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The Functions and Consequences of Interpersonal Touch in Close Relationships

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Primary Functions of Touch in Social Interaction

Touch Can Serve As a Form of Paralanguage

Early attempts to develop a vocabulary for the language of touch tended to focus on common types of touch such as patting, squeezing, stroking, brushing, pinching, shaking, and the like (Argyle, 1975; Nguyen et al., 1975), or on the intimacy of a touch, ranging from professional touching to sexual touching (Heslin & Alper, 1983).

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R. J. Sternberg, A. Kostić (eds.), *Nonverbal Communication in Close Relationships*,
https://doi.org/10.1007/978-3-030-94492-6_12

Of all the attempts to classify touch signals, Stanley Jones and Elaine Yarbrough (1985) sought to give us a comprehensive vocabulary for understanding the meanings of touch; that is, how touch can take the place for the use of verbal expressions. As a research assignment they instructed students in their classes to keep diaries of how often they were touched and what was said by the other person when they were touched. Based on the data obtained from these diaries the researchers identified the five most meaningful categories:

1. *Positive affect touches*—These touches signal some degree of liking towards another person and include expressions of appreciation, support, affection, sexual interest, and so forth.
2. *Playful touches*—Playful touches signal a non-serious, joking, or teasing attitude towards another person either in the form of mock aggression or quasi-affection, and include tickling, punching, grabbing, pinching, shoving, and so on.
3. *Control touches*—These touches are intended to influence another person in some way, such as getting someone's attention or compliance.
4. *Ritualistic touches*—These touches are an integral part of certain rituals, such as greetings and departures.
5. *Task-oriented touches*—These touches occur while trying to accomplish a particular task (inspecting someone's clothing, handing someone a telephone, helping someone out of a car, etc.).

Touch Can Encourage Prosocial Behavior and Gain Compliance

For decades, researchers have been conducting experiments to determine whether or not the use of touch alters the likelihood that others will say yes when we ask for assistance. In nearly all of these experiments, researchers place one or more individuals (confederates) into an ordinary situation in which they must ask strangers (participants) for help. Varying their use of touch according to the researcher's specifications (the confederates might be instructed to touch some participants but not others) the confederates

approach randomly selected individuals (participants in the study) and ask each for some type of assistance (to give money, participate in a survey, mail a postcard, donate money, sign a petition, etc.). With the exception of the touch variable, the confederates try to keep their actions constant from one encounter to another. Recording how many participants comply with the request, researchers compare rates of compliance (e.g., touching the participant compared to not touching the subject).

In one of the earliest field studies on the practical effects of touch, the researchers selected a restaurant environment as an appropriate place for their study. Specifically, they were interested if customer reactions and tipping behaviour were affected in some observable and measurable way by the brief touch of a waitress. So, the researchers instructed the waitresses to briefly touch a customer on the hand or shoulder when returning the customer's change after receiving payment for the check. Although touching on the hand or shoulder made no difference, customers who were touched left a bigger tip than did the customers who were not touched (Crusco, & Wetzel, 1984).

In a review of 13 field studies, Segrin (1993) found positive effects for touch: lightly touching people on the forearm or shoulder increased their compliance with requests to sign a petition, return money, score questionnaires, volunteer time for charity, participate in a market survey, and the like. In one study, confederates asked passersby if they would look after a large and excited dog for ten minutes, a request more demanding than those made in most previous studies. When touched, 55% agreed; when not touched, compliance dropped to 35% (Guéguen & Fischer-Lokou, 2002). In another study, researchers found a post-compliance effect: After complying with a request to participate in a survey, respondents who were touched on the arm worked harder completing the questionnaire than did those who were not touched (Nannberg & Hansen, 1994). Psychologist Nicolas Guéguen discovered that touch can lead to compliance in a courtship context. One experiment found that a male confederate approaching women in a French nightclub had more success when asking women to slow dance with him when he touched the women on the arm while asking them to dance than when he didn't touch them. And a second experiment found that a male confederate approaching women on the street and asking them for their phone numbers obtained

more phone numbers when he touched the women on the arm than when he didn't (Guéguen, 2007). In instances such as these, one explanation for the effect of touch is that its use may have created a brief social bond leading to a closer relationship than if touch had not been used in the same set of circumstances.

But touch doesn't always help and may depend on the context. In one study, for instance, touching people at an airport while asking them to mail a postcard produced no more compliance than did not touching them at all (Remland & Jones, 1994). In another study, a female confederate asked individual shoppers ahead of her in the checkout lines of a discount store if she could move ahead of them. Her verbal justification varied from a low justification ("Excuse me. Do you mind if I get ahead of you in line?") to a high justification ("Excuse me. I just volunteered to drive my neighbor to the hospital for a lab appointment. Do you mind if I get ahead of you in line?"). Whereas the confederate's justification made a difference to the shoppers, her use of touch did not (Bohn & Hendricks, 1997). Sometimes, compliance depends on the gender of the person making the request, as it did in a study where male bus drivers were only more likely to go along with a person's request to ride the bus for less than the full payment, if the person was a woman who used a slight touch while making the request (Guéguen & Fischer-Lokou, 2003). Identifying homophobia as the most likely cause, a series of experiments actually found that men touched by a man were *less* likely to comply with a request than if they were not touched by the man (Dolinski, 2010). Perhaps in certain environments, with certain kinds of requests, and with certain individuals touch may not matter, and may even be counterproductive. Future research may help determine the conditions under which touch is most likely to facilitate compliance and prosocial behaviour.

Touch Can Reflect the Intimacy of a Relationship

Social psychologist Richard Heslin (1974) devised a taxonomy of touches based on the context in which touching takes place. The categories range from distant and impersonal to intimate and highly personal:

Functional/professional—This kind of touching takes place in the context of a professional relationship, in which physical contact of some sort is part of the task. Examples include a doctor touching a patient, a ski instructor touching a student, a hair stylist touching a customer, and so forth.

Social/polite—The common, ritualistic touches prescribed by cultural norms suggesting how, when, where, and whom one should touch. The various forms of touch that occur during greetings and departures are good examples.

Friendship/warmth—We often touch others to express warm feelings and positive regard. These are the touches that are most likely to be misinterpreted as more intimate than intended and that occur more regularly in some cultures than in others. In addition, the incidence of these touches is affected by differences in gender, personality, and age (see identification section in this chapter).

Love/intimacy—The most personalized kind of physical contact, these touches convey strong feelings of affection or represent close emotional ties. Certain types of touch are not appropriate and will arouse considerable discomfort if initiated by non-intimates. Various hand-to-head and hand-to-body touches fall in this category.

Sexual arousal—This kind of touching, which usually targets the erogenous zones, is used primarily for sexual stimulation, even though the parties involved may perceive love/intimacy connotations.

The context in which touching occurs is also a sign of intimacy, which explains why, for example, there is a lot of interpersonal touching at airports than at other locations. As Tiffany Field (2014) suggests, "[m]ore touch may occur in airports because closely related people are more often separated at airports" (p. 34). Not surprisingly, flirting contexts produce more touching than other contexts. Anthropologist Helen Fisher's (1992) five-stage model of the courtship ritual, for instance, highlights the important role of mutual touching as a pivotal sign of romantic interest that takes place during the latter part of the courtship ritual. In her view, touching is one of the universal stages that occur when one individual is interested in another individual as a romantic partner.

We can also distinguish between touching that is non-reciprocal and touching that is mutual. Non-reciprocal touch is initiated by one person but not returned by the person who is touched. This concept is important because of what one-sided touching can tell us about the nature of the relationship (e.g., intimacy or differences in status). With respect to married couples in particular, one study found that married couples were more likely than dating couples to reciprocate their partner's use of touch (Guerrero & Andersen, 1994). Reciprocity is also important because many social touches are not meant to be returned. The touch may complement what someone says (e.g., "Thanks"), it may take the place of words (e.g., "Don't worry, it'll be okay"), or it may be initiated to gain compliance with a request (e.g., "Excuse me, could you watch my bag for a couple of minutes?"). But mutual touch is also revealing. One special category of mutual touches that focuses on the symbolism of physical contact is known as tie signs (Morris, 1977). A tie sign is a public display of togetherness between two persons. Ranging from casual to very intimate, these social touches include handshakes, arm links, embraces, handholds, kisses, and more. They advertise to onlookers that some sort of bond exists between the touchers. Another important characteristic of most tie signs is that the touch usually lasts longer than other kinds of social touching. In a study, comparing differences in the use of touch tie signs between opposite-sex friends and dating partners, researchers found that the latter used more waist and shoulder embraces, and body supports, than did the former (Afifi & Johnson, 1999).

As Field (2014) notes, the greatest percentage of touch occurs among couples in romantic relationships compared to the amount that occurs in less intimate relationships. But systematic observations of interpersonal touching show how outward signs of mutual attraction often peak and then decline as couples become increasingly intimate. One study suggested this curvilinear relationship between public displays of affection and relational intimacy. Guerrero and Andersen (1991) recorded the number of times opposite-sex partners standing in line at a public zoo and at movie theatres touched each other. They found that couples that were seriously dating or marriage-bound touched the most—much more than either married couples or couples who were casually dating. In another field study of touching in public, McDaniel and Andersen (1998)

found additional support for a curvilinear relationship between physical displays of affection and relational intimacy. They observed opposite-sex couples from Asian, European, and Latin American countries, as well as the United States, at the international terminal of a major US West Coast airport. The least amount of touching occurred among strangers and acquaintances, as expected, but there were no more touches among spouses and family members. The most touching took place among close friends and lovers.

Touch Can Express Affection and Emotional Support

There is some evidence that intentional acts of touch alone can signal specific emotions. In one series of studies, for example, participants in Spain and in the United States were able to guess with much better than chance accuracy, whether an instance of touch alone expressed anger, fear, disgust, love, gratitude, or sympathy (Hertenstein et al., 2006). Studies on the uses of touch confirm that physical contact communicates affection and emotional support. For instance, when asked to describe how they would react non-verbally to a situation in which a close same-sex friend tells them that he or she just ended a romantic relationship, college students in two separate surveys largely agreed on what they would do. Overall, hugging emerged as the number one response, but the men in both surveys were much less likely than the women to say they would hug their troubled friend. Other high-ranking responses included being attentive, concerned facial expressions, increased touch, and eye contact. Some responses depended mainly on the respondent's gender: men were more likely to pat their friend on the arm or shoulder; women were more likely to use a wider variety of comforting touches (Bullis & Horn, 1995; Dolin & Booth-Butterfield, 1993). Another study found that embraces are seen as more expected for women than for men (Floyd, 1999). This coincides with other studies suggesting that women are more likely than men to use touch for giving and receiving emotional support (Upenieks & Schafer, 2021).

In general, however, there is a great deal of research that most forms of touch, particularly those that occur in the context of helping someone,

convey and elicit strong positive emotions (Jones, 1994; Montagu, 1986). According to Field's (2014) research there is a strong connection between expressions of love and the use of touch. Specifically, she includes touches such as holding hands, hugging, kissing, cuddling, caressing, and massaging as the primary examples of romantic touch.

Does touch between individuals in close relationships improve the success of their relationship, and, if it does, how does it contribute? In one study, the researchers recruited 102 romantic couples that had been dating for at least three months and asked the couples to make entries in an e-diary four times a day for one typical week. The researchers found strong support for the claim that interpersonal touch is associated with positive feelings of closeness and intimacy in the relationship. Moreover, with partners who reported touching them more frequently experienced higher levels of well-being six months later (Debrot, Shoebi, Perrez, & Horn, 2013).

The positive impact of touching, particularly in close relationships, is influenced by both biological and social processes, as we will discuss in the next sections. For instance, touch in close relationships can stimulate the release of chemicals in the brain, such as oxytocin, that reduce stress and promote comfort and intimacy (Goleman, 2006). Moreover, the effects of touch may depend on socialization processes that reflect the influence of culture, gender, and other environmental factors.

Biological and Social Influences on Interpersonal Touch

Studies confirm that some effects of interpersonal touch or touch deprivation are universal and result from a variety of biological processes. These studies focus on the social-psychological and health-related consequences of touch and touch deprivation. But there is also a considerable body of research on how people differ in their need for touch, their reactions to touch, and their interpretations of touch. This latter body of research focuses largely on cultural, gender, personality differences, and other factors arising from the development and transmission of rules, norms, and stereotypes attributed to socialization.

The Benefits of Touch and the Consequences of Touch Deprivation

Although not taken seriously for most of this century, the need for touch is now firmly established. In his pioneering book, *Touching: The Human Significance of the Skin*, Ashley Montagu (1986) traces the scientific work that has transformed our thinking about the biological significance of touch. Decades of scientific study show the devastating consequences of touch deprivation and the existence of a "skin hunger" for touch. Studies of non-human primates, for instance, show that touch-deprived monkeys suffer an array of physiological, psychological, and emotional problems. Compared to their comforted counterparts, they experience brain damage, immune system deterioration, depression, aggressiveness, and poor social functioning. One of the most widely cited of these studies is Harry Harlow's experiments on rhesus monkeys in which infant monkeys were able to maintain contact with two surrogate mothers: one made of terry cloth and another made of wire mesh. In some cases, the terry cloth surrogate also provided milk and in other cases the wire mesh surrogate provided milk. Harlow discovered that the monkey infants preferred the cloth mother without the milk over the wire mother with milk, suggesting that the monkeys would rather receive tactile comfort more than the milk provided by the wire mesh mother (research reported in Field, 2014).

There is a great deal of research that most forms of touch, particularly those that occur in the context of close relationships, produce an array of benefits that include conveying and eliciting strong positive emotions, decreasing the likelihood of depression, reducing stress, lowering blood pressure, decreasing inflammation, promoting empathy, decreasing the chances of cardiovascular disease, improving the quality of sleep, increasing tolerance to pain, strengthening the immune system, decreasing domestic violence, and more (Field, 2014; Jones, 1994; Montagu, 1986; Thomas & Kim, 2021). For example, in a study at Carnegie Mellon University, researchers interviewed 404 healthy adults over 14 consecutive evenings to find out how much social support they thought they received from others, which included how many hugs they received. Then the participants were exposed to a common cold virus and were

monitored in quarantine to assess infection and signs of illness. The researchers discovered that both perceived social support and hugs reduced the risk of illness. (Cohen, et al., 2015).

Although there are many factors that may contribute to these potential benefits, one factor that has been receiving a great deal of attention in recent years is the notion that touches, especially in close relationships, can stimulate the release of chemicals in the brain, such as oxytocin (Field, 2014; Goleman, 2006). Oxytocin is a hormone produced in the hypothalamus of the brain and released in the pituitary gland. Research suggests that it can contribute to some of the benefits noted above, particularly in facilitating improved social relations (e.g., greater empathy, less stress, more positive emotions, and so forth). In general, studies of touch in close relationships show that touch not only contributes to the release of oxytocin but that the release of oxytocin also increases the desire for more physical contact, thus demonstrating the interdependent relationship between touch and oxytocin.

In one experiment, for example, researchers found that intranasal administration of oxytocin to the man or woman in romantic couples enhanced the pleasantness of the gentle touch they received, when they believed they were being touched by their partner, even when they were actually being touched by a stranger but were not aware of that. In the same study, perceived partner touch was also correlated positively with their evaluation of the quality of their relationship (Kreuder, et al., 2017). In another experiment, researchers discovered that the touch of a loving romantic partner, along with increased levels of oxytocin, were effective in reducing the unpleasantness of electric shocks (Kreuder et al., 2018). In another experiment, researchers found that, after intranasal oxytocin treatment, gentle human touch heightened participants' sensitivity to facial expressions of emotion, so that frowning faces were perceived as less friendly and attractive, whereas smiling faces were rated as more friendly and attractive (Ellingsen et al., 2014).

The Development and Influence of Rules, Norms, and Stereotypes

Young children are guided by the rules they learn about touch from their parents, siblings, peers, and other significant people in their lives. One general finding from this developmental research is that the overall frequency of touch declines steadily from kindergarten through the sixth grade (Willis & Reeves, 1976). Beginning in preschool and well into adolescence, same-sex touching is more common than is opposite-sex touching (Berman & Smith, 1984). These patterns reflect societal norms regarding the use of touch; they suggest that rules are being learned, such as "touching other people can be rude" and "boys and girls shouldn't touch each other."

In many ways our use and interpretation of touch depends on where we are, who we are with, what we are doing, and when we are doing it. This is because we learn to follow rules. We learn what is and is not appropriate or meaningful in a particular context. But not everyone learns the same set of rules, and sometimes the rules change. Despite what may be a universal need for touch, a touch can often send the wrong message. Laws against sexual harassment, and more frequent reporting of child abuse cases, for example, have combined in recent years to change dramatically the climate in which social touching occurs. In the modern workplace, touches that in the past may have been ignored are now often seen as crude and ill-mannered. Examples of this new intolerance are common and widespread. In El Paso County, Colorado, an undersheriff was fired for violating departmental policy on sexual harassment by hugging several lower-level employees ("Undersheriff fired for hugging," 1999). In New Zealand, issuing a statement that his intentions were irrelevant, the government found a naval instructor guilty of sexual harassment and fired him for hugging a former student, touching her hair, calling her "darling" and telling her she was beautiful ("Navy issues warning," 2002). In Singapore, school principals, counselors, and social workers have been warned to avoid physical contact with children, unless it is absolutely necessary. They have been told that it is okay to shake hands or pat a child on the back, but hugs are not allowed ("No hugging or

kissing," 2002). Another example of changing norms concerns sexual touching, which at one time was taboo outside marriage. Perhaps the most dramatic illustration of our shifting sensibilities regarding the use of touch involves the way parents touch their children. Not long ago, parents were cautioned against the use of touch with their children; such indulgences pediatricians warned would spoil the child and create a condition of excessive dependency. Today we generally shun such advice. But consider the words of then-professor of psychology at Johns Hopkins University, John Watson, who wrote in his 1928 textbook, *Psychological Care of Infant and Child:*

> There is a sensible way of treating children: Never hug and kiss them, never let them sit in your lap. If you must, kiss them once on the forehead when they say good night. Shake hands with them in the morning. Give them a pat on the head if they have made an extraordinarily good job of a difficult task. Try it out. In a week's time you will find how easy it is to be perfectly objective with your child and at the same time kindly. You will be utterly ashamed of the mawkish, sentimental way you have been handling it. (quoted in Montagu, 1986, p. 151)

The Influence of Culture

It happened "innocently" enough at an HIV-AIDS news conference in New Delhi, India. Movie actor Richard Gere, in a moment of unbridled enthusiasm, embraced and kissed one of Bollywood's most popular actresses, Shilpa Shetty. A photograph of the kiss made the front page of newspapers across the country amid protests condemning the act as disgraceful and obscene. Outraged protesters beat burning effigies of Gere and set fire to photographs of Shetty (Robinson, 2007). India is one of many countries in the world where large numbers of people frown on public displays of affection. In 2007, Pakistan's tourism minister said she feared for her life after clerics at a radical mosque issued an edict accusing her of committing a great sin by hugging her French parachute instructor at a fund-raising event (Jan, 2007).

Incidents like these should remind us of an important principle: the meaning and significance of non-verbal communication, in this case a

kiss or a hug, can vary dramatically from culture to culture. What may be routine and expected in one culture, can be taboo and alarming in another. Anthropologist Edward Hall's (1959, 1966) research on cultural differences in the use of space raised our consciousness about the existence of these norms. Among his findings was the observation that some cultures rely on tactile (touch) and olfactory (smell) modes of communication more than other cultures do. Members of these "contact cultures" (e.g., Arab, Latin American, and Southern European nations) use more touch and less personal space than do members of so-called non-contact cultures, who prefer the visual mode of communication (e.g., North American, Asian, and Northern European nations). These differences underscore the arbitrary nature of an approach–avoidance signaling system that relies as much on nurture as it does on nature.

In several studies of cultural differences in Europe, Remland, Jones, and Brinkman (1991, 1995, 1999) found that southern Europeans were more inclined to use touch than northern Europeans. Brief observations of nearly 1000 couples at numerous train stations in 15 countries revealed differences in the percentages of couples in which one person touched the other. For example, among countries with at least 50 observed couples, the highest incidence of touch occurred for those in Greece (32%), Spain (30%), Italy (24%), and Hungary (23%). The lowest was found in the Netherlands (4%), Austria (9%), England (11%), Belgium (12%), and Germany (16%).

Some researchers report cultural differences in public displays of affection. Tiffany Field (1999) observed peer interactions among adolescents in Paris, France and Miami, Florida. She found that American adolescents spent less time leaning against, stroking, kissing, and hugging their peers than did the French adolescents. Compared to the French, the Americans also displayed more self-touching and more aggressive physical behaviour. In another study, a team of researchers observed male–female couples walking on a college campus. They found no differences in hand-holding when comparing Latino couples with Asian couples, but arm embracing was much more prevalent among the Latinos than it was among the Asians (Regan et al., 1999). In another study, researchers observed the most male–female affectionate touching (hugging, kissing)

in Italian dance clubs and the least in American dance clubs (DiBiase & Gunnoe, 2004).

The meaning of touch often depends on one's culture. In some Middle and Near-Eastern countries, shaking hands is an act of bargaining rather than a form of greeting. In much of the Middle East, holding hands is a sign of friendship (unlike in the West, where such an act between men implies homosexuality) and is a common practice among male friends. In fact, same-sex touching in public is more acceptable in many Asian and Middle Eastern countries than is opposite-sex touching (Jones, 1994). Some forms of touch have meanings that are unique to a particular culture. In Saudi Arabia, for example, an individual will sometimes kiss the nose of another person after an argument to say, "I am sorry" (Morris, 1994).

The Influence of Gender and Personality

Jones (1994) points out that women are more apt than men to exchange affectionate touches such as hugs and kisses (Derlega et al., 1989), and to use touch when offering social support (consoling, complimenting, etc.). In contrast, men are more likely to exchange playful touches (mock aggression, teasing, etc.). Studies also suggest that men and women interpret touch differently. Overall, women tend to find it more pleasant than men do (Hall, 1984), but their reactions depend on how well they know the toucher. For men, touch often carries sexual overtones and, as a result, their reactions seem to depend on whether the toucher is male or female (Heslin & Alper, 1983; Heslin et al., 1983). In fact, researchers mainly attribute the fact that men, compared to women, avoid same-sex intimate forms of touch and possess a more negative attitude about such touching to homophobic attitudes (Derlega et al., 1989). After observing same-sex couples and recording how often they touched, one team of researchers found that those who touched least scored the highest on a questionnaire measuring negative attitudes towards homosexuals (Roese et al., 1992). Recent research also supports the claim that homophobia in men produces negative judgements of certain kinds of touching between men (Floyd, 2000).

In addition, observations of the way men and women touch in public (i.e., tie signs) often reveal that men get the upper hand (e.g., guiding and directing). In fact, researchers have confirmed the idea that men literally get the upper hand when men and women hold hands in public. Observations of more than 15,000 couples showed that men had the "dominant" hand position, even when taking into account male–female differences in height (in couples with a taller woman more men than women still had the upper hand). Moreover, the finding seems to hold up across cultures. Men had the upper hand in Asian, African-American, Hispanic, and Japanese couples as well as European American couples (Chapell & Beltran, 1999).

Some researchers claim that men touch women more than women touch men and that touch-initiation in these cases constitutes a status reminder (Henley, 1973, 1977, 1995). But many observations of touching in opposite-sex interactions have failed to corroborate this. Researchers find that women initiate touch more than men do (Jones, 1994; Stier & Hall, 1984; Willis & Dodds, 1998). One extenuating circumstance may be the age of the couple. One study of couples in public places found that men initiated more touch than women did in younger couples, whereas women touched more in older couples (Hall & Veccia, 1990). Another related factor is the kind of touch one uses. Research shows that males initiate more hand touches, whereas women tend to initiate more non-hand touches, such as hugs and kisses (DiBiase & Gunnoe, 2004). One possible explanation is that touch in these situations may be a status reminder—signaling possessiveness—in less secure relationships. In addition, if touch does count occasionally as a status reminder, it probably makes more sense to investigate how touch is used instead of how often. A touch that attempts to control (i.e., directing someone), for example, seems more indicative of status than is a touch that is meant only to show concern or affection. Another explanation offered by some researchers is that differences in the use of touch between men and women reflect an evolutionary model of reproductive strategies: men use touch for sex and women use touch to maintain resources and parental involvement. This theory may explain why researchers sometimes find that men who are dating or newly married are much more likely to initiate touch than men who have been married longer than a year. But for women, there are no

reported differences in the use of touch between courting and married couples (Willis & Briggs, 1992; Willis & Dodds, 1998).

Surveys suggest that women share a more positive attitude towards same-sex touch than men do (Andersen & Leibowitz, 1978; Willis & Rawdon, 1994). And studies comparing males and females in their use of touch usually show more frequent touching between females than between males (Hall, 1984; Hall & Veccia, 1990; Roese et al., 1992), although these gender differences don't always show up when researchers observe people in other countries (Remland et al., 1995). As for the amount of touch that occurs in opposite-sex encounters, it depends primarily on the couple's relationship (Guerrero & Andersen, 1991; McDaniel & Andersen, 1998). In one study, for example, persons who initiated touch were regarded as more dominant, assertive, and expressive than were those who received touch (Major & Heslin, 1982).

Perhaps the most common form of touch is the handshake. One recent study confirms the importance of hand shaking as an expression of personality and as a behaviour that influences first impressions. Examining the importance of a "firm" handshake, which depends on the strength, duration, vigour, and completeness of the grip (along with the use of eye contact), researchers found that women who used a firm handshake had different personalities than women who didn't. The firm handshakers were more extroverted, expressive, liberal, intellectual, and open to new experiences. They also made a better first impression. As the authors conclude, "Our results provide one instance in which women who exhibit a behavior (a firm handshake) that is more common for men and that is related to confidence and assertiveness are evaluated more positively than are women who exhibit a more typical feminine handshake" (Chaplin et al., 2000, p. 115).

Almost instinctively, we seem to know how to comfort people in need. Indeed, the experience of giving and receiving emotional support goes back to the earliest of our infant–parent interactions, setting the stage for what we crave in the years to come. Comforting encounters begin in infancy with parental communication that involves the use of gentle touch and patterns of mutual influence, in which infant and parent engage in synchronized movement, mirroring, reciprocity, and the like.

One of the consequences of these early experiences is the insecurity a child develops over the prospect of forming close relationships. Extending the basic principles of attachment theory (Bowlby, 1973, 1980), which regards attachment to others as a human need activated during moments of distress, researchers have been studying differences in attachment styles. These styles are relatively stable interpersonal orientations, developed in childhood, which reflect beliefs we have about whether we are worthy of receiving care and affection from others and whether others can be counted on to provide it (Bartholomew, 1990). A negative view of others results in avoidant attachment styles: Not wanting closeness because one is overly self-reliant (low anxiety and high avoidance) creates a dismissive style; whereas not wanting closeness because of apprehension (high anxiety and high avoidance) creates a fearful style. A positive view of self and others results in a secure attachment style. Secure persons (low anxiety and low avoidance) are comfortable with intimacy, confident and optimistic about close relationships, but self-sufficient to the point of not being overly dependent on others. In contrast, a preoccupied style, which includes a negative view of self and a positive view of others (high anxiety and low avoidance), results in a lack of self-confidence, combined with a desire for intimacy. Preoccupied persons may be "clingy" in their close relationships with others (Bartholomew & Horowitz, 1991; Schachner et al., 2005).

Studies show that attachment security or insecurity is like a filter in the communication process that blocks a person's sensitivity to certain nonverbal messages and discourages the expression of certain messages as well (Noller, 2006). For example, people who have a secure attachment style are the most likely to seek comfort from others when they need it (Ognibene & Collins, 1998), and the best equipped to comfort others, offering more reassurance and physical comfort than persons with other attachment styles (Becker-Stoll et al., 2001; Feeney & Collins, 2001; Guerrero, 1996; Tucker & Anders, 1998). For instance, research shows that anxious and avoidant individuals are less tolerant of close interpersonal distances, a behavioural tendency that would make it difficult for them to offer "contact comfort" and emotional support to others (Kaitz et al., 2004; Yukawa et al., 2007).

Future Implications: Effects of Social Media and the Pandemic

Well before the COVID-19 pandemic, people worldwide were carrying on most of their interpersonal interactions on various social media platforms. In short, nearly everyone has been using social media in the digital age. More specifically, about 88% of American adults aged 18–29; 78% ages 30–49; 64% age 50–64; 37% ages 65 and over have been communicating across multiple social media platforms, multiple times a day (Smith & Anderson, 2018). Reliance on social media technologies has been growing. According to recent data, adults were spending over 11 hours per day listening to, watching, reading, or generally interacting with media (Nielsen, 2018), resulting in half of their day dedicated to consuming or sharing media content. New technologies have proven their social utility as "mostly a good thing", with 40% of users stating that it would be hard to give up social media (Smith & Anderson, 2018). Usage extends across all ages, gender, race, and socioeconomic status. But with social media there are also far fewer opportunities to convey messages of intimacy and to build close relationships by means of physical contact. In face-to-face interactions, we connect with others in the moment with various forms of touch: handshaking, hugging, conversational touch, kissing, and the like (Remland, 2017). Insofar as we have been relying even more than ever on social media during the pandemic, we have been touching each other less.

Since March 2020, the world has experienced a perfect storm of conditions for touch deprivation brought to bear by the COVID-19 pandemic and the resultant social isolation and social upheaval that has marked our "new normal" as one of anxiety, loneliness, and all too often, grief (Petry et al., 2021). The new "normal" includes social distancing, wearing masks, travelling restrictions, schools closed, and the inability to be with our loved ones in healthcare and elderly care situations—even in death and in paying respect to their memories (Clements-Cortes, 2020). As Doreen Dodgen-Magee expressed in her recent *Psychology Today* article (2020, pp. 1–2):

> This is a marathon, not a sprint, and our nerves are becoming frayed, the unknown is taking its toll, and none of us are at our best … lack of physical connection, and a profound sense of existential aloneness are real. In each of these settings, the lack of both intimate and casual, social physical touch is becoming a source of agitation and sadness. … It turns out that touch deprivation is experienced by many people much like dehydration is experienced by the marathon runner. If it goes unaddressed, it can take us out.

The extent of our loss of the most foundational sense—the sense of touch as Aristotle adeptly explained (Sigley, 2020)—means a self-inflicted adverse impact on mental, physical, and emotional health and well-being that may last long into the future (Smith & Bilbo, 2021).

In this final section of our chapter, we discuss the impacts of COVID-related touch deprivation on children, adults in intimate relationships, and healthcare workers. We explore the costs and benefits of the forced and increasing reliance on social media as a means of creating and maintaining connection more conventionally and effectively met by access to human touch. And we review the ideas for addressing touch deprivation through positive practices and innovative technologies.

The Effects of COVID-Related Touch Deprivation

Effects on Children

As explained earlier in this chapter, touch deprivation is debilitating for anyone but is critically dangerous to children. And, the experiences in this pandemic have confirmed that sad reality. As Bebler et al. (2019) remind us, touch deprivation for younger children is most harmful because their developmental processes are so accelerated and at risk. Thus, we see severe touch deprivation in early childhood resulting in difficulty learning to use language and develop speech competence. Not having touch means unfulfilled emotional needs and senses of safety that increase aggressiveness and emotional instability. The cycle of touch deprivation disrupts sleep behaviour, making it difficult for brain development to continue as needed. The longer and more intense the touch

deprivation – the more serious and potentially irreversible the consequences, especially for children with developmental delays or disabilities (Asbury et al., 2021).

Given that most touch provision for young children comes from a loving parent or caretaker, touch deprivation also has damaged the emotional attachments to caregivers; with lack of attachment often translating to significantly lower cognitive development (Clark, 2020). Clements-Cortes (2020) notes that during COVID children have been separated from grandparents or other family members who were part of their regular social circles due to the need for older adults to be cautious about who they interact with. We hear of grandparents waiting for over a year to be in the presence of their grandchildren and, even then, not feeling safe enough to touch, hug, or kiss their grandchild. Children have missed out on taken-for-granted social celebrations with full family; the birthday celebrations, kindergarten graduations, sports events, holidays, etc., where essential memories of a safe and supportive family environment are created.

Effects on Intimate Adult Relationships

The stresses on adults in intimate and partnership relationships have not received as much attention in the COVID literature, but touch deprivation is also a reality for them. Naruse and Moss (2021, p. 450) reported that:

> [e]xternal stressors such as economic strain, confinement, and isolation can create a context that decreases couples' ability to give responsive support, affection, and warmth to each other because of the depletion of personal resources and self-regulation.

They emphasize that touch deprivation creates further anxiety and emotional distance that can result in domestic violence, separation and even divorce. Ironically, even though couples may be "sheltering in place" together and have even more opportunity for supportive and/or intimate touch, many couples are too stressed to provide that support to each

other. In their study of 1746 participants surveyed for intimate, friendly, and professional touch experiences during COVID-19-related restrictions, researchers discovered that intimate touch deprivation during COVID-19-related restrictions was associated with higher anxiety and greater loneliness even though this type of touch was still the most experienced during the pandemic (von Mohr et al., 2021). They concluded that the more the lack of intimate touch (but not friendly or professional), the worse the self-reported anxiety and feelings of loneliness.

One variable of note is the degree to which individuals "long" for touch. Bebler and her colleagues (2019) argued that not everyone has the same felt need for touch and that the impact of touch deprivation should be measured in terms of the gap between a person's need and the amount of touch they experienced. They developed the Longing for Interpersonal Touch Picture Questionnaire [LITPQ] and used it to test the relationship of longing for touch, touch deprivation and mental health. For 72.7% of the participants, their touch wish exceeded the reported touch frequency. Participants currently in a relationship didn't differ significantly from those who were single regarding their LITPQ scores, touch frequencies and degree of touch wish. Nor were there differences between females and males. However, unfulfilled longing for touch was significantly related to negative mental health.

Effects on Healthcare Workers

During the pandemic there have been numerous acknowledgements of the emotional labour healthcare workers must expend to provide treatment for COVID patients without being able to provide a "healing touch" (Mehta-Lee, 2020). Dhananjaya Sharma (2020, p. 1), an Indian surgeon, shared this professional and personal difficulty in this statement:

> 'Empathy' and 'compassion' were the quintessence of my code of honour as a physician, inculcated on patients' bedside more than four decades ago as a zealous medical student. And now I suddenly find their simple expression towards my patients—the human 'touch'—is gone. It was not called the healing touch for nothing, so it hurts to lose the 'touch'.

The *Journal of Clinical Nursing* (2020) published an editorial about the personal and professional challenges of restricted touch for nurses and other healthcare professionals during COVID. Within healthcare, touch is used to send messages of care, comfort, and compassion. It is critical to building strong relationships with patients that, in turn, feed compliance with healthcare practices. But due to social distancing rules the personal touch is no longer a part of their practice. They compare it to when healthcare workers were caring for victims of Ebola.

Effects on Adolescents: The Dual Impact of Touch Deprivation and Social Media

Social media permeates the personal and professional lives of most people, but it is particularly compelling and encompassing for teens. So, when we consider the impact of COVID touch deprivation on teens it is best understood in light of how much social media shapes their connection with the world. The ubiquity of social media is now a fact of life. As Kutok (2020, p. xx) reports:

> However, the risk of exposure to COVID-19 has led many teens to turn to social media and technology to fulfill their social interaction. Around 95% of adolescents in the United States have access to a smartphone, and 97% reported having a social media profile, the most popular apps being YouTube, Instagram, and Snapchat. … Social media has been the bridge that connects us during times of isolation, and while it is by no means a replacement for in person interactions, 81% of adolescents have said that social media helps them feel more connected to friends, and 68% have said that it allows them to access social support during tough times.

In weighing the benefits (Sigley, 2020) and disadvantages of social media, the scales are tipping towards the disadvantages. Sherry Turkle, the MIT professor who has made contributions in our understanding of the impact of social media on children's emotional and social development (2011, 2015) has raised a number of concerns over the research indicating that social media use is negatively related to development of empathic response. Indeed, she suggests that overall the research indicates as much

as a 40% decrease in teen's ability to take the emotional perspective of another.

The connection between Turkle's warning and touch deprivation is alarming. As mentioned earlier in this chapter, touch is one of the means through which empathic connection is achieved. If COVID-related touch deprivation leads to increased dependence on social media, which in turn, decreases empathic response, the possibility for even more severe degradation of empathic ability is strong. In an editorial in the journal, *Child and Adolescent Mental Health* (2019, p. e4), the editors reported on a 2018 event by the Royal College of Psychiatrists in which they asked young people about social media and its place in their lives:

> One young person held up his smartphone and stated 'this is my heroin – it's the heroin of our generation'. In contrast, another young person argued 'I don't agree – this is my life line, I am a looked after child, living on my own, and it's the only way I have of keeping in touch with my family and friends'. And therein lies the conundrum.

When social media becomes the only or primary lifeline to others for teens, as has been obvious in the COVID period, we see more harmful effects of screen media, especially for teens who are vulnerable to negative online interactions. There's a strong chance for experiencing rejection online, and "young people who feel rejected online are particularly vulnerable to heightened feelings of depression, anxiety, reduced self-esteem, online bullying and isolation" (p. e5). Supporting this, a recent study reported that the more time adolescents spend on social media and watching television, the more severe their symptoms of depression become (Boers et al., 2019). What we have is a fairly vicious cycle. A final irony is discussed in a report by the European Union (2021, p. 4):

> Sadly, many people now feel like they live in the society described in the 1990s science fiction movie Demolition Man, where physical contact is prevented and heavily sanctioned. The increased virtualisation of our social interactions feeds our hunger for touch, the lack of which can have profoundly negative consequences.

Positive Programmes and Alternatives to Address Touch Deprivation

The good news, in addition to the hoped-for success of vaccines to release us from social distancing restrictions, is that enterprising problem-solvers have been developing ways to help reduce the effects of touch deprivation. The following are some suggestions for children and for adults.

For Children

Many of the ideas for how to help children find positive replacements for personal touch come from the United Kingdom (UK). The focus of several organizations has been on developing positive practices that allied health workers and educators can use with children to "replace" personal touch to some degree (Clark, 2020). In July 2020, the All- Party Parliamentary Group (APPG) report on Fit and Healthy Childhoods argues that methods involving positive touch should become an established component of therapeutic working with children, embedded within training and continuous professional development. Some of these positive touch techniques were explained by Jean Barlow, a counselor working with primary and secondary school children in the UK:

- Child-to-child peer massage is a short daily practice that aims to manage stress and improve communication.
- Mirroring early bonding and attachment techniques—including eye contact, body movement and posture, gesture and facial expressions—alongside enthusiastic and emphatic voice tones to fully engage in their clients' process.

For Adults

Doreen Dodgen-Magee (2020, para. 6, 11, 12, & 13) suggests the following alternatives for adults to address touch hunger.

- **Explore and become comfortable with self-touch**. Skin-to-skin contact, even from our selves, can be helpful when touch from others is limited. The key is to be intentional and to direct our attention to the feeling of our skin on our skin.
- **Increase the attention to all the senses of the body.** Touch is but one of our many senses. When the body is starving for one kind of sensory stimulation that is not easily accessible, we can comfort the longing by tending to it in other ways. Offering ourselves new flavours and sounds, stimulating our sense of smell, and providing interesting things to look at can all help. Given our current reliance on the auditory and visual senses to connect us to others via the digital realm, tending to our sense of smell and taste can be particularly effective.
- **Stimulate the skin with textures and temperature**. Gather up a diverse range of textured fabrics from your clothing or linen closet. Place these in locations where you can feel them regularly. Run them over your arms or legs or place them between your hands and make circular motions. Do the same thing with heat and cold, using water, ice packs, or heating pads to stimulate the sensory receptors in your skin. When you are outside, feel the texture of the sidewalk or grass. Pay attention to the feeling of wind, rain, and sun on your skin.
- **Apply gentle weight or resistance**. This is the time in life when nearly everyone would benefit by owning a weighted blanket or compress of some kind.

Pet therapy is extremely helpful (Pierce, 2020). Increased isolation and absence of touch perhaps partly explains the recent rush on animal shelters who report increases in adoptions. Animal shelters around the world have reported spikes in adoption rates during lockdown, and data suggest, at least in the United States, that shelters are running out of animals to put up for adoption. Pets provide emotional benefits for people living alone by providing love, affection and companionship and a safe means to give and receive touch. Even exchanging touch with a pet can be hugely beneficial. Unlike with cuddle parties, the affection of a pet has some genuineness—they are getting something out of it too, rather than it being a transaction between two strangers (Park, 2020).

Technological Innovations

We would be remiss if we didn't give a nod to how science is tackling the problem of touch deprivation in the pandemic. A development of new haptic technologies and use of robot touch offer exciting possibilities.

- TOUCHLESS, a new project supported under the European Union's Horizon 2020 EIC Pathfinder funding programme, proposes innovation in haptic technologies used in virtual social interactions. It could help people who cannot fulfil their need for touch, for example, because of social distancing. They are developing the next generation of touchless haptic technologies using neurocognitive models and a novel artificial intelligence (AI) framework. Without having physical contact with any device, users will receive digital touch sensations that evoke not only a functional response (i.e., receptor response), "but also an experiential one (i.e., affective, social and cognitive)." The 48-month project started in January 2021. Dr. Diego Martinez Plasencia, from the Touchless team said: "This project is exciting because we will not only develop new mid-air touch-mimicking using ultrasound, heat or electrostatic stimulation. We will go deeper than ever, understanding how they help us bond, feel attached and engaged during touch interaction, and developing neuro-cognitive models to help us bring back these missing touch related aspects when creating mid-air, touchless experiences" (European Union, 2020).
- ROBOT TOUCH—Researchers Hoffmann and Kramer (2021) have been developing different kinds of robot touch and testing the degree to which robot touch can meet the touch needs of humans. Since interpersonal touch research has demonstrated that touch has several positive behavioural (e.g., reduced stress, better immune functioning) as well as evaluative consequences (e.g., better evaluation of the initiator of touch), the question arises whether touch from a humanoid robot, the body of which is somewhat similar to that of a human, can evoke similar effects. Previous research on robot touch suggests that it can reduce loneliness in elderly people, provide comforting touch for patients in hospitals, and fulfil similar emotional needs of human touch.

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