood before the experiment.

The study may help clarify the impact of affective touch between partners on physical and psychological well-being. From a clinical point of view, implementing mutual physical affection as a component in therapeutic settings such as couple therapies could facilitate conflict management between romantic partners and reinforce relationships.

2. Methods

2.1. Participants

For **experiment 1**, 20 couples (20 men and 20 women) aged between 19 and 60 years (M = 28.3, SD = 8.7) were recruited. The majority of the participants were students who were recruited via announcements on university boards; two of them already took part in previous experiments. One couple included two participants who were substantially older than the rest of the sample (56 and 60). As the mean values of those participants for the dependent variables (pleasantness and intensity ratings, heart rate, and all the questionnaire scales) were within two standard deviations of the mean values of the rest of the subjects, these data were not excluded from analysis. Moreover, the analyses performed both with inclusion and exclusion of these two older subjects gave similar results.

Mean duration of the relationship was 5 years ± 5 months; mean age difference between partners was 2 years ± 6 months. None of the couples had children. In order to distract attention from the couple aspect, participants were informed that the aim of the study was to explore aspects of mutual touch, and that they therefore should come along with someone that they knew well such as their partner. When subjects arrived at the lab they were told that they could also have brought a sibling or a close friend, in order not to make them think that it was an experiment exclusively on couples. At the end of the experiment, the participants were fully informed about the study. All the participants signed an informed consent form and received a compensation for participating in the study (200 SEK per couple plus a cinema ticket per person).

Post hoc power analysis performed for experiment 1 revealed an observed effect size (η2) between 0.17 and 0.52 (equivalent to a large effect size) for all analyses except for one at 0.04, (equivalent to a medium effect size). Given these effects, new power calculations a priori were made for experiment 2. With an alpha level of 0.05 and an effect size (f) of 0.22 (equivalent to η2 = 0.04, i.e. the smallest effect size found for experiment 1), the minimum sample size in order to obtain a statistical power of 0.8 was 19 subjects.

For **experiment 2**, 10 couples (10 men and 10 women) aged between 20 and 53 years (M = 31.6, SD = 9.6) were recruited in the same way as for experiment 1. Again, one couple was older than the rest of the sample (53 and 48), but was not excluded from the analysis as their mean values for the dependent variables (pleasantness and intensity ratings, heart rate and all the questionnaire scales) were comparable to those of the rest of the sample. Mean duration of the relationship was 2 years ± 1 month; mean age difference between partners was 5 years ± 6 months. None of the couples had children. The same procedure regarding informed consent and compensation was applied as in experiment 1. Both studies were approved by the ethics committee of the University of Gothenburg.

2.2. Experimental setting and procedure

2.2.1. Experiment 1

After introduction the participants were asked to fill in a paper version of two different questionnaires, administered in Swedish: the “Social Touch Questionnaire” (STQ) which assesses the personal attitude towards social situations involving touch [43], and the “Multidimensional Mood State Questionnaire” (MDMQ), original version in German [41], in order to evaluate the effects of current mood on touch pleasantness ratings. This questionnaire is divided into three different scales: “Good – Bad”, “Calm – Nervous” and “Awake – Tired”. Participants were placed out of each other's sight and were instructed to give subjective responses related to their own personal experience and current mood. Moreover, participants were individually asked to report the level of satisfaction with the relationship (visual analogue scale (VAS) with endpoints from 0 = “not at all satisfied” to 10 = “really satisfied”).

After filling out the questionnaires, the partners were free to decide themselves who would receive the stroking first. Then, the “Receiver” lay down on a hospital bed and put his/her left forearm in prone position on a pillow positioned on the left side of the bed, while the person stroking (“Stroker”) sat on a chair placed next to it. In order to assess the effects of stroking and being stroked on the autonomous nervous system, heart rate of both partners was assessed via electrocardiogram recorded at 1000 Hz with a custom-made amplifier (program: “Chart Pro”, data collection unit: PowerLab 16 SP, company: AD Instruments, Dunedin, New Zealand). One Ag–AgCl surface electrode was placed below the right clavicle and the other two below the ribs, laterally and symmetrically, following the bony landmarks. An electromagnetic Polhemus tracking device (3Space, Isotrak II), which registers position and orientation data at 60 Hz, was used to measure the speed of the strokes that the Stroker applied to his/her partner. To this aim, the participants were informed that the speed of their strokes would be measured, and a motion tracker was attached to the right middle finger of the Stroker. After attaching the devices, a relaxing video showing landscapes and animals was shown for 5 min on a computer screen placed in front of them in order to bring the subjects into calm mood.

Afterwards, the actual experimental “touch” condition began. The participants were separated by a blanket in order to avoid visual contact and thus feedback to the stroking, so the Stroker could only see

Download English Version:

https://daneshyari.com/en/article/5593738

Download Persian Version:

https://daneshyari.com/article/5593738

Daneshyari.com