The “Longing for Interpersonal Touch Picture Questionnaire”: Development of a new measurement for touch perception

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Touch is a crucial factor of physiological and psychological health in humans. A lack of touch in contrast is associated with adverse implications on mental health. A new “Longing for Interpersonal Touch Picture Questionnaire (LITPQ)” was developed and tested for its concurrent, predictive, discriminant and face validity as well as its relation to psychological distress. Six different types of touch were depicted and touch frequency and touch wish concerning different interaction partners assessed. A sample of 110 participants aged 18–56 years completed the LITPQ as well as an existing touch deprivation questionnaire and a questionnaire on mental health. Frequency and wish for touch were higher for close interaction partners than for strangers. For 72.7% of the participants, their touch wish exceeded the reported touch frequency. The LITPQ correlated moderately with the existing questionnaire for touch deprivation and was independent of relationship status or gender but positively correlated with depressiveness, anxiety and somatization. Measuring longing for touch is a very complex task considering the many aspects of subjective touch perception and confounds in the method of self-report of touch. In our view, the LITPQ provides promising insights into this matter.

Keywords: Touch deprivation; Touch perception; Gender; Partnership; Depression.

Touch is a fundamental tool in human communication (Knapp, Hall, & Horgan, 2013) and a crucial factor of physiological and psychological wellbeing (Field, 2019). Children with an experience of touch deprivation are struggling to learn how to speak (Thayer, 1986), behave more aggressively (Field, 2002b) and have problems sleeping or performing well in academic tasks as compared to children who are not touch deprived (Hart, Field, Hernandez-Reif, & Lundy, 1998). Similar findings exist for adults: They have more aggressive tendencies (Field, 2002b) and are more likely to account for impairments in psychological wellbeing. For example, women reporting touch deprivation in their childhood and current life are more likely to develop an eating disorder (Gupta, Gupta, Schork, & Watteel, 1995). Furthermore, relations between a lack of touch and depression have been stated repeatedly (for review see Stein & Sanfilippo, 1985).

Although there are numerous relevant and interesting questionnaires investigating social touch (Cochrane, 1990; Trotter, McGlone, Reniers, & Deakin, 2018; Wilhelm, Kochar, Roth, & Gross, 2001), there are only few valid instruments focusing on touch deprivation (Punyanunt-Carter & Wrench, 2009). In general, there are several approaches to measure touch: self-report, observation, and experimental methods (Thayer, 1986). With self-report measures, participants are asked about their touch perceptions, whereas the observational and experimental methods rely on the observation by an experimenter who is passively watching touch behaviour in the first method and actively manipulating a touch situation in the latter.

Due to possibly irreversible negative implications of touch deprivation, observational and experimental methods for measuring a lack of touch are limited. Previous attempts for measuring a lack of touch are therefore based...
on self-report. Gupta et al. (1995) suggested the “Tactile Nurturance Scale,” which measures missing touch in a 10-point scale using three items regarding participants’ memories of touch in childhood, perceived lack of touch in childhood and perceived touch in the present. Later research claimed insufficient validity and reliability of this short questionnaire (Punyanunt-Carter & Wrench, 2009) and developed a new Touch Deprivation Scale which assesses touch deprivation on the subscales “absence of touch,” “longing for touch” and “sex for touch.” These scales correlate weakly to moderately with the Tactile Nurturance Scale by Gupta et al. (1995).

The current investigation assumes that longing for touch is in principal perceived when a person’s touch frequency is lower than their touch wish. This gap, namely a perceived lack of touch, should result in a longing for touch. Therefore, a new Longing for Interpersonal Touch Picture Questionnaire (LITPQ) was developed, assessing experienced touch frequency and touch wish separately. The design of this questionnaire furthermore considers different interaction partners and different types of touch to investigate in crucial factors underlying longing for touch. In times of social media, young children are more likely to engage with smartphones or tablets than exchange touch with their parents (Field, 2019). Furthermore, due to “no touch-mandates” in schools, touch deprivation in children should be more extensively evaluated (Field, 2019). LITPQ items were drawn touch types to ensure nonverbal understanding. This could be beneficial when conducting intercultural studies or investigations including elderly people or children.

Recent research has found the experience of touch to have a slow satiety (Triscoli, Ackerley, & Sailer, 2014), hence a decrease in touch wish with increased touch frequency should reveal itself slowly. Considering this effect, it should be difficult to assess a value at which touch deprivation, namely a touch amount smaller than the minimum amount of touch needed, occurs. Still, it is likely that a mismatch between a person’s touch wish and her or his actual perceived touch frequency should result in impairments of psychological wellbeing.

Interpersonal touch seems to depend on the type of touch as well as on the interaction partner. For instance, emotional closeness to and gender of the interaction partner determine which body areas will be allowed to be touched (Suvilehto, Glerean, Dunbar, Hari, & Nummennma, 2015). Furthermore, emotionally close interaction partners as well as women in general are typically allowed to touch much more body parts than strangers and those findings are consistent across women and men. Numerous early studies show that women touch others more and are touched more by others than men, and those findings remain relevant in recent research (see meta-analysis by Stier & Hall, 1984; Suvilehto et al., 2015). Longing for touch is therefore assumed to be lower in women than in men. In addition, singles may have higher longing for touch than people in a relationship because they lack a partner with whom they share a strong emotional bond with.

Punyanunt-Carter and Wrench (2009) furthermore found a positive relation between their Touch Deprivation Scale with depression as well as a negative relation with self-esteem. Correlations between lack of touch and depression have been stated repeatedly (Gallace & Spence, 2010; Stein & Sanfilipo, 1985). Increased longing for touch should therefore be associated with depressive tendencies.

Sexual desire is stated to be a purely cognitive construct (Spector, Carey, & Steinberg, 1996). It is seen as an interest in sexual activity and should not be measured by actual behaviour. Although it seems not negotiable that touch plays a huge role in sexual interactions, sexual desire should differ from the concept of longing for touch in that it concentrates on thoughts, rather than actual behaviour. We state that longing for touch should differ from sexual desire in that it is neither only sexual nor only cognitive in its underlying construct. Therefore, sexual desire and longing for touch should not be related.

The newly developed LITPQ was tested for the following hypotheses:

- H1. Touch frequency and touch wish are higher for emotionally close interaction partners than for strangers and are also higher for touch with female interaction partners than for touch with male interaction partners.
- H3. LITPQ scores are lower for women than for men and lower for participants currently in a relationship than for singles.
- H4. The LITPQ score correlates positively to self-reported symptoms of mental disorders, such as depression.
- H5. The LITPQ score is not associated with sexual desire.

MATERIALS AND METHODS

Participants

The sample was recruited by a web link to SoSci Survey (Leiner, 2014) sent to students of a university in Germany and different social media platforms. In total, the study included 110 subjects aged 18–56 years (M = 24.9, SD = 7.32); 65.5% female, 34.5% male. The study was approved by the Ethical Committee of the Technical University of Dresden. All data were processed completely anonymized or, if participants wished for a feedback regarding their test scores, pseudonymized using a code of self-choice.
All procedures performed in this study were in accordance with the ethical standards of the Ethical Committee of the Technical University of Dresden and with the 1964 Helsinki Declaration and its later amendments. Informed consent was obtained from all participants included in this study.

**INSTRUMENTATION**

The Longing for Interpersonal Touch Picture Questionnaire

The main aim of the LITPQ was to provide a new approach for a measurement of longing for touch by taking “touch frequency” and “touch wish” into account. Hence, the LITPQ consists of two parts: first participants were asked about a frequency, namely a guessed count, of touch they had performed during the last week with different interaction partners (“How often did you experience this type of touch in the last week?”). They were therefore able to choose a metric value between zero and infinite. Second, they performed a similar task, this time focusing on their touch wish: (“How often would you have wanted to experience this type of touch in the last week?”). For this, second part participants were again able to choose a metric value between zero and infinite. The questionnaire was presented in German, so all tasks described here are translated in English by the author.

Six different drawn pictures showing typical touch types were presented in each part. Chosen kinds of touch were selected using Hall’s (1963) tactility scale introducing eight types of touch namely caressing/holding, feeling/caressing, prolonged holding, holding/pressing against, spot touching, accidental brushing, handshake, pat, squeeze, punch and pinch. The LITPQ only concentrated on positive touch forms because negative ones were assumed to not be relevant for the concept of longing for touch. Presented types of touch therefore were hugging, stroking, kissing, holding, random touch and shaking hands (see Figure 1. Touch pictures from the LITPQ).

To ensure face validity, touch type drawings were shown again at the end of the questionnaire and participants were asked to “please shortly describe the presented type of touch” for each touch type drawing to assure pictures were interpreted consistently. An experimenter [JB] — who was unfamiliar with the intention of the pictures — was then presented the descriptions of the participants and instructed to assign those descriptions back to the pictures. This analysis revealed a correct match for 80.06% of the participants answers. Highest consistency was found for intimate holding (91.07%), followed by shaking hands (86.79%), random touch (81.93%), hugging (75.71%), stroking (75%) and kissing (65.8%). An exploratory qualitative screening of participants’ answers revealed that a lack of agreement may be explained by a lack of clarity regarding the task, because sometimes instead of simply describing the type of touch, participants added personal meanings instead (e.g. “sometimes uncomfortable because of my clumsiness” for describing “random touch” or “only if I have to do it” for “shaking hands”).

Considering the dependence of interpersonal touch to interaction partner (Suvilehto et al., 2015), the next step was to identify crucial touch partners. Therefore, in both parts of the questionnaire (touch frequency and touch wish), participants were asked to rate each touch picture for each of the following interaction partners: romantic partner, female friend, male friend, female acquaintance and male stranger and female stranger (see Figure 1).

To account for difficulties in touch frequency and touch wish estimations, the answering option “I don’t know” was provided, but it was explained that this option should only be used as little as possible. Descriptive analysis revealed that participants chose the “I do not know”-option 3.96% of the time for all touch frequency answering options and 4.41% of the time for all touch wish answering options.

Values for touch frequency and touch wish were averaged across all touch types and interaction partners. A LITPQ score was calculated dividing touch wish by touch frequency, the resulting outcome therefore reflects a ratio of the two subscales. Values higher than one (LITPQ score > 1) are interpreted as longing for touch, because wanted amounts of touch were not met. Values lower than one (LITPQ scores < 1) on the other hand are seen as touch satisfied, because here received touch outnumbered a wanted amount of touch.

**Other questionnaires**

**Touch Deprivation Scale**

In order to estimate the convergent validity of the LITPQ score, it was compared to the already existing Touch Deprivation Scale (Punyanunt-Carter & Wrench, 2009). This questionnaire consists of 16 items asking participants for their subjective perception of touch deprivation on a Likert Scale from 1 strongly disagree to 5 strongly agree. A high outcome can be interpreted as a higher value of touch deprivation. It is furthermore divided into three dimensions: “absence of touch,” “longing for touch” and “sex for touch.” A Touch Deprivation Score is generated by summing up those items.

**Brief symptom inventory 18 (German version)**

The brief symptom inventory 18 (BSI-18) was used to test for mental distress in participants. It is a screening instrument for symptoms of depression, anxiety and
How often did you experience this type of touch in the last week?

How often would you have wanted to experience this type of touch in the last week?

somatization, represented by three subscales (Derogatis, 2001; German Version: Franke, 2002). A value for global severity is generated by summing up the subscales.

Sexual Desire Inventory SDI-2 (German version)

The Sexual Desire Inventory SDI-2 (Spector et al., 1996; German version: Kuhn, Koenig, Donoghue, Hillecke, & Warth, 2014) was used to test for discriminate validity of the LITPQ. It consists of 10 items and measures sexual desire considering the dimensions desire with interaction and desire without interaction. Higher outcome values indicate higher sexual desire. Unfortunately, due to a technical error, one item of the SDI-2 was missing in the online survey. Also, 10 participants did not fill out the SDI-2.

Data were analysed using SPSS for Windows (IBM, version 24). In order to investigate whether amounts of touch frequency and touch wish scores depend on interaction partners (Hypothesis H1), two 7 (interaction partner) × 6 (touch type) multivariate analysis of variance (MANOVAs) were conducted, one for touch frequency...
and one for touch wish (7) with interaction partners being the independent variable and touch frequency/touch wish as dependent variable (6). In the next step, a series of exploratory analysis of variance (ANOVAs) was calculated for each touch type as independent variable and touch frequency/touch wish as dependent variable. In order to compare gender effects of the interaction partners, touch frequency was averaged for female interaction partners (friend, acquaintance and stranger) and for male interaction partners (friend, acquaintance and stranger) and both values were compared using a paired-samples t test. The same procedure was performed for touch wish.

Next, the number of participants for whom touch wish outnumbered touch frequency (LITPQ score > 1) was calculated and it was tested whether LITPQ scores higher and lower than 1 were more frequent among men or women using a chi-square test.

To ensure concurrent validity of the LITPQ (Hypothesis H2), LITPQ scores > 1 of all participants were correlated with the Touch Deprivation Scale (Punyanunt-Carter & Wrench, 2009). All correlation analyses only focused on participants with a touch frequency score smaller than touch wish score (people who reported a lack of touch by our definition; LITPQ score > 1), because LITPQ scores < 1 could confound results with influences of touch satiety (receiving more touch than wanted).

Furthermore, the assumption of longing for touch being a function of the two scales touch frequency and touch wish was investigated. Therefore, the means of both factors with the Touch Deprivation Scale (Punyanunt-Carter & Wrench, 2009) were correlated to test if the relation to this scale is explained better by the LITPQ score than by its single scales (touch frequency and touch wish). The LITPQ score was also correlated with touch frequency to test whether higher touch frequency leads to lower LITPQ scores, namely if touch satiety is reached if participants get touched more often.

To test for group differences concerning longing for touch between singles versus participants in a relationship and women versus men (Hypothesis H3), t tests for independent samples were conducted with the dependent variable being the LITPQ score as well as its scales, touch frequency and touch wish, respectively. Furthermore, to check for selective effects of gender, touch frequency and touch wish were compared for male and female interaction partners (for calculation see statistics for Hypothesis H1). For all comparison analysis, general differences of the LITPQ score were investigated, therefore all participants were included again.

To investigate in the relationship between touch deprivation and self-reported symptoms of mental disorders (Hypothesis H4), LITPQ scores > 1 were correlated to the BSI-18 global severity index and it’s subscale depressiveness (Derogatis, 2001).

To ensure discriminant validity, LITPQ scores > 1 were correlated with the SDI-2 (Hypothesis H5).

To test for predictive validity, we conducted an exploratory forward regression analysis with the BSI-18 (Derogatis, 2001) as dependent variable and the Touch deprivation scale (Punyanunt-Carter & Wrench, 2009) as well as the LITPQ scores > 1 as independent variables.

RESULTS

Touch frequency and touch wish depend on interaction partner

Using a MANOVA for means of touch frequency a significant difference for touch interaction partners was found, $F(36,2962) = 7.12$, $p < .001$; Wilk’s $\Lambda = 0.69$, partial $\eta^2 = .06$.

There were significant differences in reported means of touch frequencies concerning different interaction partner for all kinds of touch except handshakes identified by a series of exploratory one-way ANOVAs (see Figure 2).

Tukey post hoc tests revealed that for touch types holding, stroking, kissing and random touch, a romantic partner was the person with whom participants stated they have had most of their touch Frequency with, compared to all other possible interaction partners ($p < .001$).

Quite similar findings were observed using a MANOVA for touch wish, with a significant difference based on touch interaction partners, $F(36,3019) = 7.76$, $p < .001$; Wilk’s $\Lambda = 0.68$, partial $\eta^2 = .06$.

Reported means of touch wish were different for all possible desirable interaction partners over all types of touch, this time including handshakes, identified by a series of exploratory one-way ANOVAs (see Figure 2).

Again, Tukey post hoc tests revealed a partner was the most wanted person for all touch types except shaking hands ($p < .001$, see Table 1).

A paired-samples t test revealed a significant difference for means of touch frequencies between female interaction partners and male interaction partners.

Furthermore, another paired samples t test revealed a significant difference for means of touch wish between female interaction partners and male interaction partners (see Figure 3).

The LITPQ is a valid instrument measuring longing for touch, which is furthermore shown to be a function of touch frequency and touch wish

In 72.73% of the participants, reported touch frequencies were significantly smaller than their actual touch wish (see Figure 4). For these participants, touch wish ($M = 9.44$, $SD = 15.92$) was on average more...
Moreover, this correlation was much higher than the one mentioned in legend. Significant $p$-values are printed in bold. [Colour figure can be viewed at wileyonlinelibrary.com].

**Figure 2.** Means for touch frequencies and touch wish plotted for each interaction partner and each type of touch, scaled logarithmically. Order as mentioned in legend. Significant $p$-values are printed in bold.

<table>
<thead>
<tr>
<th>Interaction partner</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
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<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Touch frequency</td>
<td>Random touch</td>
<td>25.89</td>
<td>71.83</td>
<td>9.76</td>
<td>15.92</td>
<td>7.72</td>
</tr>
<tr>
<td>Kissing</td>
<td>17.08</td>
<td>31.33</td>
<td>1.67</td>
<td>3.81</td>
<td>0.57</td>
<td>1.55</td>
</tr>
<tr>
<td>Stroking</td>
<td>9.59</td>
<td>17.93</td>
<td>2.53</td>
<td>9.99</td>
<td>1.75</td>
<td>9.93</td>
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<tr>
<td>Holding</td>
<td>16.71</td>
<td>32.47</td>
<td>6.99</td>
<td>7.72</td>
<td>4.23</td>
<td>6.79</td>
</tr>
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<td>Hugging</td>
<td>10.27</td>
<td>18.98</td>
<td>4.5</td>
<td>10.58</td>
<td>3.58</td>
<td>10.74</td>
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<td>Shaking hands</td>
<td>4.43</td>
<td>13.03</td>
<td>1.87</td>
<td>9.91</td>
<td>3.36</td>
<td>11.67</td>
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<td>Random touch</td>
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<td>93.21</td>
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<td>5.75</td>
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<td>Kissing</td>
<td>61.9</td>
<td>157.24</td>
<td>5.32</td>
<td>15.53</td>
<td>2.64</td>
<td>10.28</td>
</tr>
<tr>
<td>Stroking</td>
<td>21.55</td>
<td>29.31</td>
<td>4.92</td>
<td>8.92</td>
<td>2.91</td>
<td>6.05</td>
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<td>23.94</td>
<td>10.4</td>
<td>19.31</td>
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<tr>
<td>Hugging</td>
<td>34.68</td>
<td>109.82</td>
<td>10.95</td>
<td>24.29</td>
<td>7.56</td>
<td>15.6</td>
</tr>
<tr>
<td>Shaking hands</td>
<td>9.29</td>
<td>37.37</td>
<td>1.67</td>
<td>4.31</td>
<td>1.8</td>
<td>4.7</td>
</tr>
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</table>

**TABLE 1**

Means of touch frequency and touch wish

Influence of partnership status and gender on longing for touch, touch frequency and touch wish

Participants who were currently in a relationship did not differ significantly from those who were single regarding their LITPQ scores, touch frequencies and touch wish.

An exploratory independent $t$ test furthermore revealed no difference in touch frequency sum for all interaction partners except a partner between singles ($n = 43$, $M = 121$, $SD = 283.45$) and participants in a relationship ($n = 65$, $M = 54.63$, $SD = 58.91$; $t(106) = 1.83$, $p = .07$, $d = -0.36$).

Females and males did not differ significantly regarding their LITPQ scores, touch frequency and touch wish. Females and males did also not differ regarding their touch frequencies with female touch partners, but men reported higher frequencies of touch with male touch partners than women did (see Table 2). Females and males did moreover not differ in their touch wish for female and male interaction partners.
Figure 3. Female interaction partners preferred over male interaction partners.

Figure 4. Validation of the “Longing for Interpersonal Touch Picture Questionnaire (LITPQ)”. LITPQ scores plotted over touch deprivation scale by Punyanunt-Carter and Wrench (2009). Division in two subgroups. Lack of touch = want > frequency; Touch satiety = frequency > want. Correlation lines plotted for each subgroup.

Longing for touch: – Predictive and discriminant validity and relation to mental health

LITPQ scores >1 correlated moderately with the Global Severity Index of the BSI-18 (M = 25.53, SD = 7.64, α = .91 for BSI-18; r = .32, n = 80, p = .004) and its subscale depressiveness (r = .3, n = 80, p = .007). Exploratory analysis furthermore revealed correlations with the other subscales anxiety (r = .26, n = 80, p = .021) and somatization (r = .28, n = 80, p = .013).

Exploratory analysis for predictive validity revealed that LITPQ scores >1 significantly predicted the BSI-18 Global Severity Index, F(1,78) = 8.99, p = .004, R² = .1, whereas the touch deprivation scale was excluded from the model (p = .078).

Analysis for discriminant analysis revealed that LITPQ scores >1 did not correlate with the SDI-2 (M = 40.72, SD = 9.96, α = .81 for SDI-2; r = -.01, n = 70, p = .916).

In line with the hypothesis, touch frequency and touch wish depended on interaction partners. In contrast to the hypothesis, the LITPQ score was not related to relationship status or gender, but as hypothesized, it correlated positively with symptoms of mental disorders and furthermore predicted mental distress better than the touch deprivation scale. Longing for touch was not associated with sexual desire. We will now discuss these results in detail.

Longing for touch, calculated as the ratio between touch frequency and touch wish, affected 72.73% of our participants and correlated higher with an existing measurement of touch deprivation than touch frequency and touch wish alone.

The correlation between LITPQ and the touch deprivation scale by Punyanunt-Carter and Wrench (2009) was only moderate. Reasons could be differences in the construct of lacking touch underlying the two

DISCUSSION

questionnaires. Touch deprivation is not yet clearly defined. Punyanunt-Carter and Wrench (2009) described touch deprivation as a “lack of haptic communication” (p. 69). The LITPQ understands touch deprivation as a significant amount of a lack of touch, from which negative health outcomes are likely to arise. In the course of further research, it would be interesting to test the LITPQ with clinical samples compared to healthy ones to get more insight into this matter. Such research could be especially beneficial for young children and elderly people, since their health relies a lot on tactile stimulation (Field, 2002a; Gleeson & Timmins, 2004), but also because the LITPQ provides nonverbal items to self-report touch deprivation in those participants.

Furthermore, the LITPQ concentrated on aspects such as different touch partners and the comparison between actual touch frequency and wish for touch with those interaction partners respectively as well as a fixed time frame (last week). All these aspects were not considered in the touch deprivation scale by Punyanunt-Carter and Wrench (2009). Nonetheless, touch frequency and touch wish correlated less with the touch deprivation scale by Punyanunt-Carter and Wrench (2009) than the LITPQ score, an outcome from which the conclusion can be drawn that the LITPQ score is a function of touch frequency and touch wish, and that the other way around, neither of the two components can for themselves account for longing for touch. LITPQ scores and touch frequency did not correlate with each other, which means that our participants did not necessarily get more satisfied with their experienced touch if they have experienced higher touch frequency. In the course of further research, it would be interesting to assess assumptions about what amount of touch is normative or to evaluate longitudinal processes of touch perception.

Touch frequency and touch wish depended on touch partners with different emotional closeness to the participants. These findings are well in line with previous literature. Suvilehto et al. (2015) found linearly declining amounts of total body areas allowed to be touched depending on the emotional closeness with the regarding person. Although a romantic partner was the person with whom participants in our study reported they have experienced most of their touch and also wished for touch with, surprisingly no difference between singles and participants in a relationship regarding their touch longing, touch frequency and touch wish could be found. A possible explanation could be that the pure existence of a partner does not promise a fulfilled touch experience with the significant other and the other way around a missing partner does not mean that people cannot find other touch partners with whom they can compensate their need for touch. This assumption could not be verified in the current sample since singles and participants in a relationship did not differ regarding their touch frequencies for all interaction partners except a partner. Still, it would be interesting for further research to investigate such compensation-mechanisms more directly, for example, by asking people about their attitudes towards being single. Some people might voluntarily be single and are therefore more open for compensating missing touch with friends or even strangers.

To this point, the impact of individual characteristics on touch longing remain unclear. From our study, we conclude that neither sex nor relationship plays a major role, but mental well-being may. Furthermore, expectations

| TABLE 2
Comparison of means for relationship status and gender

<table>
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<tr>
<th></th>
<th>Currently single</th>
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<th>Currently in a relationship</th>
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<td></td>
<td>M</td>
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<td>M</td>
<td>SD</td>
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<tr>
<td>LITPQ score</td>
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<td>5.15</td>
<td>2.24</td>
<td>2.6</td>
</tr>
<tr>
<td>Touch wish</td>
<td>6.29</td>
<td>15.85</td>
<td>8.81</td>
<td>12.78</td>
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<tr>
<td>Touch frequency</td>
<td>2.94</td>
<td>6.83</td>
<td>4.62</td>
<td>5.38</td>
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**Women**

<table>
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<th></th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
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<tr>
<td>LITPQ score</td>
<td>2.33</td>
<td>3.17</td>
<td>3.44</td>
<td>4.73</td>
<td>1.45</td>
<td>.151</td>
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<tr>
<td>Touch wish</td>
<td>6.77</td>
<td>12.32</td>
<td>9.78</td>
<td>16.82</td>
<td>-0.97</td>
<td>.334</td>
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<td>Touch frequency</td>
<td>3.61</td>
<td>4.78</td>
<td>4.58</td>
<td>7.9</td>
<td>-0.69</td>
<td>.495</td>
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<tr>
<td>Touch frequencies for female interaction partner</td>
<td>1.9</td>
<td>1.86</td>
<td>3.56</td>
<td>8.39</td>
<td>-1.61</td>
<td>.24</td>
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<tr>
<td>Touch frequencies for male interaction partner</td>
<td>1.3</td>
<td>1.66</td>
<td>3.65</td>
<td>8.41</td>
<td>-2.3</td>
<td>.024</td>
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<tr>
<td>Touch wish for female interaction partner</td>
<td>2.76</td>
<td>3.86</td>
<td>4.6</td>
<td>6.95</td>
<td>-1.5</td>
<td>.08</td>
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<tr>
<td>Touch wish for male interaction partner</td>
<td>2.07</td>
<td>2.78</td>
<td>3.58</td>
<td>6.49</td>
<td>-1.7</td>
<td>.092</td>
</tr>
</tbody>
</table>

**Men**

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>M</th>
<th>SD</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LITPQ score</td>
<td>2.37</td>
<td>3.17</td>
<td>3.44</td>
<td>4.73</td>
<td>1.45</td>
<td>.151</td>
</tr>
<tr>
<td>Touch wish</td>
<td>6.77</td>
<td>12.32</td>
<td>9.78</td>
<td>16.82</td>
<td>-0.97</td>
<td>.334</td>
</tr>
<tr>
<td>Touch frequency</td>
<td>3.61</td>
<td>4.78</td>
<td>4.58</td>
<td>7.9</td>
<td>-0.69</td>
<td>.495</td>
</tr>
<tr>
<td>Touch frequencies for female interaction partner</td>
<td>1.9</td>
<td>1.86</td>
<td>3.56</td>
<td>8.39</td>
<td>-1.61</td>
<td>.24</td>
</tr>
<tr>
<td>Touch frequencies for male interaction partner</td>
<td>1.3</td>
<td>1.66</td>
<td>3.65</td>
<td>8.41</td>
<td>-2.3</td>
<td>.024</td>
</tr>
<tr>
<td>Touch wish for female interaction partner</td>
<td>2.76</td>
<td>3.86</td>
<td>4.6</td>
<td>6.95</td>
<td>-1.5</td>
<td>.08</td>
</tr>
<tr>
<td>Touch wish for male interaction partner</td>
<td>2.07</td>
<td>2.78</td>
<td>3.58</td>
<td>6.49</td>
<td>-1.7</td>
<td>.092</td>
</tr>
</tbody>
</table>

Note: Currently Single n = 42 and currently in a relationship n = 66 for LITPQ score, touch wish, and touch frequency comparisons; women n = 71 and men n = 71 for LITPQ score comparison; women n = 71 and men n = 38 for touch wish comparison; women n = 72 and men n = 38 for touch frequency, touch frequencies for female interaction partner, and touch frequencies for male interaction partner comparisons; women n = 71 and men n = 37 for touch wish for female interaction partner and touch wish for male interaction partner comparisons.
could play a huge role in interpreting received touch in a relationship as fulfilling. Willis and Briggs (1992) found that the type of a romantic relationship influences who is more likely to initiate touch in a partnership. Moreover, Gulledge, Gulledge, and Stahmann (2003) found a linear relation of tactile affection and partnership satisfaction. In addition, stroking was found to be experienced more pleasant in people with high relationship satisfaction (Triscoli, Croy, Olausson, & Sailer, 2017). Thus, relationships seem to have complex interaction patterns so that longing for touch can again not be described only by a possible absent amount of touch. Future research should consider surveying partnership satisfaction as well.

There were no differences between females and males regarding their reported longing for touch, touch frequency and touch wish. These findings reject our hypothesis of females having less longing for touch than men. Nevertheless, women were more frequent touch partners and also reported more often as interaction partners for touch wish, which is in line with previous findings suggesting females initiating more touch and being touched more than men, although the latter finding was questionable (see meta-analysis by Stier & Hall, 1984). Still, neither women nor men were more frequently longing for touch or reaching touch satiety. It therefore seems like interpersonal touch can be perceived in a biased way by different interaction partners involved in a common touch behaviour, for example, a woman getting used to frequent random touch in her everyday life may not perceive this type of touch as consciously as a man. It may also play a role who initiated the touch interaction, a consideration that we did not include in our questionnaire. Taking observational methods into account could give insight to the gap of perception differences of touch.

When additionally considering comparisons between females and males in their touch frequencies or their touch wish reported for female versus male interaction partners, respectively, no differences were found except that men reported higher touch frequencies with men than women did. These results are not in line with previous studies (Jourard & Rubin, 1968; meta-analysis by Stier & Hall, 1984) that found women experiencing more same sex touch than men. Larsen and LeRoux (1984) pointed out the importance of ideological beliefs on our attitudes towards same sex touch as well as on our actual touch behaviour. Since the current sample was primary covering young people, it may be that attitudes towards same sex touch have changed such that this is no longer a taboo. Further studies should assess variables such as attitudes towards same-sex touching as well.

In 72.73% of the participants, reported touch frequencies were smaller than their actual touch wish, hence, a certain amount of lack of touch seems normative. In order to distinguish this normative longing for touch from a pathological one, a cut-off value for a clinical relevant lack of touch is needed for which impairments in psychological and physiological wellbeing are more likely to develop. Furthermore, the LITPQ is expected to be not only a measurement for longing for touch, but for touch saturation as well. Although it is stated that longing for touch occurs if a person’s touch wish is higher than his or her actual touch frequency and that touch satiety is in return a result from experiencing more touch than wanted, no critical dimension was specified in which health impairments are more likely to occur. Further research is needed to specify relations between outcomes of the LITPQ with actual impairments of psychological wellbeing. The current study included only healthy participants, hence collecting information from clinical patients would be beneficial in the course of further research. Also, repeating this analysis with data from older participants could also be beneficial to ensure external validity and retest validity.

Regarding those clinical implications, correlations between the LITPQ and general psychological distress, as well as specifically relations with depression, anxiety and somatization were found. Those results are well in line with previous findings linking participants receiving touch therapy to lower depression ratings (Field et al., 1992). The current study again points out the relation between impact of lacking touch and mental distress and therefore also calls for a better understanding of touch perception and revision of existing instruments to measure it. Furthermore, the LITPQ better predicted global severity than the Touch deprivation scale (Punyanunt-Carter & Wrench, 2009), therefore, the LITPQ provides a promising new approach for assessing a lack of touch in this regard.

Sexual desire did not relate to longing for touch, which is well in line with its definition of being a solely cognitive approach (Spector et al., 1996). This finding furthermore highlights the importance of investigating touch deprivation as an independent construct.

A strength of the LITPQ is the use of pictures, so that those language barriers can be circumvented, which in turn can be useful in numerous clinical settings, inter-cultural studies, as well as studies including younger or elderly participants.

However, the task of estimating ones amount of touch was reported to be challenging for our participants, so that motivated answers cannot be guaranteed. A simplified version of the questionnaire for regular use should therefore be taken into consideration (e.g., as used by Sailer & Ackerley, 2017). In addition, the study is limited by the lack of data on the reliability of the LITPQ. Further studies investigating in this matter are needed here.

More interaction partner and touch type-specific analysis of the LITPQ could lead to a better understanding of the construct of touch deprivation.

As for all self-report measurements regarding touch perception, it is important to keep in mind that social desirability and inaccuracy of memories of touch are quite
likely to occur (Thayer, 1986). These confounds might also have affected our findings. Further studies including third-party reports as well as self-reports are warranted to complement measurements of touch.

The current study pointed out important clinical implications of longing for touch such as depressiveness, anxiety and somatization, which in turn again underline the necessity of establishing a standardised measurement like the LITPQ.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

TABLE S1 Comparison of touch types for relationship status and gender

REFERENCES


Gallace, A., & Spence, C. (2010). The science of interper-


