Touch in Psychotherapy: Experiences, desires and attitudes in a large population survey

Michal Tanzer[1], Athanasios Koukoutsakis[1], Ilia Galouzidi[1], Paul M Jenkinson[2], Claudia Hammond[3], Michael J Banissy[4,5], Aikaterini Fotopoulou[1]

[1] Research Department of Clinical, Educational and Health Psychology, University College London, UK

[2] Institute for Social Neuroscience, ISN Psychology, Melbourne, Victoria, Australia

[3] Department of Psychology, University of Sussex, UK

[4] Department of Psychology, Goldsmiths, University of London, UK

[5] School of Psychological Science, University of Bristol, UK

E-mail: a.fotopoulou@ucl.ac.uk

Corresponding author: Aikaterini Fotopoulou[1]

Research Department of Clinical, Educational and Health Psychology, University College London, UK, 1-19 Torrington Place, London, WC1E 7HB, UK.

Abstract

The therapeutic effects of touch have been long reported. However, in the field of psychotherapy touch is the exception and talking therapies are the norm. Critically, evidence on clients' experiences and perspectives of touch during psychotherapy is scarce and reliant on small samples. Moreover, despite converging evidence on the associations between touch and attachment, research on attachment traits and perceptions of psychotherapeutic touch is lacking. Here, we utilised the largest-to-date, UK survey on touch (N = 39254), identifying 6878 individuals reporting having received psychological therapy in the last 10 years, to explore 1) the perceived quantity and affective quality of therapeutic touch experiences, and 2) clients' desire to be touched. We hypothesised that the above experiences and desires are moderated by therapeutic modality, adult attachment style dimensions and general touch attitudes. We found that 30% of the responders reported physical contact with their therapist, 70% of the sample reported that touch communicated support by the therapist, while 4% of clients reported it was inappropriate. In addition, higher scores in attachment-*avoidance* were negatively associated with affective quality of touch experiences. In relation to touch desire, 40% of our sample wanted their therapist to touch them, with individuals scoring higher on attachment-*anxiety* style being more likely to show desire for touch, whereas attachment *avoidance* reduced desire. Having cognitive-behavioural therapy reduced the desire for touch, whereas having body-oriented therapy increased it. This unprecedented, large scale data warrant further investigation on the potential usefulness of touch interventions in certain clients and in given modalities.

Key words: Body-psychotherapy; Cognitive-behavioural-therapy; Attachment; Touch-attitudes; Social-touch.

Touch in Psychotherapy: Experiences, desires and attitudes in a large population survey

Touch is the first and most developed sense at birth (Montagu, 1971), and is a key component of human communication (Cascio et al., 2019; Fotopoulou & Tsakiris, 2017). Touch has long been associated with healing (Field, 2002, 2010) and with cognitive, psychological, social and emotional well-being (Bowlby, 1952; Cascio et al., 2019; Field, 2002, 2010; Harlow & Suomi, 1971; Montagu, 1971). Despite these recognised benefits of touch, therapeutic touch (i.e., touch between therapist and a client such as a hug or handshake) is still controversial in most mainstream schools of psychotherapy, due to ethical, theoretical, and cultural reasons (Zur & Nordmarken, 2011). A paucity of research has empirically examined to what extent touch-based interventions are being used in different psychotherapies, especially from the client's point of view. To our knowledge, very few studies have examined whether psychotherapy clients have experienced or desire touch during therapy (see review by (Phelan, 2009) and there are gaps in current knowledge regarding 1) the extent and quality of these experiences, and 2) the individual differences associated with such experiences.

In this preregistered study (https://osf.io/jr4vc), we aimed to minimise the aforementioned gaps by recruiting a large sample of the UK population, including individuals receiving psychological therapy in the last 10 years. We measured their touch experiences (in terms of quantity and affective quality) and touch desire in different modalities of psychotherapy. We also examined key individual differences such as attachment style dimension and current attitudes towards touch that might affect how individuals perceive therapeutic touch. We outline the background to these research aims below.

A-touch-ment: Touch and development of attachment styles

It has been long known that human infants have a specific motivation for social proximity and contact, over and above motivations for hunger or thermoregulation (Bakwin, 1942; Harlow, 1959; Harlow & Suomi, 1971; Spitz, 1945). Caregivers communicate messages of love and care and satisfy the infant's basic biological and psychological needs through their touch (e.g., hugs, kissing, rocking, holding, cuddling, feeding, bathing) (Fotopoulou et al., 2022; Fotopoulou & Tsakiris, 2017). These initial, social, tactile experiences interact with broader neurophysiological and epigenetic pathways (e.g. oxytocin and mu-opioid systems; (Cascio et al., 2019; Meaney, 2001; Nelson & Panksepp, 1998), and have been suggested to play a pivotal role in reinforcing physiological, affective and cognitive regulation of the developing brain and body (Fotopoulou et al., 2022) for a review). Crucially, these repeated, positive touch experiences, particularly in relation to threat, are paired over time with a sense of security and comfort, which can further foster a desire for physical contact (i.e., proximity seeking), and contribute to the formulation of attachments, affiliations and social bonds (Ainsworth, 1979; Bowlby, 1969; Brauer et al., 2016; Dunbar, 2010; Fotopoulou & Tsakiris, 2017; Montagu, 1978; Morrison, 2016; Reite, 1990; Shaver & Mikulincer, 2010). This idea is supported by converging clinical, developmental, and neurological findings in humans and non-human studies (Cascio et al., 2019; Dunbar, 2010; Field, 2010; Fotopoulou et al., 2022 for reviews). For instance, in humans, "skin-to-skin" contact has been shown to have positive psychological and physical effects in preterm infants and children (Feldman & Eidelman, 2003). In addition, caregivers' nurturing touch in three-month-old infants has been associated with infants' secure attachment at one year of age (Weiss et al., 2000). On the other hand, lack of touch, aggressive, inappropriate, or intrusive touch, may have negative effects in development (Cicchetti & Toth, 2005, 2016; Crucianelli et al., 2018; De Bellis, 2001), and everyday life (Boden et al., 2007; Peterson et al., 2018). Thus, individuals' developmental tactile history, including parental social touch, convey physical proximity and social support,

form and maintain attachment styles and social affiliations (Suvilehto et al., 2015), and impact later social and intimate relationships (Ainsworth, 1989) including adult attachment styles dimensions (Takeuchi et al., 2010).

Consistent with the above links between caregivers touch and later social relationships, it has been found that higher frequencies of parental touch during childhood is associated with a positive image of an individual's current romantic partner and reduced depressive symptoms in young adults (Takeuchi et al., 2010). Relatedly, previous findings have shown that individuals with high *avoidance* report less enjoyment of cuddling with a romantic partner or their children (Chopik et al., 2014) and distance themselves from others (Shaver & Mikulincer, 2010). Similarly, scores in attachment avoidance moderated the relations between received touch and state security, suggesting that those who are high on avoidance style do not benefit from touch experiences (Jakubiak & Feeney, 2016). Interestingly, scores in attachment *anxiety* did not show the same moderation effect or preferences for touch (Chopik et al., 2014; Jakubiak & Feeney, 2016). This pattern is consistent with the idea that individuals with anxious attachment address intimacy in an ambiguous manner due to concerns of rejections (Ainsworth, 1989), or in other words, while they desire touch they also resist it (Jakubiak & Feeney, 2016).

Taken together, touch has prolonged sequalae throughout the life span, through developmental and physiological effects on social proximity seeking and social support by attachment figures (Fotopoulou et al., 2022; Fotopoulou & Tsakiris, 2017). The latter is particularly pertinent when physical or emotional threats are present, may explain in part why some people seek psychotherapy, as well as how individuals feel in relation to their psychotherapy treatment. Crucially, while there is ample research on the social and emotional implications of attachment style in adulthood and specifically in relation to therapeutic alliance (see review by Dark-Freudeman et al., 2020; Diener & Monroe, 2011), and about the

relations between touch, proximity seeking and attachment, little is known about how attachment affect individuals' perception of touch interventions in a psychotherapy context. For example, lab studies have shown that the same stroke on the hand can be interpreted by one person as a way of showing compassion, while for another it could communicate threat (Kirsch et al., 2020) and such differences in the perception of affective touch may depend on attachment style (Krahé et al., 2018). In the next section we briefly review the use of touch in psychotherapy modalities, emphasising its possible benefits and what it may convey. We then highlight the need to measure these interventions from the clients' perspective and how clients' individual differences such as in attachment style dimension or current touch attitudes moderate those experiences.

Touch in psychotherapy

Touch has been attributed with positive therapeutic effects on both mental and physical health (see review (Field, 2014)). For instance, touch-based interventions have been shown to enhance the therapeutic alliance between patient and therapist (Myers et al., 2022) and using mindfulness with active touch intervention has significantly reduced individuals' depressive symptoms as compared to a control group which did not receive active treatment (Stötter et al., 2013). Despite these therapeutic effects (Field, 2010, 2014), in the field of psychotherapy, most interactions in mainstream therapies are based on 'talking' and not touching. Not surprisingly, most writings on the therapeutic effects of touch comes from bodily-oriented therapies such as Humanistic (Rogers, 1970), bioenergetics or biodynamic (Lowen, 1976), somatic (i.e., (Caldwell, 1997) and gestalt (Perls, 1973). These bodily-centred approaches and other related schools emphasise the importance of integrating the somatic domain into the psychotherapeutic practice, and hence regard touch as an acceptable, and in

some cases even necessary, therapeutic intervention (Hunter & Struve, 1998; Levine & Frederick, 1997; Perls, 1973; Smith et al., 1998).

Bodily-centred approaches have suggested that the use of touch could function as a non-verbal medium through which therapists can enhance the therapeutic alliance and sense of emotional and physical connection (Smith et al., 1998) and to convey, to name a few, reassurance and grounding (Eyckmans, 2009), legitimation and acceptance (Mintz, 1969), symbolise parental care (Durana, 1998) and differentiation and awareness of self and other boundaries (Fotopoulou & Tsakiris, 2017; Leder & Krucoff, 2008; Westland, 2011). However, evidence supporting these hypotheses, especially from the point of view of the client are scarce and mostly based on the psychotherapists' experiences or relatively small samples and case studies (Geib, 1998; Horton et al., 1995; Hunter & Struve, 1998; Schlesinger & Appelbaum, 2000). For example, in one study 69% of 159 psychotherapy clients have been found to report touch as creating a bond and enhancing feeling of closeness with the therapists (Horton et al., 1995). Crucially, clients' negative perception of touch as eliciting feelings of being 'trapped', have also been reported, especially when clients perceived the touch as being beneficial for the therapist's or when the clients' ability to feel in control have been hampered _. These differences in clients' perception call for clearer and more empirically-based guidelines on the use of non-erotic touch (Bonitz, 2008; Phelan, 2009; Westland, 2011). Particularly, it has been suggested that prior developmental abusive experiences could affect how individuals respond to touch (Turp, 1999; Wilson, 1982), and as such developmental history should be considered when therapists use touch interventions (Berendsen, 2017; Rothschild, 2002). Moreover, it has been suggested that therapists should pay attention to their clients' current engagements and attitudes towards touch when formalising and evaluating their clients' need for touch (Turp, 1999, 2000).

Interestingly, even though most mainstream psychotherapy training programs do not include touch as a possible intervention (Bonitz, 2008; Harrison et al., 2012; Zur & Nordmarken, 2011), the few available surveys on the topic have showed that the majority of psychotherapists have used touch with clients at least once (Strozier et al., 2003; Pope et al., 1987 but see (Stenzel & Rupert, 2004) for an opposite pattern). These mixed and limited findings may be related to ethical, legal and cultural differences (Bonitz, 2008; Phelan, 2009; Zur & Nordmarken, 2011) but also to different views of touch as part of the therapeutic endeavour (Westland, 2011). For example, whereas in body therapies touch-interventions have been offered to foster the therapeutic alliance (Smith et al., 1998), in talking-therapies, techniques such as reflecting (Lavi-Rotenberg et al., 2020) or mentalising (Fonagy & Allison, 2014) have been reported to maintain and built the alliance. Moreover, even within the talking-therapies some modalities such as cognitive behaviour therapy (CBT), where there is more emphasis on symptom reduction through teaching directive elements rather than exploring developmental and interpersonal relations (Haverkampf, 2017) could reduce the frequency of touch-interventions (Davis et al., 2017). For example, a survey on 666 psychotherapists reported that therapists with psychodynamic or CBT orientations have used touch the least, and in the latter case, only as part of a specific intervention. By contrast, psychotherapists who identified with a humanistic approach were most likely to use touch (Holroyd & Brodsky, 1977).

In summary, despite accumulating scientific evidence regarding the therapeutic effects of interpersonal touch throughout the life span there is limited and conflicting empirical evidence regarding the quantity (i.e., the prevalence within the different psychotherapy modalities) and quality (i.e., the perception of these touch experiences from the point of view of the client) of touch in the context of psychotherapy. Moreover, despite lab studies and clinician surveys on the role of individual differences such as adult attachment style,

developmental touch history or current touch attitudes in shaping clients' views on touch during psychotherapy (Turp, 1999, 2000; Westland, 2011), clients' own perspectives and experiences in different therapeutic modalities have not been sufficiently explored, an important empirical gap the current study aims to address.

The present study

The current survey is a preregistered study (https://osf.io/jr4vc) involving a large sample of people from the United Kingdom, who reported whether or not they had experienced psychotherapy in the past 10 years, as part of a large, national touch survey organised by the Wellcome Trust in collaboration with Goldsmiths (University of London), University College London and the British Broadcasting Corporation. This larger survey contained a section on psychotherapy and touch, in which touch explicitly referred to any sort of physical contact (i.e., hug, hold, stroke) occurring between therapists and clients, excluding purely transactional, formal touch instances such as handshakes, or accidental touch, such as a fall. Based on this aforementioned survey section and focusing on individuals who had psychotherapy in the past 10 years, we preregistered the current study, examining the above identified gaps of knowledge. Our preregistered *main* hypotheses focusing on three different but related aspects of touch - desire for touch, affective quality and quantity of touch experiences, from the point of view of the client, were as follows (see also https://osf.io/jr4vc):

(H1) hypothesis in relation to desire for touch. (H1a) Given the aforementioned positive general client perspectives about the role of touch in psychotherapy (Geib, 1998; Horton et al., 1995; Hunter & Struve, 1998; Schlesinger & Appelbaum, 2000), we anticipated that within our large sample, we will find evidence that most individuals that have had a 'talking therapy' (e.g., counselling, psychotherapy or other talking cure) that is not CBT, would want to be touched. (H1b) We also tested this hypothesis in relation to therapy

duration, as the latter to our knowledge has never been examined in relation to touch-interventions. Under the notion that psychotherapy touch is associated with therapeutic bond and feelings of closeness with the therapists (Horton et al., 1995), we expected to find that in longer therapies, where it is more likely to explore developmental issues and to focus more on the therapeutic relations and bonding, individuals will show more desire as compared to shorter ones. (H1c) With the aim to explore touch-interventions within the different psychotherapy modalities, we expected that individuals who have had CBT, given the more goal, directive and symptom-oriented focus of CBT modality, to desire psychotherapy touch less than the non-CBT group. (H1d) Given some of the prolonged effects of developmental touch on social proximity seeking and social support by attachment figures (Fotopoulou et al., 2022; Fotopoulou & Tsakiris, 2017), we hypothesised that the desire for touch depends on the client's attachment style dimension. Specifically, that higher scores in attachment *avoidance* would be associated with less touch desire, as the individual with this behaviour can show limited abilities to maintain benevolent relations (Ainsworth, 1989) and distance themselves from others (Shaver & Mikulincer, 2010). On the other hand, individuals, with attachment *anxiety* would show an opposite effect, due to a possible constant need for proximity seeking and reassurance. (H1e) We also expected that individuals with negative touch attitudes to show less touch desire as these individuals engage less with related touch activities (Turp, 2000).

(H2) In relation to quantity of touch in therapy and given the different theoretical emphasis on talking versus touching as an integral part of therapeutic interventions (Zur & Nordmarken, 2011), we anticipated (H2a) that while most individuals that have had psychotherapy that is not bodily oriented would report they never experienced therapeutic touch, (H2b) people who have undertaken body-orientated therapy would report on frequent experiences. We again, tested this hypothesis in relation to therapy duration, and expected

(H2c) that in all modalities duration of therapy would positively correlate with recurring experiences of touch.

(H3) Emanating from the suggested role of individual differences such as adult attachment style dimension and developmental touch history in shaping clients' views on touch during psychotherapy (Turp, 1999; Westland, 2011) we investigated these characteristics in relation to the affective quality of touch experiences in therapy. (H3a) We hypothesised that individuals with secure attachment style (i.e., low on attachment dimensions anxious and avoidant) would report more positive touch experiences. These hypotheses are consisted with previous findings suggesting that lower scores in attachment avoidance scale are expected to benefit more from touch (Jakubiak & Feeney, 2016) and as such to report on positive experiences. (H3b) Consistent with Takeuchi et al's., (2010) findings that individuals who experienced greater frequency of positive parental touch hold a more positive image of the other (Takeuchi et al., 2010), we expected that positive developmental touch history would be associated with positive touch experiences.

(H4) In relation to previous findings that for some clients touch can enhance the therapeutic alliance, and communicate bonding and support, but for others it could communicate violation of boundaries and experienced as inappropriate (Geib, 1998; Horton et al., 1995), we focused on these two possibilities separately. (H4a) We predicted that only a few individuals who have reported touch experiences would perceive these incidents as inappropriate. (H4b) We also predicted that for most individuals that have reported touch experiences in therapy, touch would be seen as supportive. (H4c) As above, we also hypothesised that these different perceptions of psychotherapeutic touch experiences would be moderated by attachment style, touch history and touch attitudes.

Methods

Participants

In total, 39254 participants completed the survey. Of those only 22037 chose to answer the optional psychotherapy section and to report if they have been in psychological therapy in the last 10 years. On this sample of interest, we applied the following preregistered criteria: individuals with demographic characteristics that were extremely rare and under-represented in the sample (e.g., < 1% of respondents) were excluded from our analyses. Thus, we only included participants self-identifying as female or male, who were living in the UK, and participants aged 19 years and over (participants who reported being aged 18 were excluded due to a disproportionately high number of respondents in this age category). Participants who completed less than 80% of items from a given scale or subscale were excluded from the analysis. After removing participants based on the above preregistered exclusions, and filtering out individuals who did not response to the demographic questions, 17,775 participants remained and their data was analysed. 39% of this sample (n=6878; 5547 women and 1331 men) responded that they have been in psychological therapy in the past 10 years, and as such the data that is reported in this study results section is from this sample.

The study was approved by the Research Ethics and Integrity Sub-Committee, Goldsmiths, University of London, (Project reference 1521). The survey was conducted in accordance with relevant guidelines and regulations.

Materials and Measures

The variables presented in this section and scoring methods were preregistered and followed except where explicitly indicated.

Demographic Questions. We collected anonymous data on age, gender, ethnicity, country of residence and religion, to determine the final sample as explained above, and for use as control variables in our analyses (see Table 1S).

Therapy Uptake, Duration and Modality. Due to time constraints and to ensure the survey's broad appeal to the public, we used a limited number of questions and responses. We measured Therapy Uptake by the question ("Have you been in psychological therapy at any time in the past 10 years?"). Participants could respond using three options ("Yes", "Prefer not to say", "No"). For those who responded "Yes" to this question, we measured the duration of the therapy they received ("For how long in total?") using three options ("Less than 3 months", "3 months to 1 year", "More than 1 year"). When asking about therapeutic modality, with the exception of CBT which we felt is one of the most recognisable modalities, we tried to use general words (counselling, psychotherapy, talking therapy) that the majority of non-experts would recognise in our questions. We also allowed an 'other' category for participants that could identify more specific approaches (e.g. psychodynamic, Gestalt, existential)**.** Specifically, participants were asked "What type of therapy did you take part in?" and they were able to choose as many of the 5 general options we provided ("Psychotherapy", "Counselling", "Cognitive-Behavioral Therapy", "Talking Therapy", "Other. Please specify"). Note that for analyses relating to CBT therapy vs non-CBT, we aggregated psychotherapy, counselling and talking therapy as one 'non-CBT talking therapy' category. We did not differentiate between the 'non-CBT talking therapies' as we could not make sure that the groups were mutually exclusive. Note that for responses that were only marked as 'other' (n=340), when possible and based on the evaluation of three clinicians we classified them as either as 'non-CBT talking therapies' (i.e., 'Psychoanalysis', 'Grief and bereavement counselling', 'family therapy' etc), 'CBT' (i.e., 'EMDR', 'ACT', 'DBT' etc) or 'Other' ('homeopathy', 'healer', 'hypnosis' etc).

Lastly, in a separate question, we asked the participants to specify whether their therapy included aspects that were body-oriented such as biodynamic or massage therapy, as opposed to predominantly talking therapy. For this measure, participants chose between four options

("Yes", "No", "Not sure", Prefer not to say"). We used information for analyses relating to 'body-oriented' vs 'non-body talking therapy' categories.

Desire for touch. Desire for the therapist's touch was measured using one item ("Have you have ever wanted your therapist to hug, hold or touch you in some way?) rated from 1 (Never) to 7 (Always). See table 1 for frequency responses.

Touch experiences. *Quantity of touch experiences* was measured using one item ("Have you ever experienced some sort of physical contact with your therapist, beyond accidental contact or a formal handshake"). Responds recorded using four options ("never", "once", "less than 10", "more than 10"). '*Overall affective quality of touch experiences'* was assessed using an average score of three items (1. "Overall, how do you regard the physical contact which occurred in your therapy"? 2. "How were the feelings about yourself affected by the touch?" 3. "How were your feelings about your therapist affected by the touch?") rated from 1 ("Very Negative") to 7 ("Very Positive"). *Supportive and bonding experiences* were assessed using one item ("To what degree did you feel the touch communicated acceptance or support and enhanced your connection, or bond with the therapist?") and *intrusive and inappropriate experiences* were assessed using a different item **(**"To what degree did you feel the touch violated the boundaries of the therapeutic relationship and was inappropriate?"). Both items rated from 1 ("Never") to 7 ("Every time"). See table 1 for frequency responses.

Adult attachment style dimension. Adult attachment style was assessed using the Experiences in Close Relationships-Short Form (ECR-S; (Wei et al., 2007), a 12-item self-report dimensional measure of adult attachment avoidance and anxiety. This questionnaire takes a dimensional approach, yielding continuous scores of attachment anxiety and attachment avoidance. Six items pertain to attachment avoidance and six to attachment anxiety. These items are rated from 1 (strongly disagree) to 7 (strongly agree) and averaged for each dimension with higher scores representing a higher degree of insecure attachment.

The ECR-S is well validated (Wei et al., 2007) and demonstrates good internal consistency: Cronbach's α = .86 for avoidance and α = .85 for anxiety in this study.

***Attitudes to touch**:* General attitudes towards touch were assessed using a composite score of the Social Touch Questionnaire (STQ; (Wilhelm et al., 2001) and the Touch Experiences and Attitudes Questionnaire (TEAQ; (Trotter et al., 2018). The STQ, is a 20-item self-report questionnaire designed to examine the behaviour and attitudes towards social touch. The STQ had good internal consistency (Wilhelm et al., 2001 and Cronbach's α = .87 in this study). The TEAQ original questionnaire has 57 items and is structured by six components (namely friends and family touch, current intimate touch, childhood touch, attitude to self-care, attitude to intimate touch and attitude to unfamiliar touch. In the present study, we used only 12 items from the original TEAQ, chosen as the two items with the highest loadings in each of the six components (Trotter et al., 2018). The TEAQ shows good internal consistency (TEAQ; Cronbach's α = .74 in this study). The whole STQ and the above 12 items from the TEAQ were summed to produce a total score for attitudes and experiences towards touch, with higher scores suggesting more positive attitudes and experiences towards touch. In addition, based on an exploratory and confirmatory factor analysis on the STQ and TEAQ items that were used in this survey (Bowling et al., in preparation), a six-factor structure was identified and further used for specific hypothesis (see below). These factors were "Dislike of physical touch", "Childhood touch/developmental touch history", "Attitudes to intimate touch", "Liking of physical touch" and "Attitudes to self-care".

Developmental Touch History. Developmental touch history (see above the factor " Childhood touch") was assessed using the composite average score derived from two TEAQ items corresponds to positive touch experiences in childhood ("My parents were not very physically affectionate towards me during my childhood", and "As a child my parents would tuck me up in bed every night and give me a hug and a kiss goodnight") and one STQ item

("As a child, I was often cuddled by family members (e.g. parents, siblings"). Cronbach's α = .86.

Empathy. Empathy scores were assessed using the 5-items cognitive empathy subscale from the Empathy Quotient-Short Form (EQ-15;(Muncer & Ling, 2006). Items were rated on a 4-scale from "Strongly disagree" to "Strongly agree". The EQ-15 assess empathy in adults and shows excellent reliability and validity (Paolo Senese et al., 2018). Cronbach's α = .84.

Touch-Loneliness. Loneliness feelings in relation to touch were measured using one item ("When/if your social relationships do not include touch, do you notice a difference in how lonely you feel?(von Mohr et al., 2021)). Responses were recorded on a 5-scale from "Never" to "Always", with higher scores suggesting more loneliness feelings in relation to touch in social relationships.

Procedure

The survey was launched on the 21.01.2020 and closed on the 30.03.2020. The survey was conducted on an online platform (touchtest.org) powered by Goldsmiths (University of London) and was launched on BBC Radio 4. The online link was made available through radio broadcasts and associated websites, and promoted on social media via individual and institutional accounts. Participants read an information page and gave written, informed consent to participate in this study. As noted above, the current study is based on an optional part of a larger survey. Questionnaires were presented in random order, and there was no completion time limit. Participants could interrupt and return to the survey as many times as they wanted within a seven-day limit (89.76% of participants completed the survey within a day). Participants were able to withdraw anytime from the study.

Data analysis

For all hypotheses with continuous dependent variables (e.g., overall attitudes towards touch in therapy), we analysed the data using separate multilevel modelling (MLM). For hypotheses

with a categorical dependent variable (e.g., type of psychotherapy) or that were grouped to binary one (e.g., 'Never' or 'Almost never' vs 'Rest' in touch desire) we analysed the data using MLM Binomial Logistic regression. For details of the model that was used for each hypothesis see below (Results section). In each of these analyses, independent variables such as type or duration of therapy, attachment style dimension or attitudes to touch, were entered as fixed effects of interest (See Table 2S for intercorrelations between independent variables). Note that in all MLMs we controlled for Participant ID, gender, sexuality, ethnicity and religion as random effects, but we kept these variables in the final models only wherever their interclass correlation coefficient (ICC) was greater than 0.001. Our continuous dependent variables were checked to confirm normality, whereas to address potential issues of multi-collinearity between our independent variables we performed Principal Component Analysis (PCA). The nature of our dependent and independent variables (structured multiple-choice questions with few limited choices) prevented the appearance of outliers. Given the relatively big sample size (varying per hypothesis from 1596 to 6768), we used a conservative alpha value of $p<0.01$ (we chose this method as a good compromise of simplicity and validity and focused on our pre-registered hypotheses.

Results

Sample Characteristics

6878 individuals (5547 women and 1331 men; $M_{Age} = 56.1 \pm 14.63$) responded that they had received psychological therapy in the past 10 years (see "Participants" for the number of people that filled the larger survey and Table 1S for demographics on the 'psychotherapy' sample). 89% ('Talking therapies': n=6129) reported that their treatment did not include aspects that were body-oriented, 8% (n=570) indicated that their treatment was body-oriented, and 3% (n=179) were not sure/preferred not to say. 28% (n=1923) from responders indicated that their therapy modality was mainly CBT and 72% (n=4955) was either

"Psychotherapy", "Counselling", and "Talking Therapy" which we refer as a 'non-CBT' group.

Touch desire in relation to therapy group, duration, attachment and touch attitudes.

Of our total 'psychotherapy' sample (n=6878), 59.5% responded that they had 'Never' or 'Almost never' wanted their therapist to hug, hold or touch them, while 40% said 'Rarely' to 'Always', indicating some desire for touch (see Table 1 for percentages in relation to the different therapy modalities).

To test our hypotheses (H1) that within the 'non-CBT' group (i.e., 'Counselling', 'Psychotherapy' or 'Talking therapy') the number of individuals who reported on some desire for touch will be significantly larger than those who never have had desire, we used logistic MLM. Desire to receive a hug, hold or touch from the therapist served as a dichotomous dependent variable ('Never' or 'Almost never' vs. 'Rarely' to 'Always') and therapy duration, attachment style dimension (avoidance, anxiety) and general touch attitudes (i.e., the total summed score of the TEAQ and STQ) served as the independent variables ($R_{Marginal}^2$ = 0.14; n=4075). Results did not confirm this hypothesis (H1a) as within the 'Non-CBT' talking therapies group there was a small and non-significant difference between the odds of individuals who never wanted to be touched and those who did show some desire for touch (*OR* =0.93, *p* =.74 *95% CI* [0.61;1.42]). However, as predicted (H1b) and within the same therapy group, therapy duration emerged as a predictor of desire for touch, suggesting that the longer the therapy duration the greater the desire for touch (Figure 1; *OR* = 1.97, *p* <.001, *95%CI* [1.75;2.23]). In addition, higher attachment *anxiety* scores and *positive* touch attitudes significantly increased the desire for touch (Figure 1; *OR* = 1.31, *p* <.001, *95%CI* [1.23;1.41]; *OR* = 1.78, *p* <.001, *95%CI* [1.66;1.91]) respectively). However, contrary to our hypothesis (H1d), higher attachment *avoidance* scores did not significantly reduce the desire for touch (Figure 1; *OR* = 0.96, *p* = 0.26, *95%CI* [0.90;1.03]).

To test our hypothesis on therapy group type and desire for touch (H1c), we used a separate model ($R_{Marginal}^2$ = 0.03; n=6768) and compared individuals who have had CBT to those receiving non-CBT therapies, as expected, having CBT reduced the desire for touch (*OR* = 0.83, *p* =.001, *95%CI* [0.73;0.93]). We also found effects of both attachment-anxiety and attachment-avoidance, suggesting that for individuals in the CBT group, higher scores in attachment-anxiety increased the desire for touch (*OR* = 1.26 *p* <.001, *95%CI* [1.18;1.35]), while higher scores in attachment-avoidance reduced the desire for touch (*OR* = 0.89 *p* =.002, *95%CI* [0.83;0.96]). Last, in a separate analysis ($R_{Marginal}^2$ = 0.04; n=6686), as predicted, having body-oriented therapy, was found to increase the desire for touch (*OR* = 2.80, *p* = <0.001, *95% CI* [2.29;3.41) as compared to the 'non-body' talking therapies.

Quantity of touch experiences in relation to therapy type and duration

Within the individuals that reported receiving a therapy that was predominantly a 'talking therapy' (e.g., 'non-body': counselling, psychotherapy, talking or CBT), 67% reported never experiencing physical contact with their therapist (beyond accidental contact or a formal handshake), and 22% reported having experienced touch at least once (Table 1).

To test our hypotheses (H2a) that within the 'talking therapy' group the number of individuals who reported on not having experiences of therapeutic touch is significantly larger than those who had ones, we used logistic MLM with a dichotomous dependent variable (i.e., 'Never' vs. 'Once' or 'More than once'). As predicted, having a 'talking therapy' significantly reduced the odds of an individual to experience touch (*OR* = 0.15, *p* <.001, *95%CI* [0.10;0.25]; $R_{Marginal}^2$ = 0.01;n=6034), confirming the hypothesis that within that group most individuals never experienced psychotherapy touch.

In addition, to test the prediction (H2b) that individuals in 'Body-oriented' therapies had more touch experiences as compared to therapies that were not body oriented (i.e., 'Non-body' talking therapies) we used linear MLM, with the amount of touch serving as *ordinal*

dependent variable. As expected, we found that the Body-oriented group experienced more touch (b=1.16, p <.001, 95% CI [1.09;1.23]; $R_{Marginal}^2$ = 0.14;n=6683) as compared to therapies that were not body oriented. To test the prediction (H2c) that therapy duration will be positively associated with the reported amount of touch, especially in the 'Body-oriented' group, we again used a linear MLM ($R_{Marginal}^2$ = 0.22;n=6677), with quantity of touch serving as ordinal dependent variable and therapy duration, therapy group ('non-body talking therapies' vs. 'Body-oriented') and the interaction between therapy duration and therapy group as independent variables. As expected, a significant interaction between therapy group and therapy duration was found (b = 0.19, p <.001, 95% CI [0.08;0.31], indicating that while there was an effect of therapy duration in 'Talking therapies' (*b* = 0.38, *p* <.001, *95%CI* [0.34;0.41]) the observed relationship between therapy duration and amount of experienced touch was even stronger in the 'Body-oriented' therapies.

Affective quality of touch experiences in relation to developmental touch history, attachment and attitudes to touch.

Amongst those individuals who reported that touch occurred in their therapy at least once (n = 1689), on average 87% rated that the experience of touch was positive, 12% rated it as neutral and 5% rated it as negative.

We used MLM to first test our predictions (H3) whether lower scores on attachment anxiety or attachment avoidance or positive touch attitudes related to positive evaluations of touch *experienced* during therapy. Ratings of the 'affective quality of touch experiences' were collected by a scale ranging from 'Very negative' to 'Very positive' (see Methods) and this scale served as continuous dependent variable. The categorical variable termed 'Therapy group' (here consisting of 'Body-oriented', 'non-CBT' or 'CBT'), and the continuous variables attachment style dimension, attitudes to touch, touch loneliness feelings and empathy scores as independent variables ($R_{Marginal}^2$ = 0.10; n=1610). As predicted (H3a),

attachment *avoidance* scores were negatively associated with affective touch experiences (b = -0.11, p <.001, *95%CI* [-0.16;-0.06]), indicating the higher the score on attachment avoidance the less positive the touch experience was rated. By contrast, attachment *anxiety* scores were not associated with affective quality of touch experiences (b = -0.03, p =.28, *95%CI* [-0.08;0.02]). In addition, three factors of the combined TEAQ_STQ measure (i.e. "attitudes to intimate touch", "liking of physical touch" and "attitudes to self-care") were associated with affective quality of touch experiences in therapy, indicating a positive experience for those who scored high on the aforementioned touch attitudes. In addition, "Dislike of physical touch" was negatively associated with affective quality of touch experiences, suggesting that those who scored higher on this measure rated their touch experiences less positively. However, developmental touch history and current intimate touch were not significantly associated with affective quality of touch experiences in therapy (Table 2). We did not find any evidence that the categorical variable 'Therapy group' is associated with the affective quality of touch experiences (Table 2). Lastly, as predicted (see pre-registration), touch loneliness feelings were associated with affective quality of touch experiences (b = 0.12, p <.001, *95%CI* [0.07;0.18]), suggesting the higher the loneliness feeling the more positive the rating was. However, empathy scores were not associated with this dependent variable (b = 0.02, p =.52, *95%CI* [-0.04;0.07]).

Inappropriate or supportive experiences of touch in relation to developmental touch history, attachment and attitudes to touch.

Amongst those individuals who reported that touch occurred in their therapy at least once (n = 1689), 88% reported that the experience of touch "Never" or "Almost Never" was inappropriate. 65.4% reported that the experience of touch was "Always" or "Almost always" supportive.

To test the prediction that number of individuals who would experience therapeutic touch as "violating the boundaries of the treatment and inappropriate" is significantly smaller than those who did not experience it as such we used logistic MLM ($R_{Marginal}^2$ = 0.07, n=1685) with touch experienced as inappropriate as a dichotomous dependent variable ('Never' or 'Almost never' vs. 'Infrequently' to 'Every time'). Attachment style dimension, touch attitudes, touch-loneliness and empathy scores served as the independent variables, and we controlled for the reported amount of touch in therapy. As predicted (H4a), within the group of individuals who have had touch experiences in their therapy, the odds of an individual experiencing it as violating the boundaries of the treatment or inappropriate were significantly smaller than the odds of not experiencing it as such (OR=0.08, p<.001, 95% CI [0.03;0.20]), confirming our hypothesis. In addition, positive touch attitudes ("liking of physical touch") significantly reduced the odds of touch experiences in therapy being perceived as inappropriate (Figure 2A; *OR* = 0.79, *p* =002, *95%CI* [0.68;0.91]), while disliking of physical touch significantly increased these odds (*OR* = 1.50, *p* <.001, *95%CI* [1.28;1.76]).

Regarding the role of attachment style dimension (H4c), higher attachment anxiety scores increased the likelihood that touch was experienced as inappropriate (OR=1.24, p=0.009, 95% CI [1.05;1.46]). We further explored these effects using a linear regression, with the dependent variable serving as a continuous variable. In this analysis higher scores in both attachment styles dimension were positively associated (but attachment avoidance only as a trend, p=0.056) with higher rating of touch seeming inappropriate (see Table 3S).

To test the prediction that a significate greater number of individuals would rate touch as communicating "acceptance or support and to enhance the therapeutic alliance" as opposed to not, we again used logistic MLM ($R_{Marginal}^2$ = 0.07). In this analysis, touch experienced as supportive served as the dichotomous dependent variable ('Never' or 'Almost Never' vs.

'Infrequently' to 'Every time'), attachment styles dimension, touch attitudes and therapy group served as the independent variables, and we controlled for the reported amount of touch in therapy. As predicted (H4b), within the group of individuals who have had touch experiences in their therapy, the odds of an individual experiencing it as communicating bonding and support were significantly larger than the odds of those who did not experience it as such (*OR* = 9.57, $p < 0.001$, *95%CI* [3.58;25.60]). However, we did not find a significant interaction with therapy group (*OR* = 0.91, $p = 0.64$, *95%CI* [0.61;1.35]), suggesting that being in a specific therapy type ('Body-oriented' or 'non-body talking therapies'), did not further increase the odds of experiencing the touch as communicating acceptance or support. In addition, as predicted (H4c), positive attitudes towards touch (i.e., 'liking of physical touch') and touch-loneliness feelings increased the likelihood that therapeutic touch experiences were perceived as supportive (*OR* = 1.44, $p < .001$, *95%CI* [1.26;1.65], *OR* = 1.27, $p < .001$, *95%CI* [1.11;1.47], respectively) and 'disliking of physical touch' reduced this likelihood (*OR* = 0.70, $p < .001$, *95%CI* [0.61;0.81]. Scores in attachment style dimension and developmental touch history did not significantly affect these odds (Figure 2B).

Discussion

In this study, we were able to take advantage of the largest touch survey in the UK to date, to identify a large sample of individuals that have undergone psychological therapy in the last 10 years. Using this sample, we aimed to bridge some of the gaps in the research relating to clients' perspectives on touch in psychotherapy: 1) the extent and quality of these experiences and 2) the clients' individual differences associated with such experiences. To our knowledge, very few studies have examined these experiences from the point of view of the client and in different modalities of psychotherapy. Specifically, we focused on three different but related aspects of touch - desire for touch, affective quality, and quantity of touch experiences. Interestingly, while most of the responders (89%) reported that their

psychotherapy did not include aspects that were specifically focused on the body, and while most individuals (67%) never had experienced physical contact with their therapist, 40% did report some desire for touch. The discrepancy between desire for touch versus the dominancy of non-bodily psychotherapy is consistent with the current calls to integrate embodied approaches into the mainstream of psychotherapy treatments (Gennaro et al., 2019). Moreover, from those who had experienced touch, most individuals rated it quality as positive (87%), felt it communicated support and bonding (65%) and was not inappropriate (88%). As will be further discussed below, these ratios were also moderated by attachment style dimension and therapy modalities. For example, while high scores in anxious attachment increased the odds to report on desire for touch, it also increased the likelihood it being experienced as inappropriate, and as such therapists should take careful consideration in case-formulation or when introducing touch-based interventions.

Our first hypothesis in relation to touch desire and body-oriented therapy was confirmed, suggesting that body-oriented therapy increased the desire for touch as compared to 'non-body talking therapies'. Given that body-oriented therapies typically include physical contact and emphasise therapeutic touch interventions, it is unsurprising that individuals who chose and had experiences of those types of therapy have the greatest desire for touch. In addition, while we did not find evidence for our hypothesis to find a significantly larger number of individuals with touch desire in the non-CBT talking therapies, we did find that within this group and as predicted, the longer the therapeutic relations the greater the desire for touch. This may be explained by increased familiarity, trust or therapeutic bonding in longer vs. shorter therapies, or it may be explained by the type of issues that may be dealt with in longer vs. shorter therapies, or lastly individual differences between clients that had longer vs. shorter therapies. Future studies could explore these possibilities in different samples and specifically in non-CBT modalities. In addition, having CBT as compared to

non-CBT reduced the likelihood to report on this kind of desire. This finding suggests that while in all talking therapies individuals do not expect or wish to be touched, as the main medium is verbal communication, within the CBT group, clients desire it even less. This finding also suggests that when therapists plan to use touch-intervention, especially in CBT, they should consider psychoeducation about these verbal expectations of therapy before embarking on tactile interventions. However, it should be noted that given that CBT is a broad umbrella of treatments, and this has not been the focus of our survey, any interpretation of this finding is very speculative and future research should study this more directly.

Interestingly, and in line with our hypothesis that individual differences in attachment style dimension and current attitudes towards touch would associate with individuals' desire for touch, we found that higher attachment *anxiety* scores and *positive* touch attitudes significantly increased the desire for touch, while higher attachment avoidance scores reduced touch desire. Given that an anxious attachment dimension is associated with persistent seeking for signs of reassurance (Shaver et al., 2005), it could be that this craving is translated to greater touch desire. Relatedly, avoidant attachment is associated with distancing from others and preferring to cope alone (Shaver & Mikulincer, 2010), and as such can affect individuals' willing to receive therapeutic touch. The latter is also consisted with findings on a negative relationship between enjoyment of cuddling with a romantic partner or one's own children and attachment-avoidance (Chopik et al., 2014). The current survey results confirm the above pattern and suggest that the use of touch intervention benefits those with high scores on attachment anxiety, and as such making it more desirable.

Our second hypothesis, on the relationships between therapy modalities and quantity of touch incidents, was confirmed. As predicted, the majority of individuals that have had talking psychotherapy reported never experiencing therapist touch, and those who had body-oriented therapy reported more touch incidents. As expected, for both of these groups,

duration of therapy was again associated with the amount of touch incidents, and in particular in body-oriented psychotherapy, suggesting the longer an individual stays in therapy the more experiences of touch they receive. This finding is especially intriguing in the context of the aforementioned ratios of individuals who reported on desire for touch (40%), suggesting that while most individuals did not experience touch in therapy it appears that many desire it. To our knowledge this is the first study to explicitly assess the number of touch experiences and we cannot directly compare these findings to other surveys on touch. However, it is interesting to note that while most surveys on psychotherapists suggest that most therapists have used touch at least once (Pope et al., 1987; Strozier et al., 2003), here most clients report not being touched. This discrepancy could be explained by the fact that most therapists see more than one client, and as such the odds of therapists reporting on touch experiences are higher. Future studies should directly assess this possibility by comparing reports of touch from therapists and their clients. In addition, the findings on body-oriented therapies to increase reports on touch experiences are consistent with the emphasis of these type of therapies on the somatic domain, and regarding touch as an acceptable therapeutic intervention (Hunter & Struve, 1998; Levine & Frederick, 1997; Perls, 1973; Smith et al., 1998).

In relation to our third hypothesis on the affective quality of touch, while attachment avoidance scores were found, as expected, to be negatively associated with positive ratings of touch experiences, attachment anxiety scores were not. This pattern of results is consistent with previous findings, which suggest that while lower scores on attachment-avoidance are associated with positive elements of touch, anxious-attachment is not (Chopik et al., 2014; Jakubiak & Feeney, 2016). It could be that anxious individuals who are occupied with concerns of rejection and address intimacy in an ambiguous manner (Ainsworth, 1989), are less able to evaluate the affective nature of touch experiences. Interestingly, as expected,

higher ratings of loneliness experiences in relation to touch in social relations were associated with positive rating experiences of therapeutic touch. This relationship is consistent with the notion that touch interventions are designed to increase the sense of connection (Smith et al., 1998). In addition, while we did find positive relationships between general touch attitudes and positive ratings of touch, our prediction on developmental touch history was not confirmed. The null effect of developmental touch history on current touch experiences could be explained by the fact that this measure includes only items in relation to affection and did not capture any abusive/harmful touch. It has been suggested that abusive experiences in childhood can hinder individuals' beliefs about touch, and in particular to believe that touch by others, even in relation to psychotherapy touch is not safe (Wilson, 1982). Future studies measuring childhood traumatic events, and attitudes towards touch in psychotherapy, are warranted. Moreover, our predictions on a relationship between therapy types and affected quality of touch was not confirmed, suggesting that the therapeutic effects of touch interventions could apply to psychotherapy in general.

Our last hypotheses on the number of reported inappropriate or supportive experiences were confirmed. A minority of individuals reported on misconduct experiences, while the majority reported that the experience of touch communicated "acceptance or support" and enhanced the therapeutic alliance. These patterns of results are in line with Horton and colleagues' thematic analysis in which 69% of the responders reported that touch in the session conveyed a feeling of closeness and a sense that the therapist cared, and as such facilitated trust and openness (Horton et al., 1995). As expected, the above prevalence was also associated with general touch attitudes and attachment styles, supporting the notion that the perception of touch is subjective and could vary between clients (Phelan, 2009). Contrary to our expectations, developmental touch history did not modulate the above relationships. As before, it could be that using a different measure of developmental touch history, that

captured a positive as well as negative/traumatic developmental experiences, would have been more suitable to study these relationships.

This study also has limitations that should be acknowledged. Firstly, given it was a self-report on-line survey we were not able to check participants' understanding of the questions, and especially those related to the type of psychotherapy. Participants may not know their therapy type, and it could be that some of the clients have received CBT, but did not correctly identify the type of therapy, or chose 'other' therapy despite having counselling. To avoid these potential errors, as stated in the methods, we aggregated some of the modalities under 'talking psychotherapy', however future studies should further explore the difference between the different psychotherapy types, and in particular differentiate between the different forms of CBT. Secondly, we cannot rule out other factors that might affect touch desire or experience – for example, we did not assess childhood adversity (Bernstein et al., 1994) or general interpersonal trust (Rotter, 1967). Thirdly, this survey represents only the clients' self-reports views and perceptions on touch. Future large studies should compare these views with a corresponding group of psychotherapists. Lastly, due to the nature of the survey we were not able to compare current psychotherapy touch experiences with past ones, and all participants that have had therapy in the past 10 years or are currently having therapy were aggregated. It could be that retrospective views on an ongoing therapy are different from a terminated one and should be further examined.

To conclude, this is the first large survey that we are aware of to test clients' views on touch in psychotherapy in the context of adult attachment style and general attitudes towards touch. Our findings show that while most clients have not experienced touch-based interventions, 40% show some desire for it, and that the majority of those who did experience touch hold positive views. We also found that clients' attachment style dimension and current touch attitudes affect their perspective on touch. In the current climate of psychotherapy

research this study could inform guidelines and training on the role of touch in psychotherapy.

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Table 1. Items, scales and frequency analysis of the survey (n=6878).

Item	Therapist Touch Desire								
	Group Therapy	Never	Almost never	Rarely	Sometimes	Often	Almost always	Always	NAs
Gender									
Female	**Male**								
5547 (81%)	1331 (19%)								
Ethnicity									
English/Welsh/ Scottish/ Northern Irish/British	**Any other White background**	**Irish**							
6137 (89%)	589(9%)	53 (30%)	152(2%)						
Is Religious									
Yes	**No**	**Prefer not to say**				**NA's**			
1734 (25%)	4836 (70%)	305 (4%)				2 (0.001%)			
Sexuality									
Heterosexual	**Bisexual**	**Gay or Lesbian**							
6138 (89%)	422(6%)	318(5%)							
Have you ever experienced some sort of physical contact with your therapist, beyond accidental contact or a formal handshake?	Talking therapies	4583 (75%)		576 (9%)	537 (9%)		157 (3%)	276 (5%)	
	Body-oriented	196 (34%)		39 (7%)	171 (30%)		159 (28%)	5 (1%)	
	Not sure/Prefer not to say	100 (56%)		12 (7%)	25 (14%)		13 (7%)	29 (16%)	
	Total	**4879 (71%)**		**627 (9%)**	**733 (11%)**		**329 (5%)**	**310 (5%)**	
	Positive or negative psychotherapy touch experiences*								
	Group Therapy	Very negative	Negative	Somewhat negative	Neutral	Somewhat positive	Positive	Very positive	NAs
Overall, how do you regard the physical contact which occurred in your therapy?	Talking therapies	17 (0.00%)	14 (0.00%)	35 (1%)	145 (2%)	255 (4%)	472 (8%)	329 (5%)	4862 (79%)
	Body-oriented	5 (1%)	3 (1%)	4 (1%)	20 (4%)	57 (10%)	130 (22%)	153 (27%)	198 (35%)
	Not sure/ Prefer not to	1 (1%)	2 (1%)	4 (2%)	7 (4%)	8 (4%)	15 (8%)	13 (7%)	129 (72%)

	say								
	Total	**23 (0.00)**	**19 (0.00)**	**43 (1%)**	**172 (2%)**	**320 (5%)**	**617 (9%)**	**495 (7%)**	**5189 (75%)**
How were the feelings about yourself affected by the touch?	Talking therapies	10 (0.00%)	10 (0.00%)	31 (1%)	221 (4%)	290 (5%)	479 (8%)	226 (4%)	4862 (79%)
	Body-oriented	2 (0%)	4 (1%)	6 (1%)	39 (7%)	66 (12%)	142 (25%)	113 (20%)	198 (35%)
	Not sure/ Prefer not to say	0 (0%)	3 (1%)	2 (1%)	8 (4%)	13 (7%)	14 (8%)	16 (9%)	129 (72%)
	Total	**12 (0.00%)**	**17 (0.00%)**	**39 (1%)**	**268 (4%)**	**369 (5%)**	**635 (9%)**	**355 (5%)**	**5189 (75%)**
How were your feelings about your therapist affected by the touch?	Talking therapies	17 (0.00%)	8 (0.00%)	35 (1%)	217 (3%)	271 (4%)	483 (8%)	234 (4%)	4864 (79%)
	Body-oriented	3 (1%)	6 (1%)	5 (1%)	57 (10%)	66 (12%)	140 (25%)	95 (17%)	198 (35%)
	Not sure/ Prefer not to say	2 (1%)	1 (1%)	4 (2%)	5 (3%)	13 (7%)	15 (8%)	11 (6%)	128 (72%)
	Total	**22 (0.00%)**	**15 (0.00%)**	**44 (1%)**	**279 (4%)**	**350 (5%)**	**638 (9%)**	**340 (5%)**	**5190 (75%)**
		Touch supportive or inappropriate							
	Group Therapy	Never	Almost never	Infrequently	Neutral	Frequently	Almost every time	Every time	NAs
To what degree did you feel the touch communicated acceptance or **support** and enhanced your connection, or bond with the therapist?	Talking therapies	41 (1%)	19 (0.00%)	15 (0.00%)	150 (2%)	228 (4%)	189 (3%)	624 (10%)	4863 (79%)
	Body-oriented	8 (1%)	8 (1%)	0 (0%)	29 (5%)	60 (11%)	82 (14%)	185 (32%)	198 (35%)
	Not sure/ Prefer not to say	2 (1%)	1 (0.5%)	2 (0.5%)	10 (6%)	10 (6%)	7 (4%)	19 (11%)	129 (72%)
	Total	**51 (1%)**	**28 (0.00%)**	**16 (0.00%)**	**189 (3%)**	**298 (4%)**	**278 (12%)**	**828 (12%)**	**5190 (75%)**
To what degree did you feel the touch violated the boundaries of the therapeutic relationship and was **inappropriate?**	Talking therapies	988 (16%)	122 (2%)	36 (0.05%)	70 (1%)	20 (0.00%)	6 (0.00%)	25 (0.00%)	4862 (79%)
	Body-oriented	297 (52%)	42 (7%)	8 (1%)	17 (3%)	2 (0.00%)	4 (0.05%)	2 (0.00%	198 (35%)
	Not sure/ Prefer not to say	36 (20%)	4 (2%)	4 (2%)	4 (2%)	1 (1%)	1 (1%)	0 (0%)	129 (71%)
	Total	**1321 (19%)**	**168 (2%)**	**48 (0.5%)**	**91 (1%)**	**23 (0.00%)**	**11 (0.00%)**	**27 (0.00%)**	**5189 (75%)**

*Note that overall ratings of touch experiences were assessed using an average score of the three items.

Table 2: MLM analysis of attachment style, touch attitudes, psychotherapy modalities, touch loneliness and empathy scores on the affective quality of touch experiences, controlling for

the amount of touch, age, gender, sexuality, ethnicity and religion ($R_{Marginal}^2$ = 0.010 for all models; n=1610 and n=1597 for model including Empathy/Loneliness).

Predictors	**b**	**95% CI**	**p**
Age	-0.00	-0.00;0.00	0.87
Attachment-anxiety	-0.03	-0.08;0.02	0.28
Attachment-avoidance	**-0.11**	**-0.16;-0.06**	**<0.001**
TEAQ_STQ factors:			
Disliking of physical touch	**-0.23**	**-0.29;-0.18**	**<0.001**
Developmental touch history	-0.01	-0.06;0.04	0.61
Attitudes to intimate touch	**0.11**	**0.06;0.16**	**<0.001**
Current intimate touch	-0.01	-0.07;0.04	0.58
Liking of physical touch	**0.25**	**0.19;0.31**	**<0.001**
Attitudes to self-care	0.08	0.03;0.14	0.004
Psychotherapy modality:			
a) Non-CBT	0.00	-0.23;0.23	0.99
b) CBT	-0.02	-0.16;0.12	0.78
c) Body-oriented therapy	0.06	-0.20;0.32	0.67
Touch-loneliness	**0.12**	**0.07;0.18**	**<0.001**
Empathy	0.02	-0.04;0.07	0.52

Figure 1: Plot of odds ratios and 95% confidence intervals for predictors of touch desire (n=4075).

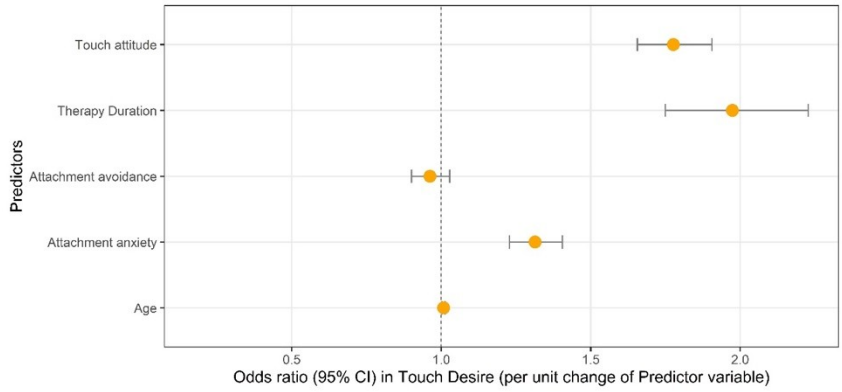
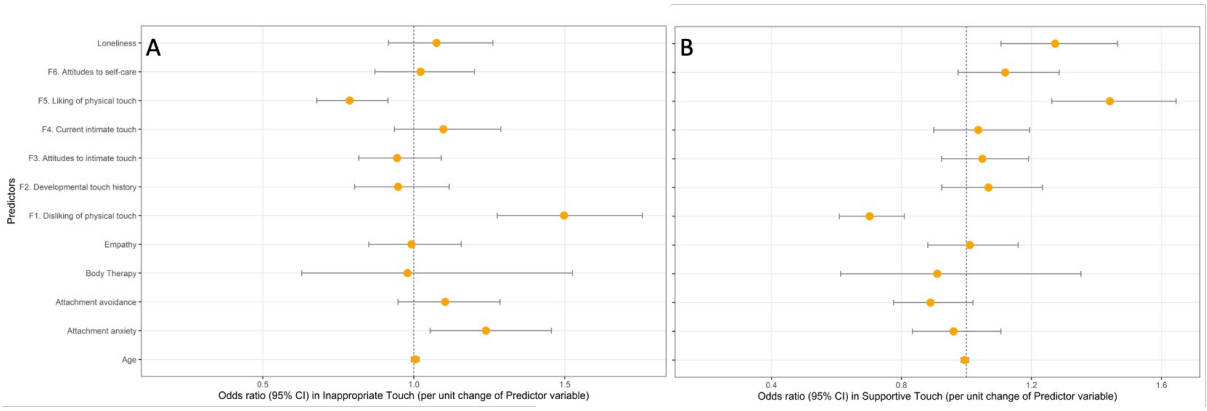


Figure 2: Plots of odds ratios and 95% confidence intervals for predictors of touch perceived as inappropriate (A) or supportive (B).



Supplementary materials

Table 1S – Sample demographics (N=6878)

Gender		
Female	**Male**	
5547 (81%)	1331 (19%)	
Ethnicity		
English/Welsh/ Scottish/ Northern Irish/British	**Any other White background**	**Irish**
6137 (89%)	589(9%)	152(2%)
Is Religious		
Yes	**No**	**Prefer not to say or NA's**
1734 (25%)	4836 (70%)	305 (5%)
Sexuality		
Heterosexual	**Bisexual**	**Gay or Lesbian**
6138 (89%)	422(6%)	318(5%)

Table 2S: Summary of Pearson's intercorrelations of independent variables.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. Att-anx	---	0.11	-0.13	-0.07	-0.08	-0.19	-0.02	0.08	0.3	-0.06
2. Att-avoid		---	-0.24	-0.23	-0.38	-0.39	-0.3	-0.13	-0.03	-0.14
3. Dis phys			---	0.16`	0.33	0.14	0.63	0.18	0.19	0.15
4. Dev hist				---	0.17	0.24	0.28	0.15	0.03	0.09
5. Att int					---	0.29	0.43	0.24	0.25	0.09
6. Cur int						---	0.26	0.13	-0.10	0.13

7. Lik phys	---	0.34	0.31	0.26
8. Att self-care		---	0.15	0.20
9. Touch lon			---	0.08
10. Empathy				---

Note: Att-anx = Attachment-anxiety; Att-avoid = Attachment-avoidance; TEAQ_STQ factors: Dis phys = Disliking of physical touch; Dev hist = Developmental touch history; Att int = Attitudes to intimate touch; Cur int = Current intimate touch; Lik phys = Liking of physical touch; Att self-care = Attitudes to self-care; Touch lon = Touch-loneliness.

Table 3S Linear multiple regression of attachment style, touch attitudes and psychotherapy modalities on the of touch experiences in therapy to perceived as (A) inappropriate ($R^2_{Marginal}$=0.04; n=1610) or (B) supportive ($R^2_{Marginal}$=0.05; n=1609), controlling for the amount of touch, age, gender, sexuality, ethnicity and religion.

A. Dependent variable: Touch perceived as inappropriate			
predictors	**b**	**95% CI**	**p**
Age	0.00	-0.00;0.01	0.83
Attachment-anxiety	**0.10**	**0.04;0.15**	**0.001**
Attachment-avoidance	**0.06**	**-0.00;0.11**	**0.056**
TEAQ_STQ factors:			
Disliking of physical touch	**0.17**	**0.11;-0.23**	**<0.001**
Developmental touch history	-0.00	-0.06;0.06	0.93
Attitudes to intimate touch	-0.02	-0.08;0.04	0.48
Current intimate touch	0.01	-0.05;0.07	0.66
Liking of physical touch	**-0.12**	**-0.18;-0.06**	**<0.001**
Attitudes to self-care	-0.02	-0.08;0.04	0.47
Dependent variable: Touch perceived as supportive			
predictors	**b**	**95% CI**	**p**
Age	-0.00	-0.01;0.01	0.97
Attachment-anxiety	-0.01	-0.08;0.06	0.75
Attachment-avoidance	**-0.10**	**-0.17;-0.03**	**0.007**
TEAQ_STQ factors:			
Disliking of physical touch	**-0.19**	**-0.26;-0.11**	**<0.001**
Developmental touch history	-0.00	-0.07;0.07	0.99
Attitudes to intimate touch	**0.11**	**0.04;0.17**	**0.003**
Current intimate touch	-0.01	-0.07;0.08	0.89
Liking of physical touch	**0.23**	**0.16;0.30**	**<0.001**