

# A Systematic Review Study and Focused Study: Dimensions of Touch and Role of Intensions in Healing.

Aarti Asrani  
NLP & Gestalt Master Therapist  
Mumbai, India

## Chapter 1 –

### Importance of Touch

#### What is touch?

Touch is a vital sense for sensory perception since it enables us to learn about both our internal and exterior environments. According to Jerry Chen (2022), a neurobiologist and specialist in cognitive function at Boston University, "When we perceive our environment, we're essentially performing two things." We are absorbing all of the world's physical elements and senses while also using our own sorts of inference and interpreting what we believe to be perceiving. In a recent study published in *Science*, Chen sheds light on this procedure, demonstrating how the brain constructs a feeling of touch by fusing external data with internal memory. Chen and a group of scientists from BU and the Allen Institute for Brain Science examined mouse brains and found a circuit in the primary somatosensory cortex, the area of the brain that receives signals related to touch, temperature, and pain, that is specifically responsible for computing tactile information. He claims that the circuit aids the brain in determining how to balance the stimuli coming from outside the body with the knowledge already stored therein. The research may be important for our comprehension of a variety of neurological and neuropsychiatric conditions, such as strokes and autism spectrum disorder, which can affect sensory perception.

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*This Research paper is on 'Touch and Intention' and has been authored by Aarti Asrani*

*This paper has been assisted by Ashvika Singh & Swarna Pillai who supported in the writing, analysing, editing and referencing of the research manuscript, they are part of the Global Internship Research Program (GIRP).*

*This paper has been mentored by Anil Thomas a Certified NLP Master Practitioner and Gestalt Therapist.*

*This paper has been critically reviewed and proofread by Mihika Mittal. She is part of the Global Internship Research Program (GIRP).*

*Correspondence concerning this article should be addressed to [office@ijnpg.com](mailto:office@ijnpg.com)*

Touch plays a crucial role in maintaining emotional, psychological and physical health. The experiments on monkeys conducted by Harlow (Harlow & Harlow, 1965) demonstrated the importance of the need for touch. In several trials, wire and wool were used to make inanimate surrogate moms for young monkeys. Each new-born developed a bond with its own "mother," recognising and favoring that face over others. The infants were then given a wire "mother" and a soft, cuddly-clothed "mother" that were housed in two different but connected chambers. Only the wire "mother" had a food-filled bottle. Even though the wire "mother" was the only one with food, Harlow discovered that the monkeys spent much more time cuddling up to the cloth "mother" than they did with the wire "mother" next. While food is important for survival, touch keeps us going. When the body releases the stress hormone cortisol under stressful circumstances. Reduced stress enables the immune system to function as it should, which is one of the greatest benefits of touch. Blood pressure and heart rate are two more biological processes that can be reduced by touch. It accomplishes this by activating pressure receptors, which send signals to the vagus nerve. The brain is connected to the rest of the body by this nerve. It makes use of the signals to slow the nervous system's rate. Studies using PET scans have found that the brain quiets in response to stress when a person's hand is held. The effect is greatest when the hand being held is that of a loved one, but it still works even if it's just a stranger (Field, 2010). Touch is hypothesised to stimulate pathways for oxytocin, the natural depressant serotonin, and the pleasure neurotransmitter dopamine in early childhood, which is essential for the development of good relationships. (Dan - Mikael Ellingsen, 2015) Skin-to-skin contact even in the first hour after birth has been shown to help regulate new-born's temperature, heart rate, and breathing, and decreases crying (Ferber, Feldman, & Makhoul, 2008).

#### Physiological importance of touch

Touching and being touched both stimulate our brains, which has an impact on our ideas, actions, and even physiological responses. Physical touch allows the brain to receive sensory information, and it also stimulates the release of many neurochemicals in the body and changes in hormone levels in the body give a sense of peace and tranquility. In patients with cancer or HIV infection, body

contact helps raise white blood cell counts and also helps to tolerate chemotherapy sessions more easily. Exposure to social touch is also related to relationship status between the touch and the target person. The experiment implied that couples who are holding their hands have lower blood pressure (BBC News, 2021) (Matthew J. Hertenstein, 2006) (Brett K. Jakubaik, 2016). Interestingly, the beneficial effects of social touch on physiological responses appear to be particularly evident if the quality of the romantic relationship (Tiffany Field & Hernandez, 2005) is balanced in the long run. If a couple experiences high mutual support, is satisfied with their relationship, or reports high quality of their relationship, then the intensity and valence of momentary emotions during a partner's touch seem not to modify the physiological effects of touch.

The **endocrine system** has been replaced by organs that emit, receive, and coordinate molecular signals sent by established endocrine organs, distant sources, neighbours, and themselves. Physical contact with a human or animal is made possible through their skin, whose tissues also act as hormone targets and producers. Research evidence suggests a person perceives and interprets a gentle touch; this affective, relational-cognitive touch is a permanent change that can occur that connects gentle touch to relationships, psychological and physical well-being. **A wonderful and versatile love hormone called oxytocin is secreted by the pituitary gland.** However, Oxytocin secretion may be disturbed if the role of touch is ignored. This is especially true for members with social isolation, loneliness or problems communicating, expressing their feelings and problems. People can develop a condition called touch starvation or touch deprivation when physical contact becomes limited. The negative effects of touch starvation include stress, depression and anxiety. The body releases the hormone cortisol as a response to stress, and then fights back. It increases heart rate, blood pressure, respiration and muscle tension, as well as increasing the risk of infections. According to Lee (2015) high cortisol levels raise blood pressure, heart rate, and inflammation, making it more difficult for the body to repair. However, reducing cortisol can improve your immune system, lower blood pressure, and slow down your heart rate. Touch, such as a hug, massage or other form of soft touch, has the ability to lower cortisol levels, which promotes healing. As positive touch increases the release of serotonin, which reduces cortisol levels. In addition to serotonin, touch has been found to improve our immune system response. (Rachel L.C. Mitchella & Phillips, 2015) (Tiffany Field & Hernandez, 2005)

The nervous system is very well arranged. This allows you to quickly identify where something is touching you on your body. When the skin is affected, the receptors under that area of the skin become more active. This increased activity tells the nervous system that there has been

contact with a certain area of the skin. But something else happens. Those receptors send a signal to other receptors around them. This signal inhibits or reduces the work of these nearby receptors. This allows the nervous system to know exactly which part of your body it is touching. (Floyd K. 2014). In one of the studies conducted, researchers touched different parts of people's bodies, including the back, forearms, wrists and hands. They stroke each area at a different speed. When people were asked to rate how pleasant each touch was, they reported that the most pleasant thing was when their back was touched, and the least pleasant thing was when their forearm was touched. According to the researchers, these areas of the body correspond to the concentration of soft touch nerves. In other words, the back has the most types of nerves, and the forearm has the fewest. These soft touch nerves respond strongly to touch at a specific speed of 1.2 to 3.9 inches per second (3 to 10 cm per second). Study participants reported that the most pleasant touches correspond to this optimal speed. (Heatley et al, 2020)

Research shows the neurological effect of self-touch and external touch. Emotions begin as signals created by touch receptors in your skin. They travel along sensory nerves, which are made up of bundles of fibres that connect to neurons in the spinal cord. The signals then travel to the thalamus, which transmits the information to other parts of the brain. The next stop is the somatosensory cortex, where signals are converted into the sense of touch. (Mariana von Mohr, Louise p kirsch, Aikaterini Fotopoulou) Physical sensory information is transmitted from the whole body to the cerebral cortex and forms a topographical map that wraps around the brain like headphones. Sensitive areas, such as the lips and fingertips, stimulate much larger areas of the cerebral cortex than less sensitive areas (McGurrin, 2016). Researchers at Linköping University in Sweden have examined what happens when a person is touched by another person, compared to when they touch themselves. A study showed that when the stimulus comes from the self, the brain processes the sensory perception more quickly. Touch, pressure, heat, and cold are all sensed by the skin. The spinal cord transmits touch information to the brain, where it is processed in multiple regions in different steps. In a recent study, healthy volunteers were placed in a magnet resonance camera, which recorded brain activity using functional magnetic resonance imaging (fMRI). Participants were instructed either to stroke their arm slowly with their own hand or to have a researcher stroke their arm in a similar manner. These types of touch were investigated in terms of their effects on brain activity. Being touched by someone else and self-touching differed very clearly. Several brain regions were reduced in activity in the latter case. Rebecca stated "we can see evidence that this difference occurs in the spinal cord before the brain processes perceptions." (Tanya Lewis, 2014) The sense of touch is divided into two main

types: proprioceptive and interstitial (emotional), which are activated by certain mechanisms with brain connections in the somatosensory cortex and insular cortex, respectively (Sandra Blumenrath, 2020). Although the proprioceptive aspects of touch have been studied mainly at the neural and neural levels, proprioceptive properties have recently been considered important for social interactions (Rebecca Boehme, Steven Hauser, Gregory Gerling, Markus Heilig and Håkan Olausson), empathy (Oldfield, R. C., 1971). And finally sensory therapy (McGlone et al. 2014)). Neuroimaging studies of neuropathy patients who have lost all "fast" sensory nerves and healthy controls have shown gentle caressing touch (also called affective touch). Applied to hairy skin, but not palmar skin, reliably produces activation in the insular (interoceptive cortex) and orbitofrontal cortex (reward) as opposed to primary somatosensory cortex (Terasawa, Y., & Umeda, S. 2013). Tactile touch has been shown to be mediated by unmyelinated "slow" mechanosensitive nerves (called C-CT touch afferents) in the skin, which respond optimally to low-velocity, low-force pressure movements such as gentle brushing (Ernst, J., & Grimm, S. (2013). (McGlone et al. 2012).) But it is sensitive to temperature (Olausson, H., et al. (2002).) and stimulated by continuous touch.

### Touch as a painkiller

Finally, touch is very effective when it comes to relieving physical pain. Massage therapies can be a great way of soothing all kinds of aches, from headaches to back pain. However, you do not necessarily have to go to a massage parlour in order to experience the pain-soothing benefits of touch. **Holding hands with your partner will suffice, say two studies published in two consecutive years, both of which were covered on Medical News Today.** The first study — which appeared in the journal *Scientific Reports* in 2017 — showed that if two partners touch and one of them experiences mild pain, the touch actually diminishes the sensation of pain. In the second study — featured earlier this year in the journal *PNAS* — the team observed the same effect in groups of young couples when they were holding hands. In the research study authors reports that hand holding during pain administration increases brain-to-brain coupling in a network that mainly involves the central regions of the pain target and the right hemisphere of the pain observer. Wherever we're from, touch is likely an important marker of affection. In the eighteenth century, the famous English poet John Keats wrote, "Touch has a memory." Research has now proven that this evocative poetic image has a scientific basis: touch does have a memory, as it turns out. A study led by neuroscientists from the Charité Universitätsmedizin Berlin in Germany showed that not only can our bodies remember touch, but they can also remember several different types of touch simultaneously. "A new touch does not erase the memory of a previous touch from working memory," explains that study's lead researcher.

"Rather," he goes on, "new and old tactile memories can persist independently of each other, once a person's attention has registered the touches."

### Psychological importance of touch

Touch-related sensory abnormalities are widespread, however frequently the individual experiencing them is unaware that they are sensory issues. Numbness, tingling, and burning sensations on the skin are all common symptoms of anxiety, especially in the limbs. People who are anxious may also feel hot or cold sensations in their bodies, especially when they come into contact with things or places that have varied temperatures. Many people also notice an increase in their sensitivity to pain and discomfort, and other people react negatively to positive touch, like when you hold hands with someone. It's unclear exactly how worry affects the communication between your skin's touch receptors and brain. Hugging or tendencies to touch or to be touched can also be influenced by challenges with self-esteem and one's body. According to Degges-White, those who are more accepting of others' physical contact have a higher level of self-esteem (Suzanne Degges-White, 2020)

"In general, those with higher degrees of social anxiety may be reluctant to engage in loving touch with others" Additionally, she cautions that the anxiety of someone "reaching out" could exacerbate that pain. An extreme, irrational dread of touching is known as haphophobia. Haphophobic experience severe distress at the mere thought of being touched. Physical symptoms like nausea, vomiting, or panic attacks may result from this anxiety. Contact with people is essential to social anxiety since touch is a crucial component of social interaction. While healthy touch can be soothing, unsuitable touch might increase anxiety. Because touch responds to social rules and conventions, which are frequently based on social protocols that alter depending on the circumstance and the individuals present, touch can also generate fear (Jourard, 1966). Social anxiety has long been associated with how sensory information is processed, as our senses enable us to interpret inputs and adapt to environmental demands (Jerome & Liss, 2005). It's significant to note that people have varied thresholds for registering, reacting to, and becoming overwhelmed by sensations, which are mirrored in people's personalities, attitudes, and way of life (Dunn, 2001). It is believed that people who are more socially uncomfortable are inherently more perceptive (Hofmann & Bitran, 2007). Arousal, which heightens awareness of one's surroundings and increases the likelihood of responding to unpleasant stimuli, is a factor in increased levels of anxiety that contributes to sensory over-responsiveness (hyper-sensitivity) (Green & Ben-Sasson, 2010). A number of social settings involving touch have been demonstrated to increase anxiety in people with greater anxiety levels. Additionally, they exhibit noticeably greater self-reported increases in anxiety, self-

consciousness, and humiliation in response to touch (Wilhelm, Kochar, Roth, & Gross, 2001).

Mantis 2019, studied maternal touching in mothers who had depression symptoms and those who did not. The Still-Face (maternal emotional unavailability) and Separation (maternal physical unavailability) procedures involved mothers and their 4-month-old babies. The Caregiver Infant Touch Scale was used to videotape and code maternal touching behaviours (CITS). The Still-Face technique showed that mothers with greater levels of depressed symptoms touched less after the disruption period, whereas moms with lower levels of depressive symptoms touched the same amount during both periods of contact. Mothers who had more depression symptoms exhibited less playful or stimulating touching behaviours. When considered as a whole, these findings highlight the value of touch and point to significant variations in touching behaviour between dyads with and without maternal depressive symptomatology.

### **Impact of touch during fight and flight response**

"Fight-or-flight" refers to the choices our ancient ancestors made when confronted with danger. Either they would fight or they would flee. Both physiological and psychological responses to stress prepare the body to respond to danger. In the 1920s, the American physiologist Walter Cannon first described the "fear or flight" response. Cannon discovered that a rapid chain of reactions in the body helps mobilize the body's resources to deal with threatening situations. What happens during flight and fight response is the manifestation of acute stress is activated along with the body's sympathetic nervous system by the sudden release of hormones. The sympathetic nervous system stimulates the adrenal glands and stimulates the release of catecholamine's (including epinephrine and norepinephrine). As a result, heart rate, blood pressure, and breathing rate increase. The body returns to its pre-arousal levels between 20 and 60 minutes after the threat is over. (Lindgren, L., 2012).

Connecting flight and fight response to emotional pain when one experiences pain during this situation, they are mostly in denial for the first few minutes but after processing the whole incident they had to flee from bringing in the jerk they did experience that would be partially emotional and physical. Recent studies have shown that comfortable contact can increase subjective comfort during negative emotional experiences and decrease the sensitivity of pain-related affective neural regions such as the anterior cingulate cortex and anterior insula. (Aldao A, 2010) However, it remains unclear whether a touch of comfort reduces subjective feelings of emotional pain, such as the pain of social rejection, or reduces physical pain, such as suffering from physical shock. One of the important differences between

emotional pain and physical pain is that physical pain is often temporary (that is, limited to a certain period of time), while emotional pain is often long-lasting. As a result, physical and emotional pain may differ in how comforting touches shape immediate and lasting experiences. Hand Holding can increase physiological and neural synchrony within dyads (Campbell-Sills L & Barlow DH.,2007) there is evidence that teenagers undergoing cancer treatment believe that holding hands is the most effective way to cope with pain and prefer to hold the hands of family members or friends.(López-Solà M & Koban L,2018) While these fixed afferent systems provide accurate information about the environment and the body, our perception of touch or pain depends on top-down sources such as motivation, expectations, mood, anxiety, and stress.

### **Emotional Importance of Touch**

How the emotional state of the toucher affects the touchee's somatosensory-evoked potentials throughout a range of time. Participants received tactile input that seemed to come from expressive virtual reality characters (Gupta et al, 2020). SEPs were used to index touch processing, and self-reports of touch experience were gathered. In contrast, late potentials were elevated after anger but decreased after happiness. Early potentials were observed to be amplified following angry, happy, and sad facial emotions. These effects were connected to the emotional processes of anticipation and interpretation in touch perception. The results demonstrate that touch not only affects emotion, but that emotional displays also alter how touch is perceived. The early timing of the affective modulation of touch suggests that emotional context is integrated with the tactile sensation. Interpersonal touch has its own emotional potential, its bonding feeling between infant and spouse, emotional support, dispel anxiety, comforting depression and stress and consolation are well documented (Simão, B. Seibt,2015) (C. Tricoli, I. et al, 2017). Findings have stated that touch can be therapeutic in nature; even the shortest duration of touches from people can activate a sense of strong emotional relief. For instance, the soothing effects after being touched by a loved one can be emotionally satisfying; this can further activate the feeling of support (Timothy 2020). This act triggers the secretion of a miraculous and multifunctional love hormone called oxytocin; a hormone secreted by the pituitary gland. In one study using the synthetic oxytocin, it helps to increase calmness and decreased anxiety between conflicts and indirectly promoted positivity (Grewen et al, 2005) (Chatel-Goldman et al, 2014) and (Lee & Cichy, 2020). The oxytocin activity during a social distress relationship is capable of facilitating social reconciliation or pair bonding and can serve as an active copying mechanism.

Interpersonal touch helps to cope with conflicts and improves issue compliance. In a study done to observe consumer behaviour, higher compliance is observed to those who are personally touched compared to those who are not (J. Chatel-Goldman et al, 2014). In fact, the effect of brief touch has also triggered a positive outcome on the development of relationship, friendliness, honesty, sincerity, agreeableness and kindness (N. Ravaja et al, 2017). Also the factor of setting is to be taken into consideration, according to studies, the higher frequency of touch has been observed in café, restaurants, and airports particularly the departure hall or lounge and others (A.K. Kreuder & D. Scheele., 2017), the findings concluded with touching in the café is the highest on the list as the close-knit space generates intimacy, settings such as airport, shopping mall and others approximately 60% of touching that takes place in these settings. However, it is unclear how visual contextual information modulates sensory signals, and at what levels, as shown in previous studies. Therefore, we examined the effects of different temporal ranges on touchee's SEPs modulated by toucher's emotional expressions (anger, happiness, fear, and sadness). Tactile stimulation appeared to originate from expressive virtual reality characters. Using SEPs, touch processing was indexed and self-reported. In response to angry, happy and sad facial expressions, early potentials were amplified, while late potentials were attenuated. Tactile perception was modulated by emotion in two stages: anticipation and interpretation. In addition to touch affecting emotion, emotional expressions also affect perception of touch. Initially, emotional context was integrated into tactile sensations 25 ms after touch onset, indicating a very early integration of emotional context with tactile sensations. (Ravaja, 2017).

As a unique channel for effective communication, touch is of paramount importance in human social bonding and close relationships. Until now, the effects of touch on human physiology have only been studied individually. Using a dyad approach, the study on touch increases autonomic coupling between romantic partners aims to extend the study of affective touch from isolated individuals to truly interacting couples (Jonas Chatel-Goldamn, 2014). The ecological paradigm involves romantic partners interacting only through touch and manipulating their empathic responses. A simultaneous measure of their autonomic activity was taken (skin conductance, pulse, respiration). Fourteen couples participated in the experiment. Interpersonal touch increased electro dermal coupling between the interacting partners, regardless of emotion intensity or valence. Physical touch also induced reliable changes in physiological states. As a result of these results, it appears that interpersonal touch plays a significant role in enhancing close relationships' affective support. It is also suggested that touch alone can facilitate emotional contagion and empathy by allowing somatic visceral

resonance between interacting individuals. (Chatel-Goldman, 2014).

In an experiment conducted in a laboratory by Matt Hertenstein (2006) that kept two strangers apart from one another. One person waited with one arm through the barrier. The other person had to attempt to express each emotion from a list of emotions with a single, brief touch to the stranger's forearm. The individual being touched on the arm had to determine the emotion. The likelihood of choosing the correct emotion by accident was roughly 8% given the variety of emotions being assessed. Surprisingly, participants correctly predicted compassion over 60% of the time. They also correctly predicted gratitude, anger, love, and fear more than half the time.

In a sample of healthy adults (66 African American, 117 Caucasian; 74 women, 109 men), the authors studied the relationship between brief warm social and physical contact and BP response to stress. Prior to stress, the warm contact group engaged in 10-minutes of handholding while watching a romantic video, followed by a 20-second hug with their partner, while the no contact group rested quietly for 10 minutes and 20 seconds. Prestress partner contact reduced systolic, diastolic, and heart rate increases during a public speaking task relative to no contact. Compared with Caucasians, African Americans experienced greater effects from warm contact than men. There is evidence that affectionate relationships with a supportive partner may contribute to reduced reactivity to stressful life events and may partially mediate the benefits of marital support on cardiovascular health. (Grewen, 2010).

In addition to touch, there are other conditions that may promote synchrony. Social and affective values are associated with interpersonal touch. The effects of skin-to-skin touch on premature infants are numerous, including regulating their stress responses, providing comfort and emotional well-being, and providing analgesia. Physiologically, interpersonal touch influences the coupling of electro dermal activity and pulse rate variability, as well as the response of blood pressure to stress and distress. Accordingly, second hypothesis of the research study was that interpersonal touch would enhance physiological coupling between people. Furthermore, it has been shown that touch moderates (1) the relationship between the observer's trait empathy and the target's analgesia; (2) inter-partner synchrony of pain rating; and (3) touch-related analgesia. Moreover, it has been found that empathic accuracy, i.e., a supporter's ability to estimate pain accurately is influenced by the sufferer's perception of pain. In this manner, we predicted that physiological coupling variability between dyads would be moderated by trait empathy and empathic accuracy as well as by touch's analgesic effects. (Goldstein, 2017)

## **Development of touch**

### **Evolution of touch**

Touch, as well as other means of nonverbal communication, is thought to have phylogenetic and ontogenetic primacy (Burgoon, J. K. & Woodall, 1996). Phylogenetic primacy means that, in the evolutionary history of our species, nonverbal communication, including touch, came before language in evolutionary time (The Sense of Touch – Its Origins, Evolution and Purpose) (Dew, D., & Jensen, P. J., 1977) (Dunbar, R. I. M., 1991). Ontogenetic primacy refers to the importance of nonverbal communication, particularly tactile stimulation, in the beginning of life, when compared to verbal communication. When the infant is born, touch is the most developed sensory modality and it continues to play a fundamental role in communication throughout the first year of life. (McNeill, D. 1970). With the predominance of cuddling, touching and feeding, the baby repeatedly separates from the caregiver and develops a sense of space and time. Thus, before children say their first words, the foundation of verbal communication is laid through tactile and other non-verbal communication methods. (McBride, G. (1975).) Changes in children's ability to perceive shape can be predicted by the close link between sensory and motor functions of the hand. The study on tactile spatial attention tried to confirm Masker's hypothesis about the appearance of the finger shape after bilateral hand type agnosia in preschool children. The study looked at the development of gnostic hand function in children who were able to sketch and felt with their hands. The analysis revealed distinct individual genetic changes with increased shape recognition function in both age groups (Gherri, 2017). Half of the 6-year-olds drew exactly what they saw with their fingers. 91% of the 11-year-olds used their right hand perfectly, and 61% used their left hand perfectly. The thumb is in front of the toe, and the big toe extension is in front of the right toe. The ontogeny of amniotic sensorimotor function is discussed. Big hands make sense. But this is the latest evolutionary innovation. To learn their evolutionary history, we must travel through the primate family tree. The fossil record shows that the first primates that lived at least 55 million years ago buried trees at the feet of four primitive mammals (Mike Cummings, 2017). But through evolution, some of these animals have developed legs that allow them to better grip branches. Nails have been replaced by nails. The fingers have developed a touchpad that contracts like a fingerprint to facilitate tactile sensation.

## **Developmental stages of touch**

### **Infancy**

#### **Impact of Touch on emotional development**

Nine month pregnancy can be a long time for your baby. So, it's no surprise that research supports skin benefits for mothers and babies from birth through infancy and

beyond. Pregnant women are encouraged to have skin-to-skin contact with their baby as part of birth planning.

According to the director of lactation at Packard Children's Outpatient Clinic, C-section babies can benefit from skin-to-skin time immediately after birth. If the health of the mother and baby allows, delaying the normal protocol of bathing, weighing and testing the baby can allow for skin-to-skin contact time. During this period, your baby goes through 9 stages. Transitional chest exercises are one of the birth, relaxation, awakening, activity, relaxation, "tools" methods. For moms who want to breastfeed, skin time support is one way to help achieve that goal. Depending on each mother's birth plan and medical needs, baby-to-skin contact time offers different benefits, whether the baby is delivered vaginally or by C-section, in the first hour, or when the mother is medically ready and if breastfeeding. The first hour of skin-to-skin time helps control the baby's body temperature, heart rate and breathing. It also increases maternal stress hormones. A 2012 study published in the Journal of Neonatology found that 95% of mothers who spent skin-to-skin time with their new-born breastfed within 48 hours of birth and 90% were still breastfeeding after just 6 weeks (Elizabeth R Moore et al, 2016). Infants and mothers with special medical needs are covered when medically feasible. After this time, the mother's partner can provide time for skin-to-skin contact with the baby, which helps keep the baby warm and gives him time to bond. Baby massage is a natural step towards maintaining the bond between baby and parent. According to Maureen McCaffrey (2002), Certified Infant Massage Instructor at Packard Children's, infant massage is always about connection, love and respect. When you start, ask for permission first, and then listen to the baby's signal to see if it is caught or released. Babies interact with us from birth. McCaffrey teaches a variety of infant massage techniques tailored to the unique needs of babies and families. Here are some of the benefits of baby massage. Young children need to develop a sense of being loved, accepted and safe. Touch helps child sleep better. It can improve digestion and excretion in infants. Increasing comfort in the environment is one way to reduce anxiety. Also, improving neural function in infants. (Field, T. M. (2001).)

### **Phases of Touch in An Infant (Julie Greicius, 2013)**

**In the Womb – An Infant's sense of touch begins to develop at 7-8 weeks of pregnancy. Babies can experience many emotions before they are born.**

**New-born - Babies are born with very sensitive skin. The mouth, cheeks, face, hands, stomach and feet are the most susceptible areas. For new-borns, skin-to-skin contact is an important part of communication. They feel comfortable when in contact with the skin. They can also respond to touch with the grasp reflex. Gently rub your baby's palms together and your baby's fingers will wrap**

around your hands. Similarly, if you put something in your palm, it will catch you. Your child's reflexes are getting older. A baby's mouth is also very sensitive. They use their mouths as another way to learn and explore. When you lightly touch your face, you use your mouth to navigate the contact path. This reaction is called the root reaction. When the nipple is pressed to the breast, use your mouth to locate the nipple.

**2-3 Months olds** - When you hold them, the baby feels your touch. They begin to respond to soft handling and soft touch. The baby's mouth, tongue and lips are sensitive. They explore the texture and texture of soft toys when chewed. A child cannot pick up objects by himself, but he likes to hold objects in his hands. They can tell the difference between things.

**6 Months olds**— A child's sense of touch starts improving. They reach out and begin to grasp objects with both hands, often passing from hand to hand. They like toys they can touch and interact with. Encourage him by introducing a toy that makes a sound when touched.

**9 – 12 Months olds** - Babies are constantly looking for new things to move and touch. But make sure it's comfortable and safe for your baby. They still rely on their mouths to inspect things. Babies love to pick up objects and put them in containers. Look for toys and objects with colourful moving parts for your child to play with. By the age of one year, babies will discover a variety of textures: hard, soft, cold, wet, sticky and squishy. They prefer to use their hands and play with objects rather than navigate them.

Few studies have examined the impact of coexisting stressors on new-born neurology, temperament, and the quality of mother-infant loving relationship. Maternal depression has been demonstrated to alter infant brain development. The study was to examine how nursing and maternal depression impacted new-born temperament, mother-infant connection, and brain development patterns (Paediatr Child Health. 2004) . Children aged 1 to 3 months participated together with their mothers. Diet, temperament, and maternal depression symptoms were evaluated. In order to assess the same conduct and remedy uneven accomplishments, IG Tonic was gathered. During nourishment, samples for maternal and emotional detection were obtained. EEG activity and affectionate contact between mothers and new-borns are influenced by mood and feeding practices, according to analysis of mother-infant EEG recordings and affectionate contact data. It is significant to note that only bottle-fed children born to depressed moms displayed altered left frontal and decreased right frontal EEG symmetry at three months. Breastfeeding is linked to right brain activity, right brain function, and even the depressive group. Additionally, physiology, parental depression, senses, temperament,

and food could all be used to predict how much a child will love. (Diego MA, Jones NA & Field T, 2010). (Jones et al, 2004)(Jones N & Field T, 1998) The most effective indicators were breastfeeding and emotional temperament. Findings imply that breastfeeding and a happy temperament in the baby may change patterns of maternal emotional contact with the child and may also safeguard the child even when the mother is depressed. (Jones NA & Field T, 1997.)

### **Impact of Touch on Cognitive Development**

From the very beginning, the child wants to hold and touch. A new study shows that parents' loving hands promote healthy development in new-borns. For many animals, touch is a signal that bonds parents and children. Harry Harlow's famous experiment showed young monkeys how important parental love is to babies.(Field T, Fox NA, Pickens J, Nawrocki T.,1995) Following the famous love experiment on monkeys, researchers in Germany and Singapore used brain scans to determine whether lots of loving caresses affect the human brain. The study, published in the August issue of the journal Cerebral Cortex, investigated whether a parent's touch on their children was more effective than shaping social bonds and functional aspects of the developing brain. The researchers gathered 40 children around the age of five and their mothers and had them play with Playmobil Farm toys for 10 minutes. The researchers counted the number of times mothers and babies touched. The researchers scanned each child's brain to look for patterns of activity.

They focused on the social brain, a set of neural networks through which we interact with humans in a different way than apples. This is what we do when we want to engage with our community, care about others, and see the world through other people's eyes. Soft, loving touches reach the brain via a class of nerve fibres in the skin called c-tactile afferents. This particular group of neurons has evolved in social species, from rats to humans, and may underlie the development of the social brain. Later, nerve fibres were discovered that responded well to slow touch and stroke. They are usually located on the back of the body. Animal studies have shown that nerves activated by gentle touch trigger a series of hormonal effects in the brain (Harlow; Jens Brauer, Yaqiong Xiao, Tanja Poulain, Friederici, Schirmer, 2016) Some social skills, such as the ability to imagine the thoughts and perspectives of others, do not develop until about age 4 or 5. This suggests that our innately social brains require years of learning from birth to adolescence to fully mature. Schemer explained that touch is essential care with many benefits for children. When a child seeks comfort from a parent, the child must be willing to separate from the parent. (Flavell, Miller, 1998).

### **Impact of Touch on Attachment and Behavioural**

Bowlby made important contributions to modern attachment theory. The important and influential role of a child's first relationship, beginning at birth, is evident in his work. And the pursuit of this intimacy becomes the permanent goal of the system. There is stress. Crying, clinging, or clinging to an attachment figure means that the child needs attention and wants to be close to the caregiver. The emotional component of check-in behaviour suggests that other forms of behaviour are not associated with those strong emotions. (, Margaret J. Edward, 2010) (Astington JW, Dack LA2008.) The system shows that the child has internal cognitive abilities. Formed as part of an attachment activity, the action type depends on the child's circle. It is most effective in forming a bond with the caregiver. Make sure that the children are close to them and are facilitated. The search for potential threats has a similar biological function to anchoring behaviour. Protection and means of survival come with an attachment figure. The behavioural system in your own voice is the only one that has the ability to eliminate your children's attachments..(Bowlby, 1969) There is also a growing understanding of the role of touch in promoting intimate bonding, emotional regulation, and healthy development in humans), and early social and tactile deficits have correspondingly negative effects. In particular, there is one study that relates to the animal literature that examines the effect of maternal contact on emotional regulation, specifically the stress response, in human infants.

Additionally, the effects of contact on cognitive and emotional development extend to self-awareness and social learning. For example, touch is a particularly effective way to get an infant's attention and is a particularly effective signal for increasing appropriate eye contact behaviour in infants (Beetz et al, 2012). Finally, the effect of contact on brain development has recently been studied. Evidence suggests a relationship between frequency of maternal contact and functional connectivity during mother–infant interactions at different nodes of the infant's primary mode network, which is thought to support self-awareness and social cognition (Fanny Degeilh, 2018). However, despite these advances in early childhood research, little is known about the long-term effects of these early tactile interactions, particularly the relationship between an individual's lifelong attachment style and receptivity to social contact. The primary goal of the current study was to investigate this relationship and, in particular, how individual differences in attachment styles in adults may influence perceptions of certain neurophysiological types of contact that have been shown to be highly relevant in intimate relationships (Br J Gen, 2007) .

### **Neurological Impact of Touch**

The findings from the UW Institute for Learning and Brain Sciences (I-LABS) were published in 2018 in *Developmental Science*. "Touch is an important communication channel between caregivers and infants before infants learn spoken language," said lead study author Andrew Meltzoff, UW psychology professor and co-director of I-LABS. "Now we have the tools to see how the baby's body is represented in the baby's brain. (Bowlby J.1982). It gives us a first look at self-awareness, a fundamental component for social learning. Previous research has explored how a baby's brain responds to touch in general. According to the authors, this is the first experiment to measure the specific brain networks where this processing takes place and shows how the baby's brain reacts when it sees another person touch it without touching it. For this study, researchers used an I-LABS magnetoencephalography (MEG) machine to capture images of brain activity in a 7-month-old baby while an adult watched a video showing the hand and foot while holding the hand and the leg. Researchers were particularly interested in the somatosensory cortex of the brain, an area usually described as a band of tissue in the brain that runs between the ears at the top of the head. In this region, in different places and at different energy levels, brain processes affect different parts of the body. For example, hand touch is a strong sensation and is processed elsewhere along the somatosensory cortex than foot touch (Patrick Dougherty, 2020).

### **Childhood - (Age – 1 – 12) Emotional Development**

A loving touch cannot be replaced in childhood by feeding or reading a book. Touch is a human need. Therefore, it can negatively affect brain development. Healthy cuddles and soft touch have been reported to help young children learn about themselves. There is a link between healthy contact and the prevention of internal problems. Studies have shown that children who spend their childhood in orphanages are more likely to experience higher levels of stress and negative social behaviour later in life because they lack a loving touch in these environments. (Heller S., 1997) A healthy child's mental development begins when he discovers that he has a relationship with his mother. However, there is evidence that the condition can, to some extent, reverse the negative consequences of not having an initial relationship with a caregiver in childhood. (Kim Eckart) Research shows that even just 10-20 minutes a day (infant study) is critical to a child's development. They also noted that adults who received massage also had lower blood pressure and less anxiety. Touching definitely affects your health (Field, 2019). The first time a baby interacts with its environment is through touch, which begins to develop as early as 16 weeks of pregnancy. Children's physical development, language and cognitive development, and social-emotional competence all depend on this sense. The power of good, gentle touch

from birth is suggested by the fact that touch not only affects short-term development throughout infancy and early childhood, but also has long-term benefits. Newborns can learn about their environment, form bonds with their carer, and express their needs and wants through this interaction. After all, body movement accounts for 80% of a baby's communication. Young children have better chances of effectively developing their social, emotional, and cognitive skills when parents use appropriate touch (Goleman, 1998) Infants who receive above-average levels of affection from their mothers are shown to be less likely to be hostile, anxious, or emotionally distressed as adults. The lack of such interaction, however, proves to be just as powerful. Infants who attend lower quality institutional daycare tend to receive minimal touch, which is associated with long-lasting cognitive delays in the future. Touch deprivation is additionally associated with increased aggression, pointing to the emotional and behavioral impact of contact during early childhood (Tiffany, 2011).

### **Cognitive Development**

A baby's brain development requires interaction with the environment on a sensory level (touch, sound, sight, smell, taste). Babies are born with brains full of filamentous cells. As babies accept their environment, their brain cells are wired in ways that lead to knowledge and skills. One of the first tasks of a new-born is to learn to control its limbs. By tapping and touching, the baby's brain receives feedback from the skin to make neurological connections, gradually increasing self-awareness (start and stop points) and control over movement. For older children, touching objects helps them understand the basics of the universe (liquids versus solids, hot and cold, etc.). Thus, tactile stimulation stimulates children's development and increases their understanding of the world and themselves. The development of social interaction of the social brain is formed through the immediate contact of the child. A positive contact element is considered to be transmitted. C-tactile fibres are activated by soft, slow touch and stroking and form myelinated mechanical afferent groups. Tapping these C-tactile fibres has been shown to decrease heart rate. Interpersonal and emotional contact plays an important role in social interaction and has beneficial effects on health. In particular, children seek such stimuli in their emotional and behavioural development and are supported by interpersonal relationships. (Astington, Dack, 2008) Conversely, as in some children's homes, ignoring positive contact behaviour negatively affects children's emotional, behavioural and even physical development. (Harmon 2010; Bergland) The sense of touch is an important part of our development from birth. Human contact improves the social development of preterm infants, and those who are touched may have greater social development than those who are not. (McGone, Wessberg, and Olausson, 2014) Children

preferred C-tactile-targeted stroking on their forearms to stroking applied at faster or slower speeds. Overall, 86% of children between 5 and 8 years of age, and 82% of children between 9 and 12 years of age, rated C-tactile targeted stroking as equally or more pleasant than non-C-tactile targeted touch. There was an increase in the affective touch index with increasing age. Therefore, older children preferred optimal C-tactile stroking over suboptimal C-tactile stroking. C-tactile-targeted stimulation (i.e., Affective touch begins with gentle, slow strokes of hairy skin. In previous studies, C-tactile touch was shown to reduce adult heart rates (Pawling et al., 2017, Triscoli et al., 2017) and infant heart rates (Fairhurst et al., 2014). According to both, infants (Kida and Shinohara, 2013) and adults (McGlone et al.), gentle touch (that is to glabrous skin, rather than just hairy skin innervated by C-tactile afferent) activates higher cortical areas associated with emotion processing (example - perceived pleasantness). Research shows that pleasant touch can be processed in a complex way, with implications for the brain. This study indicates that infants respond to gentle touch in specific ways and evoke specific autonomic and central responses. Optimal C-tactile fibre stimulation seems to be beneficial. It is linked with pleasantness (Löken et al., 2009; Ackerley et al., 2014a) and it reduces heart rate in infants (Fairhurst et al., 2014). The gentle stroking of preterm babies also has beneficial effects on their health (Kramer et al., 1975, Pepino and Mezzacappa, 2015, Field et al., 2010). A recent study suggests that parents stroke their babies using slow velocities, which target C-tactile fibres optimally (Croy et al., 2016b). A child's preference for C-tactile targeted stimulation may be influenced by his or her familiarity with such touch. (Sehlstedt ET al. 2016) Based on these findings, from childhood through late adulthood, humans prefer C-tactile-targeted touch to non-C-tactile-targeted touch. The difference between age groups depended on how high participants rated C-tactile-targeted touch compared with non-C-tactile-targeted touch. Children and adolescents and adults use different scales, which explains this difference. With VAS scales, adolescents and adults are able to receive more precise ratings than with affective pictorial scales (Najmeh, 2020). It may also be true, however, that early in development, touch is highly pleasurable, and that pleasure from non-C-tactile touch declines over time. In all age groups, we find a proportion of individuals who prefer non-C-tactile-targeted touch. It is likely that several factors play a role, such as inter-personal preferences, expectations, and experience. Individual differences make these data inherently noisy, but our study and previous research have shown that stroking skin at speeds of 3 cm/s or faster is more pleasant e.g. (Ackerley et al., 2014a; Löken et al., 2009; Ackerley et al., 2014b; Sehlstedt et al., 2016). The result is a general one, even though it is only visible in group data. Since individuals have different preferences, findings from one individual cannot be used

to diagnose another. The preference for pleasant touch is rather stable over a period of two weeks, according to a recent study (Luong et al, 2017). The findings suggest that touch pleasantness is determined, at least in part, by stable factors that can be used prognostically for individuals in addition, tactile-targeted touch has also been associated with deficits in social behaviour. A reduction on both perception of C-tactile targeted stimuli as well as cortical processing is found in autistic children (Kaiser et al., 2016) as well as in adults with high levels of autistic traits (Voos et al., 2013). Age-matched, healthy controls were compared. A lower affective touch index is observed in individuals with high levels of autism traits (Croy et al as well as specific aspects of touch (Cascio et al., 2008). A similar reduction in peripheral tactile sensitivity in mice caused by deletion of certain genes in somatosensory neurons also leads to reduced social interaction in these animals (Orefice et al., 2016). In other words, C-tactile perception may be a stable human trait related to social behaviour, suggesting that humans with a high affective touch index (or C-tactile perception) are more socially sensitive. With ordinal data, we obtained our results in a controlled laboratory environment, which increases their internal validity, but limits their ecological validity. In an earlier study (Triscoli et al., 2003), robots and hand-held brushes were equally pleasant (Triscoli et al., 2003). A more naturalistic approach to studying human touch is warranted, given the fact that higher-order processes (e.g., Person delivering touch perception (Gazzola et al., 2012) can affect how touch is processed. To this end, the use of different touch stimuli (e.g., more or less pleasant contact surfaces) may aid in understanding how pleasantness is derived. Additionally, further investigations may investigate how our touch measures can be used for prognostic purposes (e.g., the affective touch index), but further research is needed. C-tactile perception does not seem to remain constant over time. It will be interesting to see whether individuals who are not fond of C-tactile touch as children will remain that way throughout their lives.

### **Influence of Attachment style and Behaviour**

By the time the child reaches his first birthday, his attachment behaviour, for example crying, diminishes, and a sense of security is achieved. He comes to understand in a more meaningful way the conditions that make him feel secure as he approaches his first birthday and behaviours such as clinging evolve to become goal-corrected as opposed to simple reflex responses.(Croy, I., et al2016)(Montagu A.1971) The interaction between the infant and the primary attachment figure is critical in shaping the infant's quality of attachment. This interaction is characterized by a progression of signals and responses, and is central in shaping the infant's quality of attachment. The concept of touch and its link to a children's development of attachment has been revealed. Directions for new investigations are also uncovered. Further

explorations of interventions that support nurturing are suggested for future research initiatives. It has a focus on high-risk populations. For example, increasing the study sample size and diversifying the sample to include a broader representation of the population could advance our understanding of the impact of an intervention such as the use of soft baby carriers plays in contributing to infant-parent connection. Teenaged mothers using touch in nurturing their infants would be meaningful, given the high-risk nature of this type of care. These authors used the child's response to the mother upon her return in the "strange situation" to delineate a classification system according to the patterning of the child's attachment behaviour. Children can have (1) a secure attachment to the mother, (2) an anxiously attached attachment, or (3) an anxiously attached attachment and also be resistant. Premature infants may not be able to maintain meaningful contact because of physiological instability that disrupts the parent-child bond, so parents should be aware that these types of bonds also change as the child grows. It is important that parents respond correctly to their child. The mother's tactile experiences during infancy may also be an important initial consideration for implementing supportive interventions as needed to ensure a healthy start for the child. (Ainsworth MDS, Blehar MC, Waters E, Wall S, 1978)(Jones, S. E., & Yarbrough, A. (1985))

### **Adulthood Emotional**

Interpersonal contact is a variety of behaviours. People touching each other. In many different ways, for many reasons, in many situations. (Floyd, K. (2006).) A touch is considered affectionate if it is intended to demonstrate love, care, fondness, or appreciation. (Pisano, M. D., Wall, S. M., & Foster, A. (1986).) If the type of touch you are referring to is typically assumed to indicate affection, such as hugging, kissing, caressing, holding hands, stroking another person face, hair, arms, back, or legs, and other non-sexual physical contact, then (Birnie-Porter, C., & Lydon, J. E. (2013) People like to give and receive affectionate touch in their relationships. Sexual physical contact may also be included in a formal definition of affectionate touch, but it is a specific subcategory of touch that differs from other types of physical affection. (Feeney, B. C. (2007).) Our definition of affectionate touch receipt includes situations in which one receives an affectionate touch. The touch was either one that my partner initiated or reciprocated.

As long as the partner reciprocates the touch, we also include static touch interactions such as lying next to one's romantic partner with bodies touching or intertwined, moving closer, by extending the duration of the touch). Without receiving touch, giving affectionate touch strictly. (e.g., rubbing one's partner's back without receiving a response) may also have benefits, but we argue

that these benefits may operate through different pathways and are therefore not included in the current theoretical mode.

The theoretical model suggests that there is a causal relationship between receiving affectionate touch in adult close relationships and long-term beneficial outcomes. In three different areas of well-being. Relational, psychological, and physical well-being. Because these three types of well-being represent three domains in which an individual can thrive, and there is theoretical and empirical evidence that relational behaviours can affect each of these outcomes, we focus on relational, psychological, and physical well-being outcomes. Psychological well-being includes positive moods, subjective well-being, and a lack of psychological distress or disorder. Mental well-being includes positive mood, subjective well-being, and the absence of psychological distress or disability. Physical wellness includes the absence of illness/disease and associated preconditions, the absence of physical symptoms and other indicators of body functioning. (Ben-Ari, A., & Lavee, Y. (2007) For one result, a touch effect could be the cause. Other results may also be affected. For example, people who experience physical well-being may have less relational conflict about maintaining health, and people with good relationships may have a positive mood and greater psychological well-being. Despite these two-way associations, we suggest that perceptions of affectionate touch have unique effects on each area of relationship well-being. A mechanical path that connects love for long-term results. In summary, the research focuses on showing the regulatory mechanism model that links acceptance of love to long-term relationships, psychological and physical well-being. We also describe types of goodness when developing this model. Contact, as well as situational, personal, relational, Cultural factors can facilitate interpretation Touch affects the ways of perceiving relationships. Also consider the potential for touch interpretation to interfere with or modulate neurobiological pathways. Considering the physical properties Touch can affect the expression of affection. Touch induces neurobiological changes. The following paragraphs describe and provide evidence. For each proposed mechanical link in the model, first it provides evidence that contact reduces stress. Then the author sought to explain Immediate Consequences of Contact (Relationship-Cognition) changes and neurobiological changes) can have long-term effects. Relational, psychological and physical well-being. It is stress independent through its contribution to stress damping.

### **Cognitive Development**

A loving touch, such as a hug, kiss, or warm caress, may be acceptable to a person. A person can interpret the meaning of an action. The contact of love should be interpreted as a sense of love and care of the sensory

supplier. True faith can sometimes be displayed, but not always. Touch conveys the message that the relationship is close and that when a person receives or receives a touch, they feel intimacy rather than with less touch. (, Burgoon, J. K., Buller, D. B., Hale, J. L., & deTurck, M. A. (1984)) (. Barsalou, L. W. (2010). This normative and positive interpretation of receiving affectionate touch results in: changing the perception of the relationship

When a person receives the touch of love, a chain of cognitive relationships is formed. There may be changes in the relationship between loving contact and communication and psychological and physical well-being. A full and comprehensive account of these relational cognitive changes. First, receiving affectionate touch reflects social cohesion because it serves as a salient indicator of physical and emotional closeness with others. He is considered the main man by forming and maintaining close relationships and maintaining intimacy with important people, theorists suggest: When included in an intimate relationship, people prosper. The perception of affectionate touch normatively indicates: that he is included in a social group; Memory Relational communication can reduce social meaning they turn it on because of the memories they activated most accessible when individuals participate now. The presence of relational cognitive change as a result of interpreting with love the reception of touch (i.e., affectionate explanations are essential for bond building) Responsive Contact for Relational Cognitive Change). But the hand of love Touch the receiver to increase your addiction without realising it Explanation. Some studies support the possibility of: Informal contact with strangers increases compliance. Solicitations from strangers, whether or not the individual is aware that they have touched them because of affectionate contact It is possible if the physical redundancy between the two individuals is included. It also automatically makes the cognitive overlap. Theory. The physical attitude of concrete perception and the action is psychiatric; the body is interconnected (Forest, A. L., Kille, D. R., Wood, J. V., & Stehouwer, L. R. (2015).) indeed, research It supports a two-way connection between mind and body. For example, people experiencing physical instability evaluate their relationship as unstable (Ledbetter, A. M. (2013).) If we extend this idea physically the overlap that occurs when a person receives a touch (by Taking another person into your own body space can promote psychological overlap as there are physical states. The dual self-related concept. Multi-disciplinary study. It has been shown to correlate contact in romantic relationships. Positive as a self-reported emotion of psychological self-esteem another overlap (Bowlby, J.1997) In short, receiving a loving touch can lead to immediate relationship-cognitive changes and downstream processes. This ultimately links touch into a long-term relationship, psychological and physical well-being.

## Attachment Theory

Attachment theory is one of the authoritarian theories of social relations development (Bowlby, J. 1969) (Main, M., Kaplan, N. & Cassidy, J., 1985) the basic premise is that infants have an innate desire to bond closely with their primary caregivers to ensure survival and well-being when threatened. The focus of attachment research in recent decades has been influenced by the additional cognitive hypothesis that differences in parenting skills and responsiveness to children's attachment needs lead to the development of internal working models for social relationships and related affect regulation strategies. (Hazan, C. & Shaver, P., 1987) These work patterns are described as emotional-cognitive schemata, called "attachment scenes" or commonly referred to as attachment styles, which move from parental figure to romantic relationship. (Waters, E., Merrick, S., Treboux, D., Crowell, J. & Albersheim, L., 2000) and remain relatively stable throughout life (Montagu, A., 1978). For example, secure attachment is characterized by a positive view of self and other and the belief that one can ask others for support and those others will respond. (Ledbetter, A. M. (2013).) The emphasis on this inner working model in attachment theory departs somewhat from Bowlby's original emphasis on physical "proximity seeking" as the primary behavioural strategy for coping with threat (in its broadest sense). It is important to be touched by the central aspect of the provision of threats. Touch is our first sensation of development (Marx, V. & Nagy, E. Fetal, 2017), one of the first maternal interactions (Stack, D. M.) and the necessary part of the treatment interaction (. Field, T., 2010) (Dunbar, R. I. M. 2010) It has long been established that specialized touch in non-human mammals evolved not only for grooming but also to develop an intimate relationship with stress regulation and well-studied neurophysiological, genetic and epigenetic mechanisms. Interestingly, unique differences in maternal tactile behaviour led to individual differences in behavioural and neuroendocrine responses to stress in adult rats. (Harlow, H. F. & Harlow, M., 1962) (Nelson, E. E. & Panksepp, J., 1998) (Weaver, I. C. G. et al., 2004) (Zhang, T. Y., Chretien, P., Meaney, M. J. & Gratton, A., 2005)

In adulthood, we examined the relationship between attachment styles and CT-optimal touch. Based on the assumption that CT-optimal touch supports affiliative bonds and social cognition, we evaluated whether affective-cognitive models of social relating (i.e., attachment) influence the perception of CT-targeted touch. Adult attachment (the Adult Attachment Interview; AAI) was found to be associated with reduced discrimination between CT-optimal and CT-negative attachment, non-CT optimal touch. Using semi structured questions, this interview yields implicit categorical attachment classifications. A well-validated self-report questionnaire that pertains to explicit evaluations of close

relationships was also used to accommodate the differences in traditions in measuring attachment and the multidimensionality of this construct. This questionnaire is dimensional rather than categorical in nature. The results showed that higher attachment anxiety was associated with lower discrimination between CT-optimal compared to non-CT optimal touch, but not higher attachment avoidance. It is likely that attachment style is not equally relevant to all interoceptive modalities as assessed by both measures. According to the AAI, both secure and insecure attachment groups could distinguish CT-optimal touch from non-CT optimal touch. A significant difference was found in this discrimination between the insecure attachment group and the secure attachment group, suggesting that different pre-existing models of social interaction and top-down expectations contribute to individual differences in CT-based touch perception. The findings support the idea that touch's perceived affectivity is related to social affiliation. (Fotopoulou A, Tsakiris M. 2010) (McGlone F, Wessberg J, Olausson H., 2014) (Gentsch Antje, Crucianelli Laura, Jenkinson Paul, Fotopoulou Aikaterini, 2016) (von Mohr, M. & Fotopoulou, 2018) In early caregiving experiences, touch is a central component of attachment representations (Stack, D. M., 2007) (Field T., 2010) Across the lifespan, childhood patterns of social relationships may be reinforced (Waters E, Merrick S, Treboux D, Crowell J, Albersheim L., 2000) As a result, it appears that affective responses to touch carry over into adulthood as well. It has been found that individuals with low tactile exposure in everyday life have a harder time discriminating CT-targeted touch, and that the reasons for experiencing less tactile exposure appear to be a lack of tactile, enjoyable experiences with close, familiar others (Sailer, U. & Ackerley, R., 2018) AAI measurements of attachment did not correlate with cardiac accuracy. As of now, there is no evidence that cardiac accuracy is an interoceptive modality related to social affiliation, and therefore pre-existing models of social relating, such as attachment classifications, were not predicted to influence this interoceptive modality. Furthermore, this finding highlights the importance of interoceptive modalities in general. Despite the association between heart rate decreases and affective touch, we have found no association between CT-optimal touch perception and cardiac perception accuracy. It appears that differences in attachment are related to CT-optimal touch perception, but not cardiac perception accuracy, according to the present findings. The second metric we use to measure attachment style is a two-dimensional measure of attachment anxiety. Higher scores were associated with a poorer ability to distinguish between CT-optimal touches and those not met with CT-optimal touch. According to this finding, anxious attachment style, as measured by an explicit measure of adult close relationships, is similar to insecure attachment as measured by the AAI. The perception of others as unreliable and inattentive is

particularly prevalent in anxious insecure attachment (Nolte, T., Guiney, J., Fonagy, P., Mayes, L. C. & Luyten, P., 2011). Thus, CT-optimal touch might be perceived and enjoyed differently based on social expectations. Recent research indicates that infants as young as two months perceive CT-targeted touch selectively (Tuulari, J. J. et al,2017)(Jönsson EH, et al.2018)therefore, adult attachment styles would influence this discrimination. Our findings also indicate that insecure attachment styles are also associated with overall perception of pleasantness of tactile stimuli, regardless of whether they fall within CT-optimal levels.It was unexpected not to find differences in discrimination in our questionnaire dimension of attachment avoidance, especially because these individuals need emotional distance and are less likely to seek proximity (Ravitz P, Maunder R, Hunter J, Sthankiya B, Lancee W.,2010) (,Bartholomew K, Horowitz LM,1997)(Brennan, K., Clark, C. & Shaver, P.1998). In other words, at least at an explicit level, current top-down representations of close relationships may not affect the perceived affectivity of touch in these individuals. In order to draw firm conclusions, more research is needed. The following are some possible explanations for this lack of findings. First, although measuring attachment style may have theoretical and statistical benefits, self-reported questionnaires have generally been criticized for being passive (i.e., not detecting attachment phenomena that need to be activated to be manifested. Due to this, it is possible that no findings have been made thus far. They also have social desirability effects, which may be more pronounced in individuals with avoidant attachments.Finally, as we found with our other implicit measure of attachment, individual differences in attachment style (as measured by the questionnaire dimensions) did not correlate with cardiac accuracy. Consequently, individual differences in cardiac interoceptive perception are not the result of cognitive more models of current close social relationships and related top-down expectations. This finding further supports the specificity of the relationship between CT-optimal touch and attachment style, indicating that individual differences in attachment style are related to the perceived affectivity of the touch, not cardiac accuracy.Future research should be guided by findings and their limitations. In the secure and insecure AAI groups, there were no significant differences in attachment anxiety or avoidance scores. AAI and self-report attachment measures have a trivial to small relationship based on this finding and prior research (Roisman GI, et al.2007)

## Late Adulthood

### Emotional Development

Aging is accompanied by a permanent decrease in touch sensitivity and clarity. On the contrary, the pleasant feeling of being caressed is more pleasant in old women. There are numerous physiological changes that could

explain these perceptual changes, but the researchers have yet to identify the real mechanism. The perception and structural changes of the sensory systems related to aging. Structural changes include a decrease in skin elasticity in the elderly, a decrease in the number of tactile receptors in the skin, and morphological changes. The effects of ageing on the peripheral and central nervous system include demyelination, which affects the timing of nerve signals, and a decrease in the number of peripheral nerve fibres. The aging brain also undergoes complex changes in blood flow, metabolism, plasticity, neurotransmitter activity, and body mapping in the primary somatosensory cortex for touch. Several studies have attempted to find a direct link between perceptual and structural changes, but these have been surprisingly elusive. Researchers also emphasize that more evidence is needed for age-related changes in peripheral nerve activity in hairy skin and social and emotional aspects of touch. The peripheral nervous system has been reported as having aging changes. These include anterior horn cell dystrophy, decreased myelin fibre density in the spinal cord with an increase in neuromuscular junctions, muscle ganglion and dorsal root (McLeod J G) and accompanying cells. It is more pronounced rostral, suggesting terminal degeneration of afferent fibres passing through the centre with age. (. McLeod J G) Aging also results in a gradual loss of cells and fibres in the sympathetic outflow tract, with an estimated 8% loss. 10-year-old preganglionic cell bodies in the medial-lateral column of the central thoracic region (Corbins KB, Gardner, eds) (Ohnishi A, O'Brien P C, Okazaki H.et al) It is unclear how much the skin itself contributes to the change in sense of touch in the elderly. One study showed that skin hydration did not affect vibrotactile detection thresholds, but it did affect the perception of textured surfaces. (Low P A, Okazaki H, Dyck P J.) Skin compliance—measured as the extent to which the skin penetrates the spaces in physical stimuli—was found to be identical in both youths and old topics (Verrillo R T, Bolanowski S J, Checkoski C M.et al)

### Cognitive Development

The most important way for humans to interact with their environment is through vision and haptics. These two modalities share high-order neural resources and mechanisms for exploring objects. There is no difficulty in understanding haptic information processing. It is well known that sensory function declines with age, just as many other techniques do. It is still unclear whether this decline is linked to age-related declines in tactile or cognitive skills. A multimedia object recognition test was used to assess the haptic performance of 81 elderly individuals. In addition, subjects' tactile and cognitive abilities were evaluated using the nonverbal Raffin Progressive-Standard test. In all three tests, performance was significantly reduced. Additionally, the female features have decreased along with the clarity of the keys. All subjects' concrete and cognitive performance

correlated strongly. The relationship between tactile performance and sensory performance was significant only for men. (Vega- Bermudez F, Johnson K O.)

## **Neurobiological Influence**

### **Central Nervous System**

Central nervous system the male brain loses an average of 200 grams between the ages of 30 and 100, and weight loss accelerates between the ages of 6 and 70. Weight loss is due to loss of brain cells. The decrease in brain weight is due to a decline in cortical neurons that occurs in the 70s and 90s. The vestibular nucleus maintains a constant number of neurons throughout life, while the locus coeruleus and substantia nigra lose many neurons with age. By age 90, a normal plaque-free brain declines because a healthy aging brain has an increased tendency to develop neurite plaques. Other changes include lipofuscin, accumulation of iron and other plastids, and decreased concentrations of acetylcholine, norepinephrine, dopamine, GABA and NMDA receptors, myelin, and intracellular enzyme components. Four changes, and possibly others, contribute to the slowing of central processing of sensory stimuli observed in neuropsychological assessments. Slow learning of new information and a decline in fluid intelligence also occur with aging. (TobiasKalisch, Jan-Christoph Kattenstroth, RebeccaKowalewski, Martin Tegenthoff, Hubert R. Dinse, 2012)

### **Peripheral Nervous System**

Peripheral Changes in peripheral nerve systems for aging are clearly manifested. They are accompanied by the accuracy of satellite cells with accuracy of vascular dooring cells such as spine density, muscles. The increase in age can be assumed that there is a distal degree of the old fibre at the centre. Middle zone in the middle zone. (Katzman R, Terry R D.) In the peripheral nervous system, the total fibre of the previous level and the painting nerves of the density and distal nervous system. Axonal degeneration and intermodal length variability have also been observed, with short intermodal lengths suggesting regeneration. (Low P A, Okazaki H, Dyck P J.) (Swallow M.)(O'Sullivan DJ, Swallow M.) The ability to regenerate and reinnervate axons persists throughout life, but is usually delayed and less efficient in the time of aging. Age-related decelerations in motor and sensory conduction velocities are consistent with these histological changes. Clinical signs are reduced tremor, reduced leg tremor, and decreased tactile sensation. (Toghi H, Tsukagoshi H, Toyokura Y.) Aging causes the slowing of motor and sensory conduction velocity. The clinical features are decreased vibration sensitivity, impaired ankle jerks, and diminished tactile sensation.

## **Touch for different cultures**

Human touch is highly complex as a sensory modality, through touch we can see and interact with the world around us and we could possibly explain our purest intentions just by touch that can further lead to feelings of warmth, solidity and roughness. Touch expands and broadens our emotional ability to comfort and console others during tough times. Touch links sensation to perception and feelings and bridges the gap between ourselves and others. New-borns and infants learn to touch first to understand the world revolving around them, Skin to skin, parent to child contact helps premature new-borns and infants to tackle pain, gain weight, sleep better, decrease fetal distress, normalize heart rate and lastly helps them develop psychologically and maturely (Feldman R Keren M) touch is one of the powerful forms of communication, although the interpretation of touch ranges by emotion age, sex, culture, circumstance, religious customs and the intent of touch, taking into consideration all these factor touch helps us to evaluate, sense, and describe our external surroundings and us internal self. (Mitchell L. Elkiss and John A. Jerome)

Individual possess an innate capacity to communicate and to understand non – verbal cues like touch. In addition, touch can be distinguished in two terms – a) Intrapersonal level for instance psychological reactions and at the interpersonal level for instance impression formation, pro social behaviour (Soraya Elizabeth Shamloo, Mauro Bianchi and Andrea Carnaghi) Interpersonal touch utilizes our largest sense organ, the skin (Field, 2001; Frank, 1957; Montagu, 1971). A handshake, an inspiring pat on the back, a gentle brush on the shoulder, a warm hug or other forms of physical contact, which is believed to foster or to cherish is a part of interpersonal touch (Davis, 1983). Interpersonal touch is viable non-verbal practice to express one's emotion through love and friendship without much stigma, it is approximately ten times more than verbal communication (Jones and Yarbrough) when a child falls down, instinctively a parent may cuddle the child or offer a kiss onto the bruise or injured area to make it feel better. Some children and even adults enjoy hugging their favourite pillow or bolster as a way to ease their comfort (Davis, 1985). As touch helps us to cope with our emotions and express our feelings to our loved ones, intrapersonal touch is rooted and evolved within its social class (Choy and Khalib) Culture regulates interpersonal touch by determining who is allowed to touch whom, which parts of the body can be touched, what touch means, how touch is ritualized in greetings.

Many cultures today still understand the importance of touch and some live skin to skin, some traditions start early on by passing their babies from person to person, regardless of age, yet many cultures in the world have lost touch and as a result their well-being levels have suffered immensely (Dr. Tiffany Fields Book). Edward Hall

developed a theory that cultural norms are some of the most crucial factors determining social distance and touch between people; he believed there were two groups of culture – “contact cultures” and “non-contact culture” (Hall, 2001). Apart from culture using touch to express their emotions in religion, touch implies more than just physical contact with hand or other parts of the body, touch is used to heal or assert power in order to transfer or obtain grace or to consecrate or constrain a person or object.

A contact culture is when there are various cultural groups, in which people tend to stand close to each other and while interacting usually use touch as a gesture to interact, while non-contact culture is when cultural groups tend to maintain distance and avoid touch than contact cultures (Martin, Judith, and Thomas 2000). For instance, South America, Middle East and Southern Europe practice a contact culture, Middle East being the highest contact and Great Britain, the Far East Japan and The United States practice non-contact culture, the Far East being the least in contact (Thompson, 2022). To understand why cultures are more open than other, researchers began to look for the correlation and discovered that warmer climates can affect emotional intensity, which may be related to interpersonal contacts, but this was not the only reason. In Latin culture people tend to come in contact with their loved ones, the role of gender is taken into consideration wherein males hug and pat on other back as a custom and females socially hug and peck the receiver’s cheek (Galanti, 2003). Some cultures regard this as a way to groom the future generation into a pleasing, manner less, aggressive respect and caring (Suomi 1990)

In another study (Field 1995) with regards to parenting style being another factor for instance French parents display much frequent affection touch to their offspring compared to Americans as a result parental grooming can be reflected within their kid’s aggressiveness level. Conclusion to this was that French kids showed less aggressive behaviour’s when compared to the American. Edward Hall suggests that people of “contact culture” (such as Southern Europe and Arab Countries) maintain closer interpersonal spacing that people of “noncontact” cultures (such as North America and Northern Europe). – This hypothesis was tested by comparing spacing between unacquainted male pairs seated on public benches in Spain (n=26), Morocco (n =25) and the United States (n=38) (Allan Mazur 2010) Paris in the United States sat closer than Paris Spain or Morocco, contradicting hall’s contention, the data reported here are consistent with the hypothesis that under a given set of physical constraints, the spacing pattern of no interacting strangers is similar across cultures (UNESCO, 2000). The fact that physical contact has such strong cultural meaning shows that it’s a vital element of non- verbal communication around the world. Becoming more tactile as a culture can increase the

health benefits for the society as a whole. The analysis was developed by Schefflen et al to examine meanings in the context of the touches reported by people’s daily interactions. The result showed 12 distinct and relatively unambiguous meanings: support, appreciation, inclusion, sexual interest or intention, affection, playful affection, playful aggression, complacency, get attention, say a response, say hello, and walk away. There were many hybrid meanings and even the main ones include greeting / affection and leaving / affection and also several four classes consisted of probably ambiguous touches: relation to appearance, instrumental accessory, intrinsic instrumental and accidental. The analysis revealed a variety of touches called a “touch sequence”. As a preliminary step, the individual taps and tap sequences have been separated. To process the touches that were elements of a sequence, the researchers looked at all instances of two or more consecutive touches spaced at least 5 minutes apart that involved two or more people during a similar interaction. Express qualitative judgments on whether or not to see information with each touch, determine meaning categories for events, treat individual touches and touch sequences separately. These touches usually communicate unambiguous positive emotions. The different shades of meaning within the classification are sexual support, appreciation, inclusion, interest or affection. The result of a tap sequence consists of two or more taps that are communicated in relation within the same interaction. Since the results of these phenomena in the present study were random and the results are exploratory (Stanley E. Jones & Elaine Yarbrough, 2009) (Rinck, C.M., Willis, F.N., & Dean, L.M. 1980) (Weiner, M., DeVoe, S., Rubinow, S., & Geller, J. (1972).

### **Religious Tactility**

In many religions touch is seen as a healing factor, not only touch of a sacred person but the touch of anything connected with him could exercise healing power. In ancient and preliterate societies, power was an indication to the touch of healers, priests and shamans. Doctors of the Niemba of Zambia for instance encircled a patient’s hut and brought medicines of roots and left the patient’s chest and shoulders washed, and then the doctor catches him by the little finger and directs him to a fire to warm him. Still holding the patient’s little finger, the doctor gives him a rattle, and after a while the patient begins to tremble and dance. A helper puts his hands on the patient’s shoulders while the doctor places a medicine basket on the patient’s head; after further dancing, the patient is led backward into his own hut to rest and recover. (Oxford, 1968)).

In Asia and North America, both medicine men and shamans alike have performed functions of healing by touching. In Christianity, laying on of hands is said to be power. The Gospel records that parents brought children to Jesus in order that he might touch them. The Gospels

record that the first Christian apostles chose deacons to help in secondary duties, laid hands on them and prayed whereupon the deacons became filled with power. (Henry van Straelen's, 1954). Society's ability to trust is regarded as the most crucial area to the success; it is the core value that can contribute to the success of the intended living style that leads to positive income. The society and traditions who have doubts or distrust and are defensive of this practice can act as a barrier to the efforts in promoting it (Corcoran KJ, 2001).

The sense of touch plays an important role in many American religious practices, yet dismissals of touch as an inferior mode of perception and reliance on textual sources that ignore touch have shaped agendas (Candy Gunther Brown) the implication of the study was to understand what religious practitioners do with their bodies but also to how the body feels and what tactile sensations communicate about people's environments and identities. because women and people of colour have often been associated with the body, the 'lower' senses, and emotions, there is opportunity to use such assumptions as a starting point for exploring touch as a unique epistemological tool, one that calls attention to the body's material, gendered, radicalized relation to the world and to frequently unequal power relationships (Classen 1998; Irigaray 1993; Smith 2006; Manning 2007). (Classen, C, 1993) (Classen, C, 1993) (University of Minnesota Press, Minneapolis).

In India, touching the feet of elders is known to be gesture to respect elders, the young ones within the family touch the feet of elders, the importance behind this is too often seek blessing and to indicate respect, touching of feet additionally called (padasparsham), The observe of touching the feet of elders was adopted in India during the Vedic period and is called Charan Sparsh (charan suggest 'feet' and sparsh suggest that 'touch'). In line with the Hindu tradition, when you touch the feet of an elder person, you are blessed with knowledge, intellect, strength and fame. In Sri Lanka, Buddhists perform comparable rites, in presence of a superior, one joins the hands in reverence, bows or kneels and even touches the bottom with forehead or touches feet of the person saluted. In China, the physical obligations of a king were observed by the Confucian scholar Tung Chung-shu, who stated that the monarch should in person grasp a plow handle and plow a furrow, pluck mulberries and feed silkworms, and break new ground to increase the supply of grain. As the representative of Heaven, the king formally touched the plow or sickle to initiate the harvest. apart from this salutation as a form of touch, the shaking of hand s also transfer grace to mark privilege, In Morocco, when equals meet they may join hands in salutation and then kiss his own hand, among the West African Ashanti, during the period of intervals of dancing, the priest walk around the circle of the spectators and places his right hand between

the extended palm of the person – the right hand is usually considered the proper or fortunate one and the Ashanti may refuse to take a gift or even the payment of a debt from the left hand of the giver (Nicholas J. Perella,1969)

The ancient Hebrews kissed the floor of the temple, the Jews always kiss the Torah scroll when they want to read it and they kiss the holy book when it has fallen accidentally, the faithful touch it then put their hands on their own chest, the Jews putting on a prayer shawl, he kisses it, and when entering and leaving the room, Jews can kiss or touch a mezuzah, the miniature container containing several scriptures. (Mircea Eliade, 1964) Religion, at its root, is a sensual and often tactile matter. Whether squatting, praying, dancing, eating, getting tattoos (christina welch and amy whitehead), wearing certain clothes or objects, lighting candles and performing other rituals, religions of all kinds involve regular physical commitments transmitted through touch. (Galliot, Sébastien, 2021). Guyanese Hindus describe this interrelationship between garment and body by emphasising that during the consumption of garments – when worn or offered – substances and energies are transferred between the body and the garments, creating mutual contact. This touch is transmitted, for example, through bodily fluids, which transform used or "touched" clothing into a physical representation of a person. (. Kloss, Sinah) Touch is therefore not only an integral part of religion, but the primary facilitating means through which religion, religious encounters and performances take place. Some cultures do not accept touch, the most alienated culture is Japanese culture, they avoid touch and separate from Muslim culture, men and women cannot touch each other casually in public (Liz Provasi,2012), touch is not only an intrinsic part of religion but the principal facilitating medium through which religion, religious encounters and performances take place. (Silva, Sonia,2021) basically in cultures religion is the touch of God and elders and superiors offering their blessing upon others, religion signifies a relation link between people shaped by dignity and share, value, rather than value, rather than rules regulation, rituals and rigid ones (Paul thelakat,2021) "Touch is not just an act, it is a fundamental form for the expression, experience and contestation of social values and hierarchies (Sara MacKian, Chris Perkins and Martin DodgeSpace) Touch works in and between bodies through effects in social bonds (Bick, Esther,1968) (Blackman, Lisa ,2012)

### **Divine Touch**

Different cultures have different traditions, but the most common is divine healing associated with divine touch. Divine healing practices reflect not only the desire to experience pain relief, but also the desire to feel the touch of God. Towards the end of the 19th century, when science eroded the traditional foundations of religious certainty, people sought evidence of modern divine activity in the

physical world (Mullin, 1996), this was later shifted to the presence of God, for example the feelings of heat, electricity or tremor, God's touch is perceived as being mediated by human touch. Christians have used touch to baptise, praying for healing since the first century, European historians have affirmed it as a "royal touch" or belief that kings could cure diseases such as scrofula (Bloch 1973) (Bloch, MLB, 1973) 19th century faith and the 20th World of Faith movements embraced an epistemology that distrusted the senses, especially touch, as evidence of healing. Aside from American religions that practice divine touch, we witness it in Native Americans, Taoists, Buddhists, Hindus, and various metaphysical traditions that place greater value on the sensory body. There are various healing practices performed by touch, also known as the various therapies that combine the universal life force or vital energy called qi in traditional Chinese medicine (e.g., acupuncture, qigong, T'ai chi ch'uan), Ki in traditional Japanese (e.g., Reiki, shiatsu massage), Prana in Ayurvedic medicine (e.g., Yoga). Practitioners believe that thoughts, emotions, and intuitions, such as conscious, compassionate intention to heal, touch and direct energy. Similarly, popular Amish healer Solomon Wickey mentally touches patients by "sending a coded signal to the body through silent thoughts" (Naugle 2005, p. 273) (Jourard, S.M., & Rubin, J.E. 1968).

## Chapter -2

### Touch and Human existence

#### Touch for Basic Need

Humans are almost completely lost in the absence of touch. Two hundred years ago, scientists from France spotted a creature that looked like a human. When they captured him, they discovered that he was 11 years old and that he had spent much of his childhood running wild in the forests. Victor, originally thought to be an idiot, was later determined to be deprived of human physical touch, which had resulted in a delay in his social and developmental capacities. Scientific research shows that physical touch is related to important areas. As a child, less touch leads to violence. According to a psychologist, the origins of violence in society are related to the lack of mother-child bonding. A lack of physical bonding and healthy attachment between an adult and a child can cause lifelong emotional disturbances. People bond together through touch. Person to treat you like family even if you just met them (Paladino, M.P., Mazurega, M., Pavani, F., & Schubert, T. (2010).). When teachers touch their students in a Platonic manner, it encourages their learning. Nicolas Guéguen, a French psychologist, reports that teachers' pat students in friendly ways. The study found that students are three times as likely to speak up in class. A recent study shows that when librarians pat the hand of a student checking out a book, he or she is more likely to return. Humans need human touch to thrive as adults. Some incredible emotional and physical health benefits that come from touch have been documented in recent years. Research suggests that touch is fundamental to human communication, bonding and health (Auvray, M., Myin, E., & Spence, C. (2010).).

According to Sharon K Farber,(2020) being touched and touching someone else are fundamental modes of human interaction and are increasingly sought out by many people. Some people wait in physicians' offices for a physical exam for ailments that are not organic (Wilhelm, F. H., Kochar, A. S., Roth, W. T., & Gross, J. J. (2001).). It was shown that touch alone can be used effectively to convey distinct emotions such as anger, fear, and disgust. Additionally, touch plays a role in communicating more complex social messages like trust, receptivity, and affection(Hertenstein, M.J., Keltner, D., App, B., Bulleit, B.A., and Jaskolka, A.R. 2006) Involvement, dependence, and nurture (Mehrabian, A. 1972)(Burgoon, J.K. 1991)(Argyle, M. 1975.) touch can also enhance the meaning of other forms of verbal and non-verbal communication, for example touch can amplify the intensity of emotional displays from our face and voice.(Knapp, M.L., and Hall, J.A. 2010) Some of the ways in which emotions are communicated are shaking, pushing, and squeezing.(Gallace, A., and Spence, C. 2010.) A handshake, a pat on the back, a kiss, or a gentle brush of the shoulder can all convey a sense of immediacy

that is far more powerful than language. (Jones, S.E., and Yarbrough, A.E. 1985) touch is the preferred non-verbal communication channel for conveying intimate emotions like love and sympathy. It may be more important for us to have safe and affectionate human contact than it is for us to have food. Research shows that a failure to receive adequate amounts of touch may result in depression, anxiety, violence, substance abuse, and inability to adequately parent a child. (Field, T. (2001).) In our modern society, which is characterized by a lack of trust, suspiciousness, and alienation between people, would it be perhaps possible to allow the use of touch, under certain conditions, between teachers and students in the educational process, hoping that it will improve academic performance of students or that it will improve psycho emotional factors, which are responsible for their smooth adjustment in the school environment. The neuropsychological aspect of touching studied by Lederman and Klatzky explained hand movements while someone tried to estimate physical properties. (Lederman, S. J. & Klatzky, R. I. (1987).) This is covered in the skin and relates to sensory endings. There are many endings and nerve fibre endings. The nerve fibres attached to different types of skin are either slowly-adapting or rapidly-adapting depending on the stimuli. In other words, slow-adapting nerve fibres send information about on-going stimulation, and rapidly-adapting nerve fibres send information related to changing stimuli. A classic example of a rapidly-adapting type is the Pacinian corpuscle receptor. The types of nerve endings are called the Ruffini nerve. (Zillmer, E. A.2007).)

The skin is important to the human perceptual ability. The brain and nervous system of the body are called skin. It derives from the same embryonic layer as the internal brain and spinal cord, both of which are closely related. The brain sends messages back to the skin and any other organ of the body after the skin receives them. The observable facts are related to touch. It is not easy to understand the impact that a touch can have on another human being. It can be the difference between life and death. (Montagu, A. (1994).) The role of skin as a fundamental factor of perception leads directly to touching behaviour. This behaviour is connected to touch, a vital habit that is common in all species and humans. There is a positive and critical role that touch can play in a children development. Teachers use pedagogical strategy for classroom interaction instead of using commands (Bertsch, K. M.et al, 2009.) Research shows that affectionate touch improves bonds between teachers and children. (Cigales, M.et al 1996.) (Field, T. 1999).) Since touch and proximity are two of the most important factors in building trust and understanding, it makes sense to keep physical distances from other people. (Kodakos, A. & Polemikos, N. (2000) In spite of the fact that they are aware of and recognize the usefulness of touch, Greek nursery school teachers rarely touch or touch lightly.

(Stamatis, P. J. & Kontakos, A. (2008). The research was conducted on two levels, specifically. Initially, every nursery school teacher was asked to answer a questionnaire in which they could express their opinions about the interaction between them and the children in the classroom. During the nursery classroom environment interaction, teachers and children were videotaped and video-analysed for specific touching behaviours, such as touched body point, touching duration, purpose and effectiveness of communication. All of them were examined with regard to nonverbal communication aspects such as proxemics, paralinguistics, facial expression and posture. Factors that could contribute to the achievement of classroom pedagogical atmosphere as well as the way these factors form the tactile communication context between nursery school teachers and children were also examined. When nursery school teachers were asked to explain their reluctant behaviour, they were surprised to be told about it, and also insisted on touching the children very much. The results of the observation and analysis of the recorded teaching procedure were in stark contrast to the view of the nursery school teachers.

### **Touch to Communicate**

Research has shown that responsive touch between romantic partners enhances their affective state. Sense of touch can be used to communicate different emotions and they are able to modulate human emotion. The interpreting communicated emotions is different from eliciting emotions, as the former may be considered a cognitive task and not result in physiological responses (Suk, Jeong, 2009) . One can see a touch as communicating anger without feeling angry. The James–Lange theory is the first one.(James, W. 1884.) To propose that the brain interprets emotional states through the conscious experience of emotion. The existence of specific neural channels for touch and pain indicates that there is a link between touch and emotional experiences. A somatotopic mapping between bodily sensations and emotional feelings is found. (Nummenmaa, L., Glerean, E., Hari, R., and Hietanen, J.K. 2013). One may think that stimulation of different bodily regions can cause a wide range of emotions. Emotions can be conveyed through touch, such as expressing gratitude to a friend or comforting a grieving relative. Naturalistic expressions of emotion are fundamental to human development, communication, and survival. It is becoming increasingly important to understand how our nervous system encodes emotion. Unmyelinated C tactile (CT) afferents project to the insular cortex and appear to encode emotion, at least in part. Somatosensory cortex receives information from low-threshold mechanosensitive afferents, which is distinct from discriminative touch, but somewhat redundant. There is an ongoing effort to understand the relationship between stimulus inputs and sensory perceptions, using single-unit microneurography, cortical

fMRI, and behavioural psychophysics. Human-to-human touch, in which individuals convey their emotions through unrestricted, intuitive touch, is currently little understood. The way one conveys an emotional message such as love or gratitude is believed to be influenced by certain contact interactions. The stimulus occurs when the toucher's hand makes physical contact with the receiver's forearm. Hand intensity, velocity, and position are indeed important according to qualitative observation. They examined "Ekman's emotions," of anger, fear, and happiness, "self-focused emotions" of embarrassment, envy, and pride, as well as "prosocial emotions" of love, gratitude, and sympathy. We broke each emotion down into its simplest tactile components

For example, it is important to consider the duration and intensity of each gesture, such as stroking, squeezing, and shaking. It was found that the accuracy of recognizing the gestures ranged from 48% to 83%, which demonstrated that emotions were effectively conveyed through touch, as well as key differences in the performance of the gestures. While the study of emotional gestures has mostly been limited to qualitative observation, other works have begun to quantify and classify gestures using, for example, pressure data derived from touch-sensitive surfaces (Steven C. Hauser, 2019). Engineering efforts like these can assist in identifying and quantifying the essential features underlying the interactions that are so rich and varied that haptic actuators may be able to reproduce these emotions. Quantitative descriptions may also provide a more precise understanding of how such interactions are encoded by the nervous system. Similarly, CT afferents respond maximally to velocity from about 1 to 10 cm/s, and A-beta afferents to both indentation and velocity. Contact area, velocity, and position – is necessary to better understand the communication of affective touch. However, the use of pressure mats, in particular, can be problematic in that they can change the psychological and physical nature of how one person delivers the gestures to another, and attenuate their response. Afferents with mechanosensitive are sensitive to forces below 0.08 mN (i.e., less than the weight of such a mat), to surface shear forces, and to body temperature. Hertenstein, (2016).

### **What is intention?**

The term 'intention' covers several distinct processes within the chain of information processing that translates desires and goals into behavior. According to Brentano,(1973) an intentional relation is a connection between a meaning and the subject at hand (whatever it points at). The intentional relation, on the other hand, is recast in the proposed scientific paradigm as "I intend it," an I-it (subject-object) relation that is mediated by the mental meaning through which the subject points to (characterizes and values) the object. The topic of a belief implies that this meaning accurately captures that situation, whether it is past, present, or future. The

pointing is spatial in a perception (which is a form of belief in this sense), as when the subject uses her apple to signify that object. In a desire, the individual is drawn to or turned off by a belief-based future that is anticipated. In its belief aspect, intention is mere aboutness. In its desire aspect, it is also an influence on overt or covert behavior.

Any affect or emotion that affects decision-making or judgments of worth is considered to be motivated by desire. According to Zajonc (1980), "affect and cognition are under the direction of separate and largely autonomous systems that can influence each other." Zajonc asserts that "the type of experience that we came to call feeling accompanies all cognitions." He makes a distinction between approach/avoidance feelings and other types of feelings, such as surprise and guilt, which appears to make a distinction between deliberate affect and other types of affects. Freeman, a biologist, asserts in 2000: "All behaviours are emotional, but they also have motivations and justifications. This is how deliberate conduct works. The intentional model regards each intention as having both a belief and a desire component, which is in line with this assertion. The subject of the intentional relation resembles a content-free, only implied "I," with the mental model holding all the content (such as a self-concept and a way to tailor wishes to each circumstance). A subject's (the agent's) intended course of action is determined by her understanding of her interests, the current circumstance, and the expected outcomes of the various options that come to mind. Because both the choice of action and the level of motivation are portrayed as wholly reflecting the mental state by which the subject intends, which is assumed supported by a knowable brain state, there is no obvious conflict between this intentional model and a causal model of the brain. The intentional relation (I intend it) is independent of the causal relation (A caused B), such that it is unlikely that the one can be derived from the other. Whereas the causal relation suggests a model structured around the laws of nature, the intentional relation suggests a structure that can be characterized as the personal perspective of a subject (agent). The perspective implies an entire mental model that is the lens by which the subject's environment can be brought into focus. That is, the subject's mental model provides an implicit context for all experience, and primed beliefs and desires (such as recent perceptions) provide a somewhat less implicit model of the environment as the immediate context. The specific intention occurs within this context. Intentions, including perception, are necessarily attributed to an agent using such a lens. In order to predict and explain human thought and behavior intentionally, the science of psychology develops a scientific model of the agent's mental model. Rather than treating it as accessing fixed or definable beliefs and interests (things that are desirable), the mental model is more appropriately treated as a tool for customizing beliefs and desires to the situation. Even in a highly unfamiliar situation, this

mental model tends to make associations to meanings that might apply. Whereas causal models of human thought make a rather sharp distinction between the cerebral cortex as the source of beliefs and the limbic system as the source of desires, an intentional model tends to treat of whole meanings, their interrelations, and the broader context.

It is noteworthy that Brentano discussed the intentional relation in a book called *Psychology from an Empirical Standpoint*. According to Bartok (2005), he was especially interested in proposing a scientific (empirical) methodology, quite apart from the philosophy, although the empiricism he was thinking of was phenomenological. The proposed intentional model, in contrast to Searle (1983)<sup>9</sup> and perhaps Brentano<sup>10</sup>, treats all meanings as intentional (as characterizing and valuing the intended object, even if not currently motivating action). Meanings in a fantasy are about imaginary objects, and one's apple meaning during a stream of thought, even if a scientific consideration of the class of apples, has evaluation as one semantic dimension.<sup>11</sup> perhaps most or all voluntary mental processing is intentional in this sense, supported by involuntary processes such as memory search and predictive coding.

Another intentional model proposed by Dennett, believes that intentionality serves as the main predictor of both human conduct and the behaviour of many other complex systems. This perspective views individuals as rational beings who make decisions in line with their values and preferences. As a result, it is possible to determine what the individual ought to do and then deduce the beliefs and desires that are required for them to engage in that reasonable action. In order to predict behavior, he says (p. 17), "you figure out what beliefs [and desires] that agent ought to have, given its place in the world and its purpose." Then you figure out what "the agent ought to do" in this situation (what the agent will do if rational), and that is the behavior you predict. He actually suggests a pragmatic approach to modeling desires: start with the most basic, such as the desire to survive, eat, procreate, find entertainment, and avoid pain, plus desiring to do other things as the means toward those ends. He says that one must develop "special stories" to account for an agent's false beliefs and detrimental desires that result in irrational behavior (p. 20). He is referring to stable irrationality, whereas the theory below accounts for variable rationality. Dennett calls the intentional stance "an extraordinarily powerful tool in prediction" (p. 24) until the area to be predicted gets too fine-grained. The Dennettian model mostly treats agents as consistent, guided by stable beliefs and desires. The intentional model proposed below attributes inconsistencies in an agent's behavior to causal influences, and suggests that it can be refined to produce accurate predictions even at fine-grained levels.

### **How does intention get transferred?**

Intentions are defined as a therapist's rationale for selecting a specific behaviour, response mode, technique, or intervention to use with a client at any given moment within a session. Intentions represent what a therapist wants to accomplish through his or her behaviour within a session. An intention is the cognitive component that mediates the choice of intervention. Intentions refer to why, whereas interventions or techniques refer to what the therapist does. Recently researchers migrated away from the mindset described above in their examination of intentions (Hill, Carter & O'Farrel 1983; Hill & O'Grady 1985; Hill, Helms, Spiegel & Tichenor 1988; Gelso, Hill & Kivlighan 1991; Kivlighan 1989, 1990). The intention to heal and the belief that healing is possible are the main reasons that placebos—inert substances such as sugar pills—are so effective in clinical trials. Your intention directs your focus and energy to facilitate balance of body, mind, and spirit. This balance is restored through the alliance formed between the client and the therapist. This is known as therapeutic alliance or relationship. The concept of therapeutic alliance can be traced back to Freud's (1913) idea of transference, which was initially thought to be completely negative. Later, Freud considered the idea of a beneficial attachment between therapist and client rather than merely labelling it as a problematic projection. Zetzel (1956) later defined the therapeutic alliance as a non-neurotic, non-transference relationship component between a patient and therapist that allows the patient to understand the therapist and the therapist to understand interpretations of the client's experience. It is the collaborative relationship between these two parties engaged in the common fight to overcome the patient's suffering and self-destructive thoughts and behaviours, and effect beneficial change. The truth is that while most clients go to therapy with the conscious desire to eradicate the presenting problem from their lives they remain ambivalent since eradicating that problem would force them to step out of their comfort zones in ways big and small, would force them to try on threatening, unfamiliar ways of being, would force them to confront their painful pasts, would force them to look at themselves and their lives honestly, would force them to surrender the various relied upon defense mechanisms that might cripple them emotionally and psychologically but also help them get through their days without overwhelming anxiety. Setting an intention to change replaces the ambivalence with certainty. It says "I might not know exactly how to get there yet but I'm going, period." That firm intention is the foundation upon which the house of change is built. Without a solid foundation the house collapses, regardless of how sturdy it might look to the unsuspecting observer. Helping clients work through the underlying ambivalence in order to strengthen their resolve to change is the first step in change, and they can be helped to see that while this step might not seem like much it's vitally important and getting there is a

success to hang their hats on early on in the therapeutic endeavour. Another way for transferring the intention is through the process known as transference. Transference describes it as an interactive communication, where symmetry between the client and therapist is the true engine of treatment and change (Lingiardi, Holmquist, & Safran, 2016). Simply, stated, transference is the 'transfer' of feelings from old relationships onto the therapist. This can create space for reflection, healing, and learning healthier patterns of relating with others.

### **Science of attention**

A motor action is voluntary if and only if it is intended. William James (1) put forward the ideomotor theory of action, which states that any intention or idea of an action has the tendency to cause the relevant movements. We pay "attention" because it helps the brain deal with one of its major issues: The brain is unable to adequately digest the amount of information present in our surroundings and in our own ideas. The constant sensory input would leave us overburdened and unable to operate properly if there was no mechanism to filter it. The attention system functions like a light source. It enables us to pick and choose which information to focus the computing power of our brains on. In a noisy space, we may focus on our discussion partner and enhance her voice while muting other sights and noises. This enables us to concentrate on a specific issue or pleasant recollection from the past. As William James wrote at the dawn of experimental psychology, "Everyone knows what attention is. It is the taking possession by the mind, in clear, and vivid form, of one out of what seems several simultaneously possible objects or trains of thought."

The "cocktail party dilemma" is a well-known illustration of the necessity for selective attention in auditions: the challenge of concentrating on one speaker's speech in a busy environment with other speakers and distractions (Bronkhorst, 2015). It is thought that the solution involves "early" selection, in which low level voice characteristics, such pitch, are utilised to choose which auditory information is passed on for additional language processing. It's interesting to note that even at the first stage of auditory processing, the cochlea, selective auditory attention may regulate neuronal activity (Fritz et al., 2007). The somatosensory system has also been studied with regard to spatial and feature attention. When subjects are cued to anticipate a tap at various locations on their bodies, they are better able to recognise the feeling when the cue is accurate. However, compared to the visual system, these effects appear to be weaker (Johansen-Berg and Lloyd, 2000). When respondents are given cues regarding the direction of a stimulus on their finger, reaction times in a detection task are accelerated (Schweissfurth et al., 2014). In a study that tested subjects' ability to detect a taste they had been cued for it was shown that validly-cued tastes can be detected at lower

concentrations than invalidly-cued ones (Marks and Wheeler, 1998). This mimics the behavioral effects found with feature-based visual attention. Attention to olfactory features has not been thoroughly explored, though visually-induced expectations about a scent can aid its detection (Gottfried and Dolan, 2003; Keller, 2011). To complete activities that need for the integration of numerous sensory information, attention can also be divided across different modalities. In contrast to depending just on one modality, using numerous congruent sensory inputs often helps with object recognition. Even though the information from another domain is equally genuine, it's interesting to note that certain research imply that people may have a bias for the visual domain (Spence, 2009). Particularly, activities that call for determining the spatial placement of a cue seem to favour the visual domain the most (Bertelson and Aschersleben, 1998). This is most clearly seen in ventriloquism, when the visual and auditory cue of the dummy's lips moving takes precedence over the visual clue. However, a motor action is voluntary if and only if it is intended. William James put forward the ideomotor theory of action, which states that any intention or idea of an action has the tendency to cause the relevant movements. Our minds and bodies are deeply connected; every thought we experience has a direct cellular effect on our bodies. During the very moment we set an intention, the communication pathways between our mind, brain and body fire up. According to Dr. Bruce Lipton, when we set intentions "the beliefs we hold in our minds are converted into electromagnetic fields by nerve cells and the brain 'broadcasts' this information to all of the cells within our body. Cells respond to the information in these energy fields and use it to control their behaviour and gene activity." In summary, if we set positive intentions, every cell within our body will behave in alignment with the intention we have just set and vibrate at the same positive frequency. On the contrary, if we are prone to negative thinking and fail to set positive intentions within our lives, our cells will respond by preparing to Fight-or-Flight..

Research evidence finds that mind activation, through mindfulness and intention-setting can change our biology: real, intrinsic change (Jon Kabat - Zinn, 1970) .According to a study published in 2009, by [M. Desmurget et al](#), the brain may function as a tightly strung unit, with swift action and reaction, but it is, in fact, made up of several, separate sections that come together to perform your "intentions." During the study, scientists observed several patients undergoing open-brain surgery. During surgery, they used an electrode to simulate parts of the parietal lobe and the premotor cortex to see how patients would react. When inferior parietal lobes were stimulated with low currents, patients felt like performing certain basic day-to-day actions, like lifting an arm. But, when the electrode current was increased, on the same location, patients were convinced they did perform those actions, when in fact,

there was no physical movement. Proving that, simulating that part of the brain can have an illusion effect. In contrast, when the premotor cortex was stimulated, patients performed certain basic functions but had no knowledge of their physical actions. The subconscious brain activity, much like the electrodes, allows you to perform regular undertakings, like picking up what you dropped, without being fully aware of it.

### **How access the intentions**

Different things might give rise to intentions. Decisions made through practical reason are the archetypal sort of intention development. The agent in this situation weighs all of the options before selecting the best one. This decision leads to a commitment to the selected course of action, forming an intention in the process. Deliberation frequently comes before the actual decision. Deliberation entails generating viable action plans and evaluating their merit by weighing the arguments for and against them. An example of this type of intention formation is a student who is up all-night thinking about whether to major in English and then finally decides to do so. But not all decisions are preceded by deliberation and not every act of deliberation results in a decision. Another type of intention formation happens without making any explicit decision. In such cases, the agent just finds themselves committed to the corresponding course of action without consciously deciding for it or against its alternatives. This is the case for many actions done out of habit. For example, habitually unlocking the office door in the morning is usually an intentional action that happens without a prior explicit decision to do so it has been argued that decisions can be understood as a type of mental action that consists in resolving uncertainty about what to do. Decisions are usually seen as a momentary change from not having the intention to having it. This contrasts with deliberation, which normally refers to a drawn-out process. But these technical distinctions are not always reflected in how the terms are used in ordinary language.

### **Belief-desire theory**

Intentions are reduced to beliefs and action-desires in the approach that has historically been prevalent. An urge to take action is known as an action-desire. According to this perspective, to plan to engage in physical activity tomorrow entails having both a desire and a conviction that one will do so Bratman, M. E. (1999). According to some accounts, this assumption is also motivated by want; one thinks they will act because they want to. Intentions are described as "self-fulfilling expectations that are driven by a desire for their fulfilment and that portray themselves as such" in a description that is similar. This method's explanatory power and simplicity are two of its key strengths. It also manages to account for the fact that there seems to be a close relationship between what one believes, what one desires, and what one intends. But various arguments against this reduction have been

presented in contemporary literature. These often take the form of counterexamples, in which there is both a corresponding belief and a desire without an intention or an intention without one of these components. This is sometimes explained in relation to the idea that intentions involve a form of commitment to intended course of action by the agent. But this aspect is not present in beliefs and desires by themselves. For example, when considering whether to respond to an insult through retaliation, the agent may have both a desire to do so and a belief that they will end up doing this, based on how they acted in the past. But the agent may still lack the corresponding intention since they are not fully decided. It is also possible to have an intention to do something without believing that one actually will do it, for example, because the agent had similar intentions earlier and also failed to act on them back then or because the agent is unsure whether they will succeed. But it has been argued that a weaker relation between intentions and beliefs may be true, e.g. that intentions involve a belief that there is a chance of achieving what one intends.

Another objection focuses on the normative difference between beliefs and intentions. This is relevant for cases where the agent fails to act according to the intended course of action, for example, due to having a weak will. This type of failure is different from the mere epistemic error of incorrectly predicting one's own behavior. But various belief-desire theories are unable to explain this normative difference. Other arguments focus on the dissimilarities between these states. For example, one can desire impossible things but one cannot intend to do what one thinks is impossible. And whereas beliefs can be true or false, this does not apply to intentions.

Evaluation theory

Another prominent approach, due to Donald Davidson (2011), sees intentions as evaluative attitudes. On his view, desires are conditional evaluative attitudes while intentions are unconditional evaluative attitudes. This means that desires see their object as positive in a certain respect while intentions see their object as positive overall or all things considered. So, the agent may have a desire to go to the gym because it is healthy whereas their intention to go to the gym is based on the evaluation that it is good all things considered. This theory is closely related to the belief-desire theory explained above since it also includes the idea that beliefs are involved in intentions. Here the belief in question is not a belief that one will do the action but a belief that the action in question is a means towards the positively evaluated end.

This theory has been criticized based on the idea that there is a difference between evaluating a course of action and committing oneself to a course of action. This difference is important for explaining cases of akrasia, i.e. that people do not always do what they believe would be best to do.

An example of akrasia is an author who believes it would be best to work on his new book but ends up watching TV instead, despite his unconditional evaluative attitude in favor of working. In this sense, intentions cannot be unconditional evaluative attitudes since it is possible to intend to do one alternative while having an unconditional evaluative attitude towards another alternative.

### **Influence of Touch on Behaviour**

In addition to communicating and eliciting emotions, touch can be used to influence people's attitudes toward persons, places, or services. (Gallace, A., and Spence, C. 2010) This is referred to as the Midas touch. It's not a name that you would think of when you think of king Midas from Greek mythology, who had the ability to turn everything he touched into gold. For example, it took a half-second of touch from a librarian to make the library more favourable (Fisher, J.D., Rytting, M., and Heslin, R. 1976). The touching by a salesperson increased positive evaluations of the store. (Hornik, J. 1992) The touches attractiveness ratings can be boosted by touch. (Burgoon, J.K., Walther, J.B., and Baesler, E.J. 1992) The recipients of such simple touches are more likely to be compliant that is have an interested in participating in a survey. (Guéguen, N. 2002.) Or to adhere to a medication regimen (Guéguen, N., Meineri, S., and Charles-Sire, V. 2010) volunteering for a course (Guéguen, N. 2004.) The money was left in a public phone. (Kleinke, C.L. 1977) Spending more money in the store. (Hornik, J. 1992) Touch also plays a role in teams, beyond the examples of touch in one-on-one interactions. For example, touch can enhance team performance of basketball players through building cooperation. (Kraus, M.W., Huang, C., and Keltner, D. 2010) Interpersonal touch can increase information flow and make people more favourable to communication partners. (Fisher, J.D., Rytting, M., and Heslin, R. 1976) Don't touch your face. It has become a common refrain during the COVID-19 pandemic. CDC officials, TV doctors, and infectious disease experts repeat the advice in hopes of slowing the spread of the novel coronaviruses. Viruses can pass through the eyes, nose, and mouth and risk decontaminating your hands if you touch something. It's a risk when you touch your hands to your face. Several studies suggest that the instinct to touch our faces begins in utero. Some studies indicate that it is a sign of healthy development. The first sign of nerves in the face is this one. Touching our faces makes us feel better about ourselves. When we have an itch, the brain tells

### **Eat By Touch**

Many cultures across the world have a tradition of hand-to-mouth eating, which is a reflection of the community. People eat from communal dishes in the Middle East and North Africa, while Indians share food from each other's plates (Jessica Festa, 2016) . It is advisable to know the rules of eating with your hands. Table manners for dining in hand-to-mouth cultures and the health benefits of eating

with your hands are included. According to an Indian saying, eating food with your hands not only feeds the body, but it also feeds the mind and spirit. Eating with your hands increases blood circulation. The hands moving too much may help keep the blood flowing. Our body protects us from harmful bacteria that grow in the environment by keeping them out of places like hands, mouth, throat, and gut. The friendly flora protects our system from harmful bacteria and stimulates it when we eat with our hands. When people ate by hand while simultaneously reading a newspaper or watching television, they were less hungry during snack-time, and more likely to choose a lighter snack. The researchers concluded that eating by hand promotes a sense of satiety and fullness. This could help to lose some weight. People with type-2 diabetes were more likely to be fast eaters who used cutlery, as compared to people without the condition, according to a study. There is a correlation between faster eating and the development of type-2 diabetes, as it has been linked with blood-sugar imbalances in the body.(Sarika Rana, 2018) Eating with your hands is a much more mechanical process than eating with cutlery, which makes you eat slower. When you eat with your hands, you have to pay attention to what you are eating, which makes you aware of how much you have eaten (Sarika Rana, 2018). The first experiment Madzharov did was to have 45 undergrad students look at a cube of Muenster cheese and then ask them questions about their eating habits. There were two ways to sample a cheese cube, one with an appetizer pick on it and the other without. The two groups did not indicate a difference between the cheese with and without the pick.(Adriana V. Madzharov,2019) In the beginning, the two groups (direct touch and indirect touch) did not indicate any difference between the cheese with and without the pick before eating it.

Participants who reported a high degree of self-control when consuming food perceived the cheese as more appetizing after eating it. The finding did not hold true for people who report a low degree of self-control when consuming food. The two groups don't seem to process the same information in the same way. People who control their food consumption are more likely to have an enhanced sensory response to food. It was found that a high degree of self-control influences how people experience food when they touch it directly with their hands, whether self-control is real or not. (Stevens Institute of Technology). In another study by Madzharov separated a new group of students into two groups. The first group was told to imagine that they had decided to be more careful with their diet and cut back on excessive eating in order to be fit and healthy. In order to enjoy life and experience its pleasures, they decided to worry less about their weight all the time and allow themselves to indulge in tasty foods more often. A plastic cup with four mini donuts inside was given to all participants. The

participants were asked to rate the mini donuts on a number of hedonistic qualities. When eating mini donuts, she told them to report their attention and focus levels. Participants were more likely to evaluate the food positively when they touched it directly with their hands. The enhanced sensory experience that participants reported in the direct touch/self-control condition is thought to be the mechanism driving this effect. (Adriana V. Madzharov., 2019)

### **Touch Effects on Sleep**

During and after hospitalization for thermal injury, evidence shows poor sleep quality (Michael T.Smith, 2008). In addition to the management of pain, anxiety, wound treatment and sleep disorders, healing touch can also be used to treat burn convalescence. The primary aim of the investigation was to determine if healing touch can change sleep patterns in burn patients. The order of healing touch treatment at night was determined by the randomized groups of participants. Patients served as their own control during the study. Soft background music and polysomnography recordings were obtained for each patient on both nights of the healing touch. There were significant differences in sleep over the study period (Michele M Gottschlich, 2014). During the HT nights, patients slept twice as many minutes in the important restorative sleep stage 3 and spent more time in REM sleep. It is important to note that on the HT nights; patients fell asleep twice as quickly compared to the non-HT nights. Admittedly, a limitation of this study may be the unmeasured effect of a human presence at the bedside during the control night.

Someone in the room (e.g., HT therapist standing there could have a variety of effects, including comforting and calming patients (Institute of Medicine, 2006). Alternatively, the child may experience added anxiety or restlessness if he or she is already experiencing discomfort or uneasiness. It is difficult to control or measure these factors, according to the authors. Currently, researchers at our facility are preparing a more rigid grant application that will include a sham control no presence and a control presence group. This pilot study was not designed to compare Healing Touch to other interventions, but rather to examine if sleep patterns differ after a burn or after burn injury reconstructive surgery with or without Healing Touch (Michelle G. Newman et al, 2013). It is difficult to measure the movement of an invisible energy or Qi, so we used PSG to see if the practitioner's energetic exchange and activity could alter the electric impulses produced by nerve activity and muscles. There are many factors involved in demonstrating competency and possessing the skills and knowledge necessary to move Qi, which can create energy blocks, for both practitioners and healers, such as fear and pain, discomfort from the initial burn, and the environment, including the temperament of the health care providers, the patient, and family members. HT

patients fell asleep more quickly, slept longer, and seemed less likely to react to external stimuli, such as sudden loud noises, which can occur in burn hospitals. The reason could be that they were deeply relaxed. A trauma can affect more than just the physical realm, therefore affecting thoughts, behaviours, and sleeping habits, resulting in insomnia, nightmares, and difficulty relaxing. (Perry BD, Pollard RA, Blakley TL, Baker WL, Vigilante D (2006)) Traumatic experience alters neurotransmitter release patterns and quantities throughout the neuronal systems responsible for sensation, perception, and processing that specific trauma (Trauma and Sleep. National Sleep Foundation). As a result, these changes affect the micro-environment of the psychophysical system, altering its function and cellular memory. Practitioners train themselves to sense and align minute, disrupted subatomic particle irregularities and interrelationships within the micro-environment by focusing on the highest good of the individual and setting an intention for that end. This restores the neurosensory apparatus to its normal state and, as a result, improves sleep. Sleep problems following a traumatic event can include the following, according to the National Sleep Foundation (Trauma and Sleep. National Sleep Foundation): When you can't fall asleep, you get flashbacks and troubling thoughts. It is imperative that you stay alert to prevent recurrence of the trauma. You become anxious and restless when it is dark and night, you have nightmares that cause you to wake up in the middle of the night and have difficulty falling back asleep. Stress or inability to express emotions can cause the chakras to be distorted and out of alignment. When this occurs energy cannot be freely, hence the physical body may not heal well. By stimulating the senses favorably, a practitioner balances chakras by using heart-centered energy. One limitation of the study was the small size of the sample. A patient who was sweating profusely also dislodged some of the PSG leads, and two patients were unwilling to put aside their social activities and mobile phones. When the HT intervention ended, one of the patients was in a deeply relaxed sleep state when his phone rang loudly. In spite of this, patient care interruptions are an expected component of nursing. A variety of studies are being conducted on the effects of HT on chronic pain (Im H, Kim E, 2009), the effects of HT on percutaneous coronary interventions in unstable coronary syndromes (Krucoff MW, Crater SW, Green CL, Maas AC, Seskevich JE (2001)), and the effects of HT on IgA and stress levels after HT treatment (Wilkinson DS, Knox PL, Chatman JE, Johnson TL, Barbour N, et al. (2002) The clinical effectiveness of healing touch. (J Altern, Darbonne M. 1997) The effect of Healing Touch modalities on patients with chronic pain. Master's thesis, (Northwestern State University, Natchitoches, LA..). HT has been shown to reduce pain scores significantly after four sessions (Darbonne M (1997)). The subjects also reported feeling more relaxed and having a better outlook

on life (Welcer B, John K (2001))(DuBrey RJ (1999)). Both outpatients and inpatients have been found to have a reduction in pain in a hospital setting (Wardell DW, Rintala DH, Duan Z, Tan G (2006))(Merritt P, Randall D (2002)). HT research has been relatively limited, but energy medicine, including Chinese qigong and Indian yoga, has long been used for pain relief and other medical conditions.

### **Gender and touch**

Touch is thought of as expressing control and dominance because of the differences in touching behaviour. (Henley, N. M. (1973), (Summerhayes, D. L., & Suchner, R. W. (1978)) Research by Henley shows that men touch women more than women touch men. Her ideas have been the driving force in research on touch. A number of recent reviews have shown a complex relation between gender and touching behaviour, which detracts from the work of Henley. (Hall, J. A., & Friedman, G. B., (1999).) The cultural differences in touching behaviour seem to be related to gender differences. The amount of touching that people accept and expect varies from culture to culture. (Frank, L. K. (1957).) In the United States, research showed that men touched women more than women touched men. The theory was that high-status individuals have a privilege that they use to maintain their advantage. Men expressed their high-status advantage through touching women because people considered them to be of higher status than women. Male bosses were more likely to touch the female secretaries than they were to touch the male bosses. The power differential could be used to explain gender differences in touch. The data that supported this notion was found when researchers looked at hand-holding patterns in men and women and people's perception of dominance. (Chapell, Basso, DeCola, Hossack, Keebler, Marm, et al. 1998) There is growing evidence to support the idea that normal contacts with power and status are the result of research. Studies have shown that in Western countries, high-status people are more likely to touch others than low-status people. There was a pattern only when the power roles were different. When roles were similar, people of slightly lower status sought to bond with powerful, high-status peers through physical contact. High-status and low-status people touch each other the same frequency, but use different types of contact. That is, a person of low social status initiates formal contact, such as a handshake, while a person of high social status initiates intimate contact, such as placing one hand on the shoulder of another. (Henley 1977; Thayer 1988; Hall 1996; Steir and Hall 1984) Henley's work has been studied by several people.

The observational studies show that women tend to initiate touch more often than men do, and that there is no general propensity for men to touch women more than vice versa. (Stier & Hall 1984) An important factor in sex differences in contact. Unlike Henley. Data, Hall, and

Veccia (1990) found that men and women generally touch each other. Others are on the same frequency. However, there was a tendency for men to do so. Hands are more likely to touch women than men. Women use different body parts to touch men more than others. Parts of the female body. Thus, contrary to Henley's findings: Men use their hands more than women, and men don't use them as much type of touch as women. This is an obvious equity comment touching between men and women in the United States can only mean dominance in this country. Or gender roles: are increasingly well defined and men may not have as clear a preference as they do (Hall, J. A., & Veccia, E. M. (1990).) When investigators considered age, the differential pattern of touching in men and women was more striking. In people under 30 years of age, men touched women more than women touched men. Hall and Veccia speculated that young adults might behave differently in their relationships than older adults because they are less established. Women and power are more relevant to young adults trying to attract one another. (Willis, F. N., Jr., & Dodds, R. A. (1998) It turns out that women have positive attitudes towards the same sex touch, but cross-cultural information about this touch is limited. College and university students from Chile (n = 26), Spain (n = 61), Malaysia (n = 32), and the United States (n = 77) completed the Same-Sex Touch Scale. As in the previous study, American women were more positive. They scored higher than American men. Malaysians scored more negatively than the other three groups. Hispanic and American students scored more positively than Chilean students. National differences were also observed in attitudes towards some types of contact need new methods of studying intercultural differences in communication were discussed. The Same-Sex Touch Scale is reliable when used with US college students. There was a difference in the attitudes of women and men in the US, but not in the other countries. Observational and attitudinal studies deal with specific people and situations. It is possible that both men and women in the United States will be hesitant to indicate a positive attitude toward touching people that they are not specifically close to, but will be comfortable touching people that they are close to. Men and women were not different. In this study there are other national groups. It is possible that US students will differ from the others in their attitudes toward same-gender touch, or they may simply answer differently. This could be due to cultural norms. In general, Malaysians scored lower than the other three groups. Hypothesis 2 was confirmed The Malaysian students were different from the other groups in that they were from the Far East, and not in their own nation. The differences between the Spanish and Chilean samples were found by us. It was found that the frequent reference to "Hispanic" or "Latin" in both popular and psychological literature reflects stereotypes. The principles of contemporary social psychology are based on US samples. Finding appropriate methods will be difficult.

For example, touch may be equally appropriate in two cultures, but the types of touch that are approved may differ, e.g. The study shows differences in attitudes towards arms around shoulders. Norms may also govern communication about social touch, which could explain why there are differences in people's answers to questionnaire questions. Replacing attitudinal scales with observational measures is problematic. Cultures have different rules for touch in public and private settings. Social touch may be governed by norms as well as the actions of touching. Attitudes toward touch vary across relationships and situations. Speaking touches others deeply for both men and women. The tactile behaviour of men appears to be more aware than that of women. During conversations, both men and women report feeling as if they have been touched. There seems to be a slight difference between men and women when it comes to awareness of being touched. People of mixed ethnicities and Hispanics have the greatest chance of feeling touched, followed by Europeans / Caucasians. Those who were native to and from the Middle East were the least likely to notice that they had been touched There is no evidence that women frequently invade men's personal space. Contrary to women, men are less likely to perceive women as invading their privacy. Both men and women report that men rarely invade their personal space. The perception that a man is invading a woman's space is more common among men than women. Women and men agree that men invade each other's personal spaces more frequently than women. A Hispanic (followed by a European/Caucasian) is the most likely to feel that women invade their personal space. Africans and Blacks, however, are most likely to perceive women as invading their personal space. Women tend to touch men more in friendly conversations than men do. Females confirm this observation by touching males more frequently than males do, and the literature supports these conclusions. On public transportation or at the movies, neither men nor women generally report feeling uncomfortable sitting next to another woman. Research shows that women tend to touch each other friendlier, while men tend to use touch as an expression of power. Women and men are equally uncomfortable sitting next to women. Both men and women preferred to sit next to women. According to some respondents, this difference is not due to the gender of the person, but rather to women taking up less space. When seated next to a man, however, feelings are ambiguous for both men and women although men seem to feel less uncomfortable when seated next to other men. The literature finds that: (1) Women tend to stand closer to other women during conversations than men stand to men, regardless of their gender; (2) Taller people stand farther than shorter people, regardless of their gender. Studying ethnic and gender differences in personal space requires consideration of this last point. As well as greetings and farewells, there are specific differences (Matthew J. Hertenstein & Keltner, 2011) It is possible to increase the effect of touch in distance

communication between people of the same gender by changing the gender impression with a voice change. Touch-based communication was prioritized even though psychological studies have shown that touch has several positive effects, including the elicitation of altruistic behaviours. Nevertheless, these effects can be limited, particularly when communicating with same-sex partners, since the same-sex touch often results in unpleasant emotions. Using telepresence, we hoped to reduce this unpleasantness, change people's gender impressions, and increase the effect by employing telecommunication effects. A male operator asked male participants to perform a monotonous task, and the results showed that a touch from the female operator reduced boredom. Improve operator friendliness and reduce the task.

Madzharov divided a new group of students into two. In the first group, participants were instructed to imagine that they wanted to be fit and healthy by cutting back on excessive eating. The couple decided to give up worrying about their weight all the time so they could enjoy life and enjoy its pleasures. In addition to four mini donuts in a plastic cup, all participants received a donut bag. Several hedonistic qualities were rated by the participants. Her instructions were to report their attention and focus levels as they ate mini donuts. It was found that when participants touched the food directly, they were more likely to rate it positively. It is believed that this effect is driven by the enhanced sensory experience participants reported in the condition of direct touch/self-control.

It has been shown that poor sleep quality occurs during and after hospitalization for thermal injury. Additionally, healing touch can be used to treat burn convalescence as well as pain, anxiety, wound healing, and sleep disorders. Healing touch was tested on burn patients to determine if it could change their sleep patterns. Participants were randomly divided into groups at night to determine the order of healing touch treatments. The study's control group consisted of the patients themselves. During both nights of the healing touch, background music and polysomnography recordings were collected for each patient. The mean age of the 10 consenting subjects during the study was 1.8 years, with an average of 2.0 years after sustaining a severe burn injury. The quality and quantity of sleep were affected by healing touch. Total sleep time increased in the healing touch group. The percentage of time spent sleeping significantly increased over the first seven hours of recording. Additionally, the healing touch group had greater REM sleep cycles. There have been advancements in sleep efficiency. The use of therapeutic touch was associated with decreases in phases 1 and 2 of sleep. Despite the tiny sample size, the findings seem promising. There was no change in the number of awakenings...

## **Touch and animals**

The strength of the bond between humans and animals is documented. Many studies have found evidence to support the positive mental and physical health benefits of being around and touching animals. Most people don't need science to know that there are many benefits to keeping animals because they have experience. For all these reasons, there are many programs designed to facilitate human-animal interaction. Social animals, including humans, are biologically adapted to convey life-affirming energy to other humans through the sense of touch. This energy has a positive effect. It has soothing, relaxing, stress-relieving and healing properties. Positive emotional experiences act as social reinforcement. It engages individuals, promotes social harmony, mediates hostile conflicts, and restores social harmony. Touching another being with loving intent is a rewarding experience that brings you peace of mind and physical relief. Gestures create a closed feedback system where all participants share a mutual benefit. (Viktor and Annie Reinhardt, 2017) An individual's mere touch can heal them: It soothes, comforts, and protects from stress. An open area can expose rats to raptors, which makes them fearful. Acute stress causes prolactin to be released into the bloodstream when crossing an open area, reflecting stress experienced when crossing an open area (Fava & Guaraldi, 1987), an example would be confronting a predator. The effects of human contact on the physiological processes, health and emotional well-being of animals are widely recognized.

Recent studies have shown that human contact affects these processes in animals at all stages of their life in dogs, early human contact can reduce or eliminate pain or fear responses. Petting, stroking and talking gently to pets can reduce their fear and anxiety, including pain. Petting a receptive dog can lower their heart rate and blood pressure. On horses, it has a similar effect. A pet that has been petted, fondled and generally sociable with babies as young as a week of age is usually calmer and friendlier as an adult. Dairy cattle produce more milk when handled gently. It is actually possible to improve the reproductive capacity of a sow through the gentle, friendly handling of herders. When bunnies were given a high cholesterol diet, bunnies that were handled, petted, and talked to showed fewer signs of atherosclerosis of blood vessels than bunnies given normal laboratory care. Also, chickens who are gently handled and talked to show a 60 per cent decline in mortality and a 60 per cent improvement in feed efficiency. Soft, tactile touch is more effective than visual presence. Some animals respond better than others. The outcome is determined by the animal's genetics, socialization and the quality and type of contact. Human behaviour, including physical and social bonding, has much more in common with the social care behaviour of other species than we think. When a rhesus monkey or chimpanzee searches for a friend's fur, it does more than

remove dirt and parasites from hard-to-reach places. While there are undeniable health benefits, this behaviour, which ethnologists call?

“Coordination” is far more important. According to one estimate, gelada baboons spend 17% of their waking hours here and only need 1% for good hygiene. All grooming is what primatologist Frans de Waal calls a "service market" in chimpanzee life. It defines a social class that establishes a social class. For example, a chimpanzee shares food with another who previously cared for it (Terry Gross, 2019). Grooming also helps reduce tension in the chimpanzee unit after an aggressive situation. One of the most complex forms of chimpanzee reconciliation occurs when two competing males are caught in an aggressive interaction without backing down or expanding. Sometimes a woman breaks the deadlock and relaxes while waiting for one man and another. According to anthropologist Robin Dunbar, grooming works because it stimulates the release of endorphins, an opiate produced in the brain. Endorphins induce relaxation and even sleep by lowering heart rate and reducing overt nerve activity such as scratching. Female chimpanzees trained in peacekeeping strategies experience bursts of endorphins and enjoy many of the same benefits. The lack of fur from our furry evolutionary cousins forced humans to find an alternative to metaphors. Gossip, like grooming, establishes and maintains our place in the social hierarchy. Like grooming, the social information that constitutes gossip is itself a kind of currency in human culture. At least that's Dunbar's number (Jason G Goldman, 2013). The alleged causal relationship between neocortex size and social group size is dubious. The resulting number, which has come to be known as Dunbar's Number, has been statistically compared to actual group size in various monkey species. Researchers limit ourselves here to the application of such an explanatory theory to human, culture-manipulating populations, even if there may be cause to reject the Dunbar's Number hypothesis among nonhuman monkey species. In his book *Grooming, Gossip and the Evolution of Language*, Robin Dunbar argued that language ability allowed our people to replace gossip with politeness. In an experiment conducted by Wilson (2001) placed 70 rats in an open field for 10 minutes, either alone, with another rat, or behind a transparent barrier. Stress alone caused the rats to produce more prolactin. In the open field, the two animals spent 73 percent of the 10-minute test sessions in direct physical contact with each other; their mean prolactin levels were significantly lower (5.7 ng/ml) than when tested individually (9.8 ng/ml). The animals spent 37 per cent of the 10 minutes right next to one another when they were placed in the open field behind a transparent barrier, but they weren't able to touch each other; their mean prolactin levels were higher than in the contact test situation, but not significantly lower than in the alone test (8.7 ng/ml) test situation. Rats were more protected against stress by physical contact than by visual

and auditory contact. Similarly, Latané (1969) emphasized that physical touch mediates stress in rats. A field was used to test the animals, and she observed that when they were tested with a companion that could be touched, their fear responses—as measured by freezing behaviour and defecation—were significantly less. However, when they were tested with a companion that was kept in a cage without physical contact, they did not. Using remote recorders (DaCosta et al. 2005). In 2004, eleven sheep were monitored, both in their familiar group and while they were isolated for 30 minutes. Their mean heart rate increased from 94 to 113 beats per minute after being separated. A large picture of another sheep did not increase their heart rate (91 beats per minute). In sheep, a mere image of a conspecific exerts such a reassuring influence that social isolation reduces stress. In cattle and horses, similar effects have been reported (Piller et al., 1999; McAfee et al., 2002; Mills & Davenport, 2002; McLean & Swanson, 2004). The stress of solitary confinement affects primates of all kinds, including humans and monkeys. Their distress is often expressed by mutilating and biting themselves to the point of life-threatening lacerations when they see a conspecific in an adjacent cell or cage, by seeing a picture of a conspecific, or by seeing their own reflection in a mirror (Johnson & Britt, 1967; Erwin et al., 1973; Yaroshevsky, 1975; National Research Council, 1998; Shaw, 2000). Behavioural pathologies of self-injurious behaviour in apes and monkeys can be successfully treated through physical touch and interaction (Fritz, 1989; Reinhardt, 1999; Alexander & Fontenot, 2003; Weed et al., 2003).

Human-animal contact evoked positive emotions in participants about comfort, relaxation and interspecies interaction. Non-unilateral benefits, such as animals' response to touch and collision, suggest that animals also benefit. Sensory research has been identified as one of the most prevalent topics today. Tactile sensation appears to be an integral part of many participants' understandings of the pet concept and is related to reciprocity, such as giving and receiving and mutual enjoyment, as suggested here. This provides insight into the psychosocial mechanisms through which pets influence human well-being. Understanding interspecies interactions relates to individual emotions in animals. Animals, like humans, are living, breathing creatures with unique interests, styles, and preferences. The ambivalence about whether a group of animals or individual animals "work" to create human well-being in this intimate and fluid way may reflect a wide gap between most academic concepts of individual animal perception. (Nottle & Young, 2019) While animals are still widely perceived as "not human" and somehow more homogeneous than humans, our participants' discourses reveal otherwise. the nature of individual personality, animal likes, dislikes, and preferences While species differences may exist, influence, assuming species homogeneity, for example, all dogs enjoy to be walked

(Nottle & Young, 2019) Discovering the individuality of the animals we live with is part of the richness that makes owning a pet so important to our well-being. Since many different species (cats, dogs, birds, and even reptiles) are involved in these interactions, pets can relate to any species that is interested in interacting with other species. Good news, especially for those who suffer from allergies in relationships. Reciprocity is essential to understanding human friendship. (Barclay, 2013) A "right type" pet is like a "true friend". (Ohtsubo et al., 2014) Shows us attention in human-human relationships (Dunbar & Shultz, 2010) and provides us with timely emotional support (Ohtsubo et al., 2014) these friendship characteristics are also mentioned in the Participant Report. It is about the relationship between species and the relationship between humans and animals. The significance of touch for older people has received little attention. Previously, the two dominant touch assemblages associated with ageing were sexualized and clinical (Field, 2014; Olson & Sneed, 1995). Sexual assault cases in aged care facilities around the world exemplify this assemblage of touch and connect directly to the other commonly understood assemblage of touch and ageing (Field, 2014). Clinical touch is frequently invasive and intimate. Precautions that include both physical (e.g., gloves, gowns) and emotional (e.g., dispassion) barriers are frequently used to manage the risk of such touch transforming into sexualized touch (Olson & Sneed, 1995). Our participants, on the other hand, identified a third type of touch: companionable, caring, and comforting touch - the kind of touch that comes from lovers or close friends. The manly, comforting touch of a life-enriching pet may be the only contact possible for many in the age of COVID-19. In the age of COVID-19, the mantra of "social distancing" defines a subset of clinical and risky concepts throughout the community. Our findings provide a preliminary but encouraging response, Bavel et al (2020) concerns about the negative impact of social isolation, particularly during COVID-19, by addressing the need for close relationships in social isolation and intimacy. We agree that experiences related to COVID-19, such as sudden lockdowns and widespread social unrest, unemployment and sudden poverty, can be traumatic for people. Because trauma often exacerbates pre-existing negative human experiences such as grief (Nicol et al., 2016; McBeth et al., 2007), the suggestion that pets can mitigate physical and mental illness is important. Concerns have been raised that people with chronic health conditions (including mental health) may worsen their condition in the process. Therefore, recommendations to help pets alleviate their physical and mental ailments are essential. Concerns have been raised that people with chronic health problems (including mental health) may worsen their condition during COVID-19 because they do not receive treatment or stress worsens the condition (Torjesen, 2020; Webster, 2020). On the other hand, pet ownership can be a coordinating

factor that needs to be signalled (before policy proposals) that people can confirm that pets can be properly cared for and deserve public funding and support. According to (Van Bavel et al, 2020), social distancing as a policy goes against people's innate desire to connect with others. Social connections help people cope with stressful situations, but the risk of COVID-19 and the need to intervene to keep people alive requires physical isolation. While emotional and social engagement is still possible, and the wonders of the Internet and online presence can be helpful, for many people physical contact with others is essential to communication (V, 2020). In this study participants show that pets can bridge the gap between physical intimacy and communication for many people. The shelter cleaning public may not understand this activity as a substitute for human-to-human contact during COVID-19, but contact studies, human bio physiology, and participant characteristics suggest that they too interpret the concept of "animal company". Touch based. They, like many before them, satisfy their basic need for comfort, relaxation and pleasure through friendship and connection between humans and animals (Serpell, 2006). During COVID-19, pets offer several types of communication alternatives, demonstrated by the mammalian participants as well as the birds and reptiles in our population. This suggests that for people with allergies or certain species of animals, these pets may help reduce non-contact stress during times of COVID-19.

In an interesting study conducted by researchers from the Central Institute of Mental Health, the University of Heidelberg, the CNRS, and the University of Strasbourg as well as other institutions in Europe, Israel and the United States, the effect of social contact on women's relationships was examined. They found that social contact activates phagocytic oxytocin neurons in female mice to promote bonding. According to researcher Valery Grinevich: Touch shapes our perception of the world and shapes how we experience it, from the gentlest touch to the strongest blow. In the course of evolution, vertebrates developed sophisticated sensory systems with distinct evolutionary advantages, and higher mammals are able to distinguish between painful, moderate, and light types of touch."(Grinevich, V. et al., 2016). For most mammals, social contact helps build trust and intimacy. Rodents, cats, dogs, and primates exhibit a variety of types of touch, from gentle touches to grooming and caressing. As animal groups form and maintain social classes, brain chemicals are produced through social contact. This bond is established through neuropeptides such as oxytocin, which Grinevich and his colleagues studied. Alexandre Charlet, another participant in the study, stated: Oxytocin not only promotes birth and breastfeeding, but it also actively rewires the brain to regulate emotions, sex, marital bonding, and parenting." Yet, it is unclear how oxytocin promotes social behaviour and releases neuropeptides. The main problem with the article is this.

Using advanced neurobiology techniques, Greenevich, Chalet and colleagues monitored and manipulated oxytocin neurons in freely moving mice. The first electrophysiological recordings of oxytocin cells and populations were obtained by them. Pharmacogenetic techniques were used to consistently activate and inhibit oxytocin neurons called parvocellular neurons. This allowed them to study the diverse contributions of these oxytocin neurons to female bonding. In addition to using viral vectors to visualize and connect oxytocin neurons, Grinevich also used a tracer technology based on viral vectors. Lastly, we observed a difference in the activity of oxytocin neurons in women and men during social bonding." It has been demonstrated that parvocellular oxytocin neurons are essential for female mice to communicate sensory information. The purpose of these neurons is to translate the sensory signals received by the animal's body into various forms of social interaction. "Our study offers a new understanding of how neuropeptides regulate social behaviour," said Charlet. As well as treating mental disorders such as autism spectrum disorder and post-traumatic stress disorder, oxytocin is thought to be a powerful drug. In spite of the fact that the researchers focused on virgin mice, their results could be applied to other mammals, including humans. As a result of their discovery, sedative forms of social contact may be developed as future treatments for mental disorders in the future

A survey was conducted in Shanghai, a city in the southeast of China, in December 2017 and May 2018. (Qian, L. Shanghai Urban Master Plan, 2016 – 2014). The study sites were selected from central districts of Shanghai, which represent high-income and densely populated areas. Shanghai 36 is divided into seven central urban areas, each with a population of 7.3 million and area of 289 square kilometres. Using a multi-stage stratified sample corresponding to the population size, 40 districts were sampled. Each household participant was invited to participate until we reached 1000 participants evenly distributed by age and gender. Those who had lived in the selected neighbourhoods for over two weeks without intending to leave Shanghai in the next two weeks participated in this study. Each week, participants were asked to fill out a questionnaire about their contact behaviour. Among the three sections of the questionnaire were: general information, human-human, and human-animal contact on the designated day. Demographics, household composition, daily travel, and daily contact were all included in the general data. According to POLYMOD, in the H-H contact section (Mossong, J. et al.) H-H contact is (1) two-way communication involving another person (conversational contact) of three or more words or (2) physical skin-to-skin contact (e.g., shaking hands, hugging, kissing, or sports contact). Participants were asked to be contacted for each contact made on a specified date (within 24 hours before going to bed during

the participant's normal bedtime), including the age and gender of the respondent, whether it was verbal contact or physically and when contact was made. Requested. Contacts, contact settings (e.g., home, work, etc.) b.) How often the respondent communicates with that person in general (e.g., daily, weekly, etc.). On the HA Contacts page, participants were asked to indicate the type and number of animals they owned. Instead of touching animals, pet ownership refers to animals that spend most of their time indoors. The only physical contact considered was touching at least one live animal. On a given day, participants were asked to note the type, number, duration, and establishment of contact with each animal they interacted with, as well as the overall frequency of contact with each animal. Large numbers of contacts may not be recorded individually and may be underreported. The term "group communication" refers to communication with 20 or more people (experienced by students, doctors, or attendees of social gatherings). Contacts reported as individuals (not group contacts) are called "personal contacts". A maximum of 40 personal contacts could be reported by participants in the survey. Data collection modes included self-reporting and telephone interviews. The participants were encouraged to choose the phone interview by answering the call from our trained investigator before going to bed and recalling their contacts that day (in which case the investigator would complete the diary on their behalf). They could also complete a paper questionnaire (with instructions attached). If participants chose to self-report, they were encouraged to record their contacts prospectively (that is, as they occurred) and to complete the questionnaire before going to bed on the scheduled day. We assumed that going to bed at night is close enough to the end of the day and the end of the social activities of the day. The 24 hours preceding going to bed were recorded as the time period. We surveyed respondents from

Belgium, and their pattern of animal contact differed significantly. Although both studies were conducted in high-income urban areas, animal ownership and contact in Belgium were significantly higher. The lower animal contact in Shanghai (especially poultry) might be attributed to the closure of live poultry markets since 2013, as well as differences in cultural norms and population density in Europe versus Asia. The population density is 25,260 people, for example. Eastern China is known to be a hotspot for zoonotic infectious diseases (Allen, T. et al, 2017). China's first influenza A(H7N9) case was discovered in Shanghai, making it a potential epidemic centre (Gao, R. et al, 2013). Based on findings from other institutions, Asian animal contact data cannot be extrapolated. Especially in Shanghai, humans and birds have very little contact. Animal interaction was associated with more social relationships among people. Despite their limited ability to cross animal and human barriers, they are highly contagious once they do. Moreover, our

research helps to better understand the epidemiology of diseases like rabies transmitted between cats and dogs. 90% of rabies deaths in China are caused by animal bites, and over half of those deaths are caused by domestic animals. (Guo, C. et al. 2018) As a result of this study, the patterns of human-animal contact observed would provide critical evidence for future research on epidemic dynamics at the human-animal interface, animal control, and vaccination programmes, all of which could have a significant impact on public health.

Visitors can use the facilities of the Zoo and Aquarium Association (AZA). Visits to zoos and aquariums have, however, received little research regarding their direct health benefits. It is crucial to understand the scope of these benefits, given the increase in stress-related non-communicable diseases in developed countries. The effects of touch tanks with stingrays, sharks, and horseshoe crabs on visitor stress were studied. Stress was assessed by analysing physiological and psychological parameters. The heart rate was recorded before, during, and after interaction with the animals, and mood was assessed before and after the experiment. Comparing before and after touching the animals, the multistage heart rate model showed an increase in heart rate and decreased variability. In the Wilcoxon Signed-Rank test of mood data, most participants were happier, more energetic, and less nervous. Interactions with animals not only induce physiological responses similar to amusement park experiences, but also reduce mental stress. The effect of confounding variables such as group size is also discussed. Research is needed to better understand the health benefits of AZA institutions. (John M. Sahrman, Amy Niedbalski, Louise Bradshaw, Rebecca Johnson, Sharon L. Deem, 2015)

In this study, we show that *C. elegans* exhibits different behavioral responses to hard and soft touch, which are also observed in higher organisms. The robust and robust tactile response of *C. elegans* provides a survival mechanism by effectively escaping this danger signal. To detect close contact, *C. elegans* recruits a unique set of sensory neurons, a phenomenon also found in higher organisms. (Purves, D. et al, 2008). Mammals and nematodes share interesting neural and behavioral circuit analogues for rough touch. There are both ciliated and non-ciliated cells in hard-touch neurons, unlike soft-touch neurons, which belong to the same class of fifteen autonomic microtubule neurons without cilia. Most of these neurons share a common ancestor, and some are also sister neurons. PVD and PDE, for example, descend from V5. ALM and BDU are sister neurons. SDQR and AVM share the same precursor QL (Sulston, J. E. & Horvitz, H. R., 1977). The extent to which this maintains their functional identity in contact is unknown. Both PVD and FLP are multiterrestrial neurons (Albeg, A. et al., 2011). A posterior contact is determined by one of these, whereas an anterior contact is determined by the other. There is a

large surface area on the dendrites of these neurons. *Elegans*, can have a large receptive field. In particular, sensory cilia of cilia such as PDEs are more mechanical than PVD dendrites to compensate for their small size. Most sensory stimuli in behavioral tests are delivered remotely rather than directly over cilia, as in patch-clamp recordings. As a result of the high mechanical sensitivity, it is possible to feel close or distant touch stimuli. Thus, these ciliary neurons detect hard contact from a distance by detecting light. The sensory neurons responsible for hard touch have been identified, but all require functional confirmation that they are truly mechanical neurons, such as PVD and PDE, and we cannot rule out the possibility that other sensory neurons are also involved. Soft and hard tactile actions require intermediate neurons that overlap significantly. Soft-touch sensory neurons may input these intermediate neurons differently from hard-touch sensory neurons. Based on calcium imaging analysis of intraneuronal PVC, this model is supported. In response to soft and hard touch, calcium imaging analysis of intraneuronal PVCs supports this model. There is evidence that sensory information is encoded, at least in part, in the posterior circuit of sensory neurons. A calcium imaging analysis of interneuronal PVCs in response to soft and hard touch supports this model. The posterior circuit may encode sensory information, at least in part, in sensory neurons. Mutants with soft touch are sensitive to hard touch, so *C. Elegans* may not use the same genes to modulate hard touch responses. Indeed, we show that TRP and ENaC family channels play a role in tactile regulation. Metazoan cells activate mechanically gated channels, but their molecular identity is unknown. Christensen, A. P. & Corey, D. P., 2007) (Xiao, R. & Xu, X. Z. S., 2009) The only exceptions are the ENaC family channels MEC-4/MEC-10, K2P channel TREK-1, newly identified Piezos, and TRPN (TRP-NOMPC) family channel TRP-4. (Sharif-Naeini et al., 2008) (Kang, L., Gao, J., Schafer, W. R., Xie, Z. & Xu, X. Z. S., 2010) (Coste, B. et al., 2010). The harsh touch test was conducted on a number of mutant TRP channels. It is possible that the majority of TRP channels tested may play a role in the sensation of harsh touch, even though they are not required for behavioural responses. Having discovered TRP and ENaC channels, it is evident that *C. elegans* can be used as a model to identify genes regulating harsh touch sensation. Taking these findings into account, future research will elucidate the molecular mechanisms underlying harsh touch sensation. It is possible that this sensory modality in organisms can be better understood by studying,

## Chapter - 3

### Touch and Psyche

Many authors have described the sense of touch as the most perplexing of the five senses. In his book *On the Soul* (*De Anima, Peri Psyches*), Aristotle was among the first to do so, writing that among the five senses (Classen, 1997). The sense of touch seems to be the most mysterious because the environment, the object and the organ of touch do not fit into the schemes of the other senses. He also argued that not only was classification impossible, but that touch made classification difficult. (Aristotle, 350 BC) Kathryn Linn Geurts, who conducted a study of sensory experience among the Anlo-Ewe population of Anlo-Land. (Geurts, 2002). He said a phenomenon he called a "sensation" in Ghana presented many conceptual problems. As he put it, "There seems to be a lot of expression in everything that appears to be tactile." (Geurts, 2002) Geurts claims that sensor research has become so complex that he aims to use his model as a solution. According to Mazzio, touch is hard to interpret and hard to quantify. A sensor is a small unit. It is neither part nor part, but rather a refusal to quantify. (Mazzio 2006: 88) Elizabeth Hsu, in her study of tactile experience in ancient Chinese medicine, concluded that difficulties are inevitable for anyone who wishes to use tactile experience as a basis for technological science. He calls it "the paradox of sensory science." (Hsu, 2000) Following the diagnosis of the specified number of pulses Hsu speaks of ancient Chinese medicine while keeping current research in mind. The observations do not allow for any conclusions. That's exactly what he says. Philosophically, one can recall Merleau Ponty's comments. It deals with tactile and visual experiences, and considers tactile visualization to be the most extreme attempt to objectify them. (Hsu, 2000) Tactile experience [sic] seems to be completely unsuited to the construction of technical science. (Hsu, 2000)

### Mental Health and Touch

#### Sigmund Freud's Perspective on Touch

In the field of analysis, psychoanalysis traditionally forbids almost completely physical contact between patient and analyst. Touch, on the other hand, relies on our largest sense of touch, our skin, and provides a basic and comprehensive form of communication. Because tactile stimulation is so important to the development and maintenance of physiological and psychological control, recent research shows that physical contact and touch "just" modulates physiological and psychological control in people of all ages. Since Freud and Ferenczi, physical contact has been a source of controversy in psychoanalysis. (Ferenczi, 1953) believed that the expectation of touch can cause the patient to tolerate pain that is normally alert. Freud believed that physical contact almost always leads to sexual activity. During an argument, Ferenczi's patient (Clara Thompson) bragged to Freud's other patients that she could kiss "Pata Ferenczi"

whenever she wanted. Freud strongly objected, warning Ferenczi that such behavior would inevitably lead to full sexuality. Unfortunately, the now well-documented (Rahman, 1989) silence of Freud and E. Jones after Ferenczi sidestepped the issue of contact. Thus, while Freud's rules of non-contact and avoidance prevail in the psychoanalytic literature, there were significant exceptions where physical contact was considered not only appropriate but necessary during periods of profound regression. (Balint, 1952, 1968; Winnicott, 1958, 1975) Phobias and psychotic delusions (Margaret Little, 1990) and severely disturbed patients (Mintz, 1969a,) more recently, additional reports of tactile palpation have appeared in our literature (Bacal, 1985, 1997; Pedder, 1986; Breckenridge, 1995; McLaughlin, 1995). Psychoanalysts of various persuasions in individual settings find that physical contact, often in the form of handshakes, hugs, and handshakes, occurs and is perceived as facilitated by both analyst and analyzed (Hamilton, 1996). The emergence of psychoanalytic alternatives to classical theories, such as detailed and comprehensive models of motivation (Lichtenberg, 1989) and extensive empirical studies of the neurophysiological functions and psychological meanings of physical contact enable understanding of meaning. The use of physical contact in psychoanalysis. The in-depth exploration of the subject and the role of touch in psychoanalysis in this issue of *Psychoanalytic Study* is a tribute to the editors and a sign of the changing mood of psychoanalysis. Most psychotherapeutic schools were influenced by Freud's prohibition of contact, except for a focus on the body (e.g., Loewen's [1966] bioenergetic analysis). However, research has shown that many psychotherapists, including psychoanalytic therapists, touch patients for support, reassurance, warmth, care, protection, or other therapeutic reasons (Kardener, Fuller, & Mensch, 1973; Patterson, 1973; Holroyd. & Brodsky, 1977; Gelb, 1982; Milakovic, 1992; Horton et al., 1995). The literature has focused on the arguably harmful effects of sexual contact between patient and therapist (Pope, 1990). However, accumulating clinical and research evidence suggests that the "boundary crossing" that (Gutheil and Gabbard 1993) posit on an erotic "slippery slope" is not simply physical contact (with the exception of the formal handshake) between the therapist and patient satisfied. Given what we now know about tactile stimulation, communication and the important role of touch in neurophysiology, behavioral and psychological development, it is surprising that psychoanalysts report such cases, despite the traditional prohibitions against touch in psychoanalysis. It is not a thing. Intentionally use touch to promote healing. As noted earlier, Ferenczi allows for behavioral actions that sometimes involve loving affection (Shapiro, 1992). He also used touch to bring the patient back from a trance state to the present moment. "Sometimes I can show you... Shake the patient's hand or reassure him if he has great anxiety", says Fromm-Reichmann (1950) (p. 12).

(Searles, 1965) warns of "neurotic fear of physical contact" (p. 701), although "refusal to offer physical contact" can be helpful. (Winnicott, 1965) and his patient (Margaret Little, 1990) note that the patient's arm was held by the patient's arm to create a sufficiently "hugging" environment. (Little, 1966) described a desperate patient. About finding out that his "accidental" self-harm was intentional and that he should get an analyst. (Bacal, 1985). (Pedder 1986) described a patient who was severely retarded and required physical contact. Published reports generally deal with the use of touch in severely impaired or severely retarded patients, but (Mintz, 1969b) describes patients with "healthy neuroticism" during a period of deep regression in which physical contact temporarily prevents the patient from communicating verbally suggest it may be useful for you too. (Balint, 1952) detailed the circumstances surrounding the occurrence and meaning of contact and describes a patient's desire for contact at the end of therapy when it is well integrated to convey affection, relationship and deeper connections. Sensory communication is a powerful form of communication that leads to a deeper sense of intimacy and a "quiet sense of well-being" in these situations. (Mintz, 1969b) identifies four possible meanings of touch within the psychoanalytic framework: immediate libido gratification, symbolic motherhood, transmission of receptivity, and transmission of realism. The first is problematic in the therapeutic setting, but he believes that the other three senses and uses of touch can be very useful in the process of growth and analysis. (Breckenridge 1995) describes a clinical situation in which allowing physical contact conveys a sense of acceptance and helps change a highly negative self-image. More recently, (McLaughlin, 1995) has written about the ease and perception of physical and psychological contact, which represents a departure from the classical position on touch. "In some patients, the handshake comes and goes, but eventually coincides with others,"

### **Tiffany M Field Study on Development and Touch**

Research on rats and monkeys supports the use of touch as therapy. To investigate touch deprivation, rat pups were separated from their mother in a recent model developed by Saul Schanberg and colleagues. The mother's behavior was then simulated to restore the rat pups' physiology and biochemistry to normal. When pups were separated from their mothers in several studies, there was a decrease in growth hormone (ornithine decarboxylase) (Schanberg & Field, 1987). This decrease was seen in all body organs, including the heart and liver, as well as all brain regions, including the cerebrum, cerebellum, and brainstem. When the pups were stimulated using techniques that mimicked the mother's behavior, these values returned to normal. A graduate student/animal caretaker observed the nocturnal behavior of rat mothers and noticed that they frequently tongue lick, pinch, and carry around the rat pups. A

graduate student/animal caretaker observed the nocturnal behavior of rat mothers and noticed that they frequently tongue lick, pinch, and carry around the rat pups. Only tongue licking (simulated by a paint brush dipped in water and briskly stroked all over the body of the rat pup) restored growth hormone levels to normal levels when the researchers tried each of these manoeuvres. Schanberg and his colleagues recently discovered a near-immediate gene underlying protein synthesis. This is a gene that causes growth when the organism is touched and responds to tactile stimulation, implying that the touch/growth relationship has genetic origins (Schanberg, 1995). (Meaney and colleagues', 1990) research suggests that handling has a long-term effect on the modulation of cortisol (stress hormone) production. In the ageing rat, rats that were handled more as pups had less corticosteroid production, more elaborate dendritic arborisation in the hippocampal region, and better maze performance (memory function). Human infants at Hammersmith Hospital in London have already shown similarities. (Modi and Glover's, 1996) study provides magnetic resonance imaging (MR I) documentation of Massage accelerated the development of the hippocampus in premature infants. In a study of premature infants receiving massage therapy, including cocaine-exposed HIV-infected infants (Wheeden et al., 1993), we found that Swedish massage was used with light pressure. Babies, especially premature babies, may seem fragile, but they need some pressure for massage to be effective. A review of the literature on infant massage found that those who used a light stroke did not report weight gain, while those who used a pressure stroke did. A push factor was found to be necessary for sensory therapy to have a positive effect on weight gain.

### **Ernst Heinrich Weber – Making Sense of Temperature in Early Psychophysics**

How do human bodies detect the hotness and coldness of objects? Not like a thermometer, says Ernst Heinrich Weber in *Tastsinn und Gemeingefühl* (1846). A thermometer measures the "heat of the mercury" at any given point in time, whereas the human body measures changes from its "zero point" (body or skin temperature) as positive and negative magnitudes. *Sense of Touch and Common Feeling* was originally published in Rudolph Wagner's series of articles on physiological topics. The text builds on Weber's earlier Latin treatise on the tactile sense, *De Tactu* (1834), and is more theoretically ambitious in general. It is difficult to overstate the significance of Weber's 1846 text for the subsequent development of the disciplines of experimental psychology and sensory physiology (Ross & Murray, 1996). Indeed, Gustav Fechner referred to his former mentor Weber as the "father of psychophysics". The "classic investigations" of "Sense of Touch were where Weber first outlined the fundamental categories of psychophysical study. Sense of Touch, for example,

describes Weber's influential two-point discrimination test and provides the most complete description of what became known as Weber's Law. It also expands on Weber's studies of the human body's response to hot and cold stimuli, which were first described in *De Tactu*. The faculty of Sense of Touch is further subdivided into three types of awareness: sense of location on the body (Ortsinn), sense of pressure (Drucksinn), and sense of temperature (Drucksinn) (Temperatursinn). Experiments in each of these domains are summarized in short passages. In addition to two-point discrimination tests, different pressure and temperature stimuli were applied to different parts of the body. Weber explains to the reader that the sense of touch is caused by the presence of peripheral nerves in the skin, which are distributed unevenly along the skin's surface. Thus, Weber creates a kind of empirical atlas for each of the three subsenses of location, pressure, and temperature, in which the effects of stimuli on different parts of the skin's surface are recorded. The section on "temperature sense" (Temperatursinn) begins with introductory remarks that compare the human body to a thermometer (as described above). Weber explains that because we have a source of heat (Wärmequelle) within us, hot and cold are felt as positive and negative magnitudes from this fluctuating zero point. Similarly, *De Tactu* (1834) claims that hot and cold are experienced as "positive and negative numbers). However, Weber's opening remarks on "temperature sense" represent a significant departure from his explanation of the mechanism by which we sense heat in *De Tactu*. Weber emphasises in *De Tactu* that our assessment of temperature is an act of "estimation."

### Harry Harlow – Nature of Love

The American psychologist Harry Frederick Harlow (1905-1981) was one of the most famous psychologists of the 20th century (Haggbloom et al., 2002). Working with baby rhesus monkeys and artificial mothers made of other materials, he found that the baby monkeys preferred soft cloth mothers that were not fed and provided physical comfort and warmth over wire mothers that only provided milk. This seemed to show that babies have a need for affection that has nothing to do with their need for food, as theorists have previously argued. Harlow's account of this study in an article titled "The nature of love" (1958) has been cited over 4200 times in the scientific press, has become a standard item in psychology textbooks, and has piqued the interest of experts from diverse fields such as history of science (Haraway, 1989, 2005; Vicedo, 2009, 2010, 2013), psychotherapy (Slater, 2004), primatology (Arcus, 2016), and scientific journalism (Blum, 2002, 2011; Tavis, 2014). It was even told in the form of a cartoon (Ottaviani, 2007) and piqued the general public's interest. He'd established himself as the scientist who'd discovered "The Nature of Love." However, while some of the aforementioned experts have briefly mentioned Harlow's previous work on learning and later work on

depression, it is generally much less well-known. The existing discussions on Harlow's depression research generally regard his experiments as controversial or unnecessarily cruel, but they fail to provide the context in which Harlow operated: the state of depression research at the time, and the urgency he felt to find a solution after experiencing severe depression himself. Harlow's Primate Lab was expanded several times during the 1950s to accommodate the growing colony required for studying the development of learning in monkeys from birth onward. Harlow's shift from studying learning to studying love—or, more precisely, social relationships in primates—was more or less coincidental (Callahan & Berrios, 2005). In 1955, a tuberculosis outbreak in Harlow's laboratory caused him to lose almost his entire colony of rhesus monkeys. Harlow began separating baby monkeys from their mothers 12 hours after birth and placing them in separate cages to prevent disease contamination. This did prevent diseases from spreading, but as a result, the baby monkeys began to exhibit strange and pathological behaviour (Sidowski & Lindsley, 1989). The baby monkeys clung to the towel cloth covering the bottom of their cages, presumably looking for a substitute for the motherly warmth they lacked. During a visit to the Primate Lab in 1958, Harlow's friend and colleague from the United Kingdom, John Bowlby, pointed out that this behaviour was likely the result of a lack of mother-love (Suomi et al., 2008; Van der Horst et al., 2008; Van Rosmalen et al., 2020). Bowlby was trained in psychoanalysis before becoming famous for co-developing attachment theory with Mary Ainsworth (Van Rosmalen et al., 2016). After studying the relationship between (human) mothers and their children for decades, he would challenge psychoanalytic ideas. He had been researching the effects of separation experiences in which children were separated from their mothers for a longer period of time due to hospitalization, war evacuation, and so on (cf. Bowlby, 1952, 1958, 1959, 1961). Bowlby's meeting with Harlow would strengthen their understanding of the effects of separation, and they would refer to each other's work (Van der Horst et al., 2008, despite the fact that Harlow would later reject some of Bowlby's ideas (Vicedo, 2009, 2010). Intrigued by the monkeys' behaviour, Harlow created his now-famous cloth surrogate monkey mothers and placed them next to metal wire surrogate mothers, the latter of which provided milk via a feeding bottle. Contrary to popular belief and the so-called cupboard-love theory (which states that an infant loves his mother primarily because she provides food), the monkeys preferred the contact comfort of the soft cloth nonfeeding mother over the cold, metal, feeding one (Harlow, 1958; Harlow & Zimmermann, 1959). Warmth and physical contact appeared to be innate. Harlow's findings, once again, contradicted accepted ideas in psychoanalysis and drive reduction theory (Suomi et al., 2008). When Harlow was elected President of the American Psychological Association in 1958, his

presidential address, "The Nature of Love," included the findings of this study and received widespread attention.

### **David Julius and Arden Patapoutin – Deciphering the Science of Touch**

A human being perceives and experiences the world around him or her through the five senses. In the past several decades, we have gained some insight into how the human body perceives and responds to light, sound, smell, and taste. Scientists have long struggled to understand how we perceive touch, whether hot or cold, squeezed or strained or felt physical pain. The late 1990s and early 2000s were the years when David Julius and Ardem Patapoutian, working independently in the United States, discovered how our bodies detect touch and how they communicate with the nervous system to identify and respond to a particular touch (C. Stangor, 2014). Humans have molecular sensors that are sensitive to heat and to mechanical pressure, which makes us feel hot, cold, or the touch of a sharp object. The world of today is filled with artificial sensors. Thermometers are very common temperature sensors. Even when exposed to heat, a table or bed cannot detect changes in temperature, but a thermometer can (Amitabh Sinha, 2021). The molecules in the human body do not sense heat when they are exposed to it. It is only very specific proteins that do this, and it is their job to relay this information to the nervous system, which in turn triggers an appropriate response. Until Julius discovered the first heat receptor, scientists knew such sensors must exist, but could not identify them. Humans are capable of sensing heat, cold, and pressure, which is similar to many detectors that we are familiar with. When smoke exceeds a certain threshold, a smoke detector, for instance, emits an alarm. The heat receptors in nerve cells facilitate the passage of calcium ions through their membranes when someone touches them with something hot or cold. On a specific request, it opens up. As the chemical enters the cell, it alters the electrical voltage, which is picked up by the nervous system (David Julius & Ardem Patapoutin, 2020)

### **Emotional Health**

The COVID-19 pandemic is a unique challenge for societies around the world. Changes in people's basic social habits were important in slowing the spread of infection. For example, citizens should engage in "physical distancing," what the World Health Organization (WHO) calls "social distancing" to minimize close contact with others. In particular, the term changed during the pandemic due to the importance of encouraging social interaction (e.g., virtual communication). Indeed, social contact and support in the form of text messages (Onoda K, Okamoto Y, Nakashima K, Nittono H, Ura M, Yamawaki S. 2009) have a positive effect on tragedy. (Park KO, Wilson MG, Myung SL, 2004) as well as physical health (Uchino BN. 2006) (Ditzen B, Heinrichs M. 2014) Social support and health: a review of

physiological processes potentially underlying links to disease outcomes .Social support behavior alleviates multiple stress systems, including the autonomic nervous system and the hypothalamic-pituitary-adrenal axis (Ditzen B, Heinrichs M. 2014), via neuropeptides involved in social bonding and affinity behaviors, such as oxytocin (Heinrichs M, Baumgartner T, Kirschbaum C, Ehlert U. 2003). Neuroimaging studies have also shown that social support reduces activity in brain regions involved in emotion regulation (e.g., anterior cingulate cortex, dorsolateral and ventral prefrontal cortex) (Coan JA, Schaefer HS, and Davidson RJ. 2006). (Eisenberger NI, Taylor SE, Gable SL, Hilmert CJ, Lieberman MD. 2007) Touch, on the other hand, is a particularly effective form of (non-verbal) communication support that contributes to the formation and maintenance of social bonds (Hertenstein MJ, Keltner D, App B, Bulleit BA, Jaskolka AR. 2006) (Kirsch LP, Krahe C, Blom N, Crucianelli L, Moro V, Jenkinson PM, Fotopoulou A. 2018) (von Mohr M, Kirsch LP, Fotopoulou A.2017). The potential benefits of sensors have been widely explored from animal studies to human developmental psychology and neuroscience studies (Harlow HF, Zimmerman RR. 1959) (Nelson EE, Panksepp J. 1998) (Sharp H, Pickles A, Meaney M, Marshall K, Tibu F, Hill J. 2012) (Maitre NLet al. 2017) (Debrot A, Stellar JE, MacDonald G, Keltner D, Impett EA.2020) On the one hand, social contact is considered to have positive hedonic values that promote prosocial behavior (this value is obviously context-dependent, i.e.contact is not always pleasant or pleasant) (Löken LS, Olausson H. 2010) For example, touch increases human taste (Burgoon JK, Walther JB, Baesler EJ. 1992) (Fischer JD, Rytting M, Heslin R, Fisher JD, Rytting M, Heslin R. 1976) (Hornik J. 1992) and increases generosity and softness (Crusco AH, Wetzel CG. 1984) (Joule R-V, Guéguen N. 2007). On the other hand, social contact acts as a form of strengthening and consolidating alliances (Dunbar R. 1997) (Dunbar RIM. 2010). For example, caring is often observed in non-human mammals, such as maternal behavior, where neurotransmitters involved in social bonding (eg, oxytocin) mediate these effects (Amico JAet al. 2004.) For humans, nurturing touch is essential for infant development and adult well-being and bonding. By increasing positive emotions, touch actively reduces the child's stress (Stack DM, Muir DW. 1992) (Feldman R, Singer M, Zagoory O. 2010) and soothes the child's pain or discomfort (Maitre NL et al.2017) In the context of attachment theory, research (Bowlby J. 1969) supports the role of contact in facilitating social bonds between infants and caregivers (Ainsworth MS. 1979, Weiss SJ, Wilson P, Hertenstein MJ, Campos R. 2000, Beebe Bet al. 2010). Contact is common in intimate relationships (Sorokowska Aet al.2021) and has a lasting effect on human bonds. For example, a recent study found that romantic couples' self-reports of mutual care are positively correlated with relationship quality and prior experiences of marital

love.(Beebe Bet al) Certain touches also have pain-relieving and stress-relieving effects mediated by neurobiological pathways involved in social communication (Korosi A, Baram TZ. 2010). In humans in particular, social contact has been proposed as a stress buffer that plays a key regulatory role in the body's response to acute life stresses, including cortisol and heart rate (Ditzen B, Neumann ID, Bodenmann G, von Dawans B, Turner RA, Ehlert U, Heinrichs M. 2007), ultimately promoting social bonding (Morrison I. 2016). For example, touching a teddy bear reduces feelings of social isolation and increases prosocial behavior (Tai K, Zheng X, Narayanan J. 2011). Similarly, studies have shown that touches such as slapping the wrist or massaging the back of the hand can reduce feelings of social isolation and loneliness (von Mohr M, Kirsch LP, Fotopoulou A.2017) (Heatley TA, Dunbar RIM, Montero M. 2020). Furthermore, functional neuroimaging studies have shown that when social support (e.g., a romantic partner holding hands) is provided during periods of threat, neural responses generally associated with emotion regulation are attenuated [Coan JA, Schaefer HS, Davidson RJ. 2006, Krahe C, Drabek MM, Paloyelis Y, Fotopoulou A. 2016, von Mohr M, Krahe C, Beck B, Fotopoulou A. 2018]. According to the idea that we have adapted to the presence and active care of other relatives (Beckes L, Coan JA. 2011, Coan JA. 2011, Decety J, Fotopoulou A. 2015), emotions and self-esteem are shaped by early social interactions, including contact (Atzil S, Hendler T, Feldman R. 2011, Fotopoulou A, Tsakiris M. 2017). Consequently, it is not surprising that contact deprivation is associated with negative outcomes. For example, tactile deprivation has been associated with speech learning difficulties (Thayer S. 1986), sleep problems and poor school performance (Hart S, Field T, Hernandez-Reif M, Lundy B. 1998), and aggression in children (Field T. 2002). Touch deprivation is associated with higher mood and anxiety symptoms in adults (Floyd K. 2014), depression (Stein N, Sanfilipo M. 1985), perceived loneliness (Heatley TA, Dunbar RIM, Montero M. 2020), and overall poorer health. However, due to physical separation regulations in place during the COVID-19 pandemic, our ability to provide and receive this type of support has most likely been hampered. This is especially dangerous because the pandemic has signaled a period of global uncertainty, with various mental health consequences such as increased loneliness and anxiety and depression symptoms (Rajkumar RP. 2020).

In a study participant (N = 1,746) were asked to complete an online survey to examine their contact experiences during COVID-19 and their relationship to a person's psychological well-being, particularly anxiety and loneliness. Specifically, it investigated whether the volume of contacts received from intimate, friendly, or professional sources in the past week (i.e., during the social disruption caused by COVID-19) differentially

affected the aforementioned measures of well-being. Given that contact is stronger when provided by a loved one (von Mohr M, Krahe C, Beck B, Fotopoulou A. 2018,) and that its moderating effect is mediated by psychological intimacy (Debrot A, Schoebi D, Perrez M, Horn AB. 2013), we expected last week that the more intimate the contact, the more the better the well-being. In contrast, during periods of social disruption due to COVID-19 (when there was contact prior to COVID-19), the greater the lack of contact, the greater the expected well-being. We also investigated whether the number of days participants spent practicing social distancing while controlling no contact was related to how close, friendly, and professional participants would like to experience in the past week. Given that threats to social contact (e.g., exclusion or isolation) promote social reconnection and intimacy (Chester DS, DeWall CN, Pond RS. 2016, Maner JK, DeWall CN, Baumeister RF, and Schaller M. 2007) it was expected that the more participants experienced social distancing, the more contact they would want in the previous week. It is also known that different people have different degrees of tactile sensation. In fact, some people may refuse to experience physical or social risks when they are present (von Mohr M, Fotopoulou A. 2018). The results investigated whether individual differences, such as (ii) adult attachment styles and (ii) contact attitudes and experiences, affected desire for contact in the past week (during the COVID-19 lockdown). A well-validated questionnaire (Intimate Relationship Experience – Brief, ECR-S) was used to assess attachment styles in adults (Wei M, Russell DW, Brent M, and Vogel DL. 2007). This survey is designed for adult romantic relationships and uses a dimensional approach to generate scores for persistent anxiety and detachment. Given that attachment anxiety is characterized by a need for emotional closeness, fears of rejection and abandonment, and over-dependence on others, all of which appear to extend to touch perception (Krahe Cet al.2018), we expected individuals with higher attachment anxiety to report wanting to experience more touch in the previous week. Given that attachment avoidance is characterized by a desire for emotional distance as well as a resistance to trusting and relying on others, we expected people who scored higher on attachment avoidance to report wanting less touch in the previous week. In terms of positive attitudes and experiences with touch, we modified the Touch Experiences and Attitudes Questionnaire (TEAQ) (Trotter PD, McGlone F, Reniers RLEP, Deakin JFW. 2018) by selecting one item from each component (e.g., friends and family touch, current intimate touch, childhood touch, etc.). Individuals who scored higher on positive attitudes and experiences with touch were expected to want more touch. Furthermore, using the TEAQ's various components, we determined whether individual items predicted wanting to touch in the previous week. We were especially interested in the childhood touch component

because attachment representations are thought to emerge from early experiences with primary caregiver(s), and this may extend to touch behaviours (Stack DM, Muir DW. 1990, Field T. 2010). To investigate feelings of loneliness, we used the validated, short UCLA 3-item loneliness scale ('How often do you feel that you lack companionship?', 'How often do you feel left out?', 'How often do you feel isolated from others?') (Hughes ME, Waite LJ, Hawkey LC, Cacioppo JT. 2004) as a measure of loneliness, as well as a single question asking 'How often do you feel lonely?', as recommended by the Office for National Statistics (2018). Items were scored on a 4-point scale (0, Never, 3, Often) and a 5-point scale (1, Never, 5, Often/Always). Based on the three UCLA items, we computed a summed score for our measure of loneliness, which demonstrated good internal consistency with the single question measure of loneliness, Cronbach's = 0.79. As a result, we averaged these loneliness scores for each participant to create a loneliness index, as recommended by the NIH guidelines and the Office for National Statistics (2018), with higher scores indicating more perceived loneliness. The minimum and maximum possible scores are 0.5 and 7, respectively. The average loneliness score was  $M = 3.61$  (standard deviation = 1.62). To investigate whether different types of social touch (professional, friendly, and intimate) influence our wellbeing, we ran multiple regressions on the following outcome variables: anxiety and loneliness. Researchers entered as continuous predictor variables computed scores of lacks of touch in response to intimate, friendly, and professional touch on how this difference score was computed. This difference score (rather than 'touch experienced in the last week') was used to account for differences in tactile experience prior to the implementation of COVID-19 restrictions. However, we see the same pattern of results, albeit in reverse, when we look at 'touch experienced in the last week' instead (see electronic supplementary material). To avoid multicollinearity issues, continuous variables were mean-centered, and VIF scores were also checked. Given the correlation between anxiety and loneliness, we repeated the above regressions, but this time we included the other outcome variable (anxiety or loneliness) as a predictor. This was done to see if our variables of interest explained a statistically significant account even after accounting for the other psychological well-being index. Particularly, we anticipated a link between lower intimacy and increased anxiety and loneliness.

### Therapeutic Touch

“Touch therapy” or “massage therapy” may sound like some weird Berkeley idea, but it’s got hard science on its side. It’s not just good for our muscles; it’s good for our entire physical and mental health. Proper uses of touch truly have the potential to transform the practice of Medicine and they’re cost effective to boot. For example, studies show that touching patients with Alzheimer’s

disease can have huge effects on getting them to relax, make emotional connections with others, and reduce their symptoms of depression.

Tiffany Field has found that massage therapy reduces pain in pregnant women and alleviates prenatal depression—in the women and their spouses alike. Research here at UC Berkeley’s School of Public Health has found that getting eye contact and a pat on the back from a doctor may boost survival rate of patients with complex diseases. And educators, take note: A study by French psychologist Nicolas Gueguen has found that when teachers pat students in a friendly way, those students are three times as likely to speak up in class. Another recent study has found that when librarians pat the hand of a student checking out a book, that student says he or she likes the library more—and is more likely to come back. Touch can even be a therapeutic way to reach some of the most challenging children: Some research by Tiffany Field suggests that children with autism, widely believed to hate being touched, actually love being massaged by a parent or therapist. This doesn’t mean you should turn around and grope your neighbor or invade the personal space of around you. But to me, the science of touch convincingly suggests that we’re wired to—we need to—connect with other people on a basic physical level. To deny that is to deprive ourselves of some of life’s greatest joys and deepest comforts.

Famous studies have demonstrated that children — as well as the infants of non-human primates who grow up without affective touch have severe developmental issues and are unable to relate socially. Touching, and being touched, activate particular areas of our brain, thus influencing our thought processes, reactions, and even physiological responses. For example, one study reports that brain scans have revealed that affective touch activates the orbitofrontal cortex Trusted Source, a brain region associated with learning and decision-making as well as with emotional and social behaviours (Jablonski, 2021) Certain experiments have also suggested that romantic kissing is an important tool — particularly for women — when it comes to choosing a partner, because the personalized chemical cocktail found in an individual’s saliva conveys important information to the brain about their physiological compatibility. Touch can also be reassuring and calming for a person in distress, since it can communicate an offer of support and empathy (Raffle, Wlodarski & Dunbar, 2014).

A study from Sweden — the findings of which were published last year in the journal *Research, Language and Social Interaction* — found that embracing and patting children in distress has a soothing effect for them (Anna Ekstrom & Cekaite, 2020) .In such a circumstance, the study authors explain, the interaction involves the adult signaling that they are available to offer soothing contact,

followed by the child's acknowledgement of this invitation and positive response to it. The interaction and coordination involved with this scenario allow the child in distress to regain a sense of security and reassurance. As a result of this, there are also many debates surrounding the use of touch during counselling, mainly asking whether the potential benefits outweigh the ethical perils. Scientists recognize Trusted Source that touches valuable therapeutic potential and that some people might benefit from receiving a reassuring pat on the shoulder when they are feeling down.

### **How does therapeutic touch work?**

Scientists are not certain how therapeutic touch works, however, they have two theories: One theory is that the pain associated with a physically or emotionally painful experience, such as infection, injury, or a difficult relationship, remains in the body's cells. The pain stored in the cells is disruptive, and prevents some cells from working properly with other cells in the body. This causes disease. Practitioners believe therapeutic touch promotes health by restoring communication between cells. The other theory is based on the principles of quantum physics. As blood, which contains iron, circulates in our bodies, it produces an electromagnetic field. According to this theory, at one time we could all easily see this field, called an aura, but now only certain people, such as those who practice therapeutic touch, develop this ability. More generally, therapeutic touch is based on the idea that good health requires a balanced flow of life energy. Practitioners of therapeutic touch say they sense your energy through their hands and then send healthy energy back to you. When receiving therapeutic touch, people usually feel warmth, relaxation, and pain relief. The practitioner describes your energy as hot or cold, active or passive, blocked, or free. There are 8 general regions of the body where energy is sensed, the head, throat, heart, stomach, lower abdomen, sacral region, knees, and feet. Ultimately, the person who receives therapeutic touch is the receiver and the facilitator is generally the healer the practitioner simply allows your body's own healing mechanisms to come out. The role of the practitioner is to help this process. Relatively recent surveys among psychotherapists reveal that nearly 87% of them touch their clients (Tirnauer, Smith, and Foster, 1996), 85% hug their clients (Pope, Tabachnick and Keith-Spiegel, 1987), and 65% consider this type of touch, while not a technique in the strictest sense, an essential asset to talk psychotherapy (Schultz, 1975)

### **Benefits of touch and intentions**

According to Bonitz (2008), therapeutic touch allows the psychotherapist to help the client work through certain resistances, to communicate a symbolic acceptance as we are, and to offer an anchoring opportunity. Other authors push this further and present touch as being humanizing and nourishing for the clients (Phelan, 2009). The benefits

of including touch within the therapeutic relationship can be enriching (Westland, 2011) for many reasons, including

- 1) Containing, providing security, reorienting, and bringing back to reality traumatized clients;
- 2) Calming and stabilizing the autonomous nervous system and fostering a sense of security via the non-verbal, as well as restoring the psycho-physiological system of clients deregulated on this level;
- 3) Inciting an emotional reaction, an abreaction, a relief, to reduce the resistance of certain clients;
- 4) Symbolic re-parenting;
- 5) Exploring and differentiating the notions of aggression and pleasure;
- 6) Increasing and encouraging the circulation of body energy and deepen breathing;
- 7) Deepening the experience in the therapeutic relationship while maintaining the client's attention and encouraging the exploration of his past as well as discovering and exploring the relational needs of the client,
- 8) Encouraging authenticity in the therapeutic relationship and feeling of acceptance, allowing for the emancipation and natural and spontaneous expression of the client.

### **Intending as doing**

Most theories of intention see intentions as mental states that are closely related to actions but may occur without the corresponding action in question. Elizabeth Anscombe and her followers provide an alternative account that denies the distinction between intentions and actions. On this view, to intend a goal is already a form of acting towards this goal and therefore not a distinct mental state. This means that when one intends to visit the zoo next Thursday, one is already on the way to doing so. An important strength of this account is that it gives a unified explanation of intentions: it does not need to distinguish between prospective and immediate intentions since all intentions are immediate intentions.

An obvious counterargument to this position is that, in the example of the zoo above, one is not currently doing anything towards realizing this plan. Defenders have rejected this argument by trying to elucidate how even minimal preparatory steps may already be seen as part of the action. Such steps may include, for example, not making any other plans that may interfere with the plan in question, like planning a different appointment at the same time at a different location. Another objection is based on the observation that not all intentions are successful, i.e. that one can intend to do something but fail to do it. For example, one may intend to follow the shortest route home but take a wrong turn and thereby fail to perform the corresponding action. In such cases, it may be argued that the intention was present whereas the action was absent, i.e. the agent intended to take the shortest route but did not

take the shortest route. The possibility of the two coming apart would suggest that they are not identical.

### **Power of intentions**

Implementation intentions are formed by a conscious act of will. Their effects, however, come about by automatic, effortless action control that is based on the following psychological mechanisms. First, specifying an anticipated critical situation in the if-component of the implementation intention (i.e., the sunny morning) serves to heighten the activation of its mental representation (i.e., sunny mornings are more noticeable to you). As a consequence, the critical situation is more easily recognized, more readily attended to, and more effectively recalled. Second, implementation intentions facilitate goal pursuit by making the planned response (specified in the then-component) automatic in response to that critical situation. Once a link is formed between the anticipated critical situation and the goal-directed response in the form of an if-then statement, the individual encountering the situation is able to enact the response immediately, efficiently, and without a second act of conscious will. In other words, when our aspiring athlete sees the sun when she wakes up, she'll think "I'll walk to work"—right away, without effort, and without having to decide again what she should do on sunny mornings to achieve her goal of exercising more. This automaticity has been supported in several studies demonstrating immediacy (i.e., quicker responding), efficiency (i.e., requiring fewer cognitive resources), and the redundancy of consciousness (i.e., initiation occurred even without conscious awareness of the presence of the critical situation). By creating strong mental links between an anticipated situation and a planned response, implementation intentions allow people to work toward their goals automatically, like a habit formed through the pairing of situations and responses repeatedly in daily life. Implementation intentions, for this reason, have been said to create instant habits or strategic automaticity.

First, once a goal has been set, people often fail to initiate goal-directed responses when given the opportunity. There are a number of reasons for this: Individuals may fail to notice that an opportunity to get started on their goal pursuit has arrived, may be unsure of how they should act when the moment presents itself, or may simply forget about their goal when busy with other things. As described earlier, implementation intentions make the critical situation easier to notice and the response easier to perform. It is not surprising then that implementation intentions reduce this problem of getting started on one's goals even when busy with other things. In one study, implementation intentions helped individuals perform the necessary behavior when their goal intention (i.e., writing about their Christmas Eve) had to be performed at a busy time (i.e., during Christmas Day). Or, in another study, individuals who formed implementation intentions about

when and where to exercise were more likely to exercise at the place and time specified and therefore more likely to achieve their overall goal to exercise more. Implementation intentions have helped people achieve other health goals, such as regular breast self-examination, cervical cancer screenings, mammography, medication compliance, and healthy eating. Moreover, implementation intentions were found to facilitate the attainment of goals that are easy to forget (e.g., regular intake of vitamin pills).

Second, individuals may fail to achieve their goals because they get derailed from a goal-directed course of action. Because many goal pursuits entail continuous striving and repeated behavioral performances, one must shield goal pursuit from distractions. These distractions can come in the form of temptations, moods that can unknowingly affect one's ability to succeed, or habits that compete with one's chosen course of action. For example, implementation intentions were found to block the distracting effects of temptations in the form of entertaining advertisements (during a math test) by inhibiting attention to the distraction. Implementation intentions were also found to effectively counteract the adverse effects of moods for goal pursuit. Implementation intentions can also protect goal pursuit from unwanted habits (e.g., ordering unhealthy food in a restaurant) in favor of a newly set change goal (e.g., eating healthy food). Research has found that habitual eating behaviors and implementation intentions each have an independent effect on subsequent healthy eating. That is, no matter whether the old unhealthy eating habits were weak or strong, implementation intentions improved the individual's diet. Prejudicial feelings and stereotypical beliefs are another habitual response that can be managed with implementation intentions; implementation intentions helped participants suppress the automatic activation of prejudicial feelings and stereotypical beliefs when mere fairness goals could not.

Third, individuals may fail to achieve their goals because they become rigid in their goal pursuit. They may either need to disengage from their goals because of new information that changes the value of the goal, or they may need to switch their means of approaching that goal because it has become ineffective.

Chocolate tastes delicious, getting slapped hurts, and cuddling is enjoyable, thus it would appear that the experience of physical stimuli is mostly determined by their physical attributes. However, study conducted by (Gray, 2012; Gray & Wegner, 2008) investigated whether the social environment in which stimuli occur has an impact on physical sensation. Three studies specifically looked at whether perceptions of good intentions underlying stimuli might enhance one's experience. Whether benevolently meant shocks hurt less was the subject of Experiment 1, whether benevolently intended

massages were more enjoyable, and whether benevolently intended sweets is sweeter as the subject of Experiment 2. The findings demonstrate that good intentions, even those that are wrong, may reduce suffering, heighten pleasure, and improve the quality of food. More generally, these investigations imply that our perception of other people's brains affects our ability to have a fundamental physical experience.

Another research study conducted by Milne 2002, divided participants into three groups. The control group was the first one. Simply keeping track of how frequently they worked out was requested. The "motivation" group made up the second group. Along with tracking their exercises, they were required to read some articles on the advantages of exercise. The researchers also discussed with the group how exercise might enhance heart health and lower the risk of coronary heart disease. The third group was the last to arrive. To ensure that they were equally motivated, these participants attended the identical presentation as the second group. They were also required to create a schedule for their workouts the next week, including when and where. Specifically, each member of the third group completed the following sentence: "During the next week, I will partake in at least 20 minutes of vigorous exercise on [DAY] at [TIME] in [PLACE]." Results reveal in the first and second groups, 35 to 38 percent of people exercised at least once per week. (Interestingly, the motivational presentation given to the second group seemed to have no meaningful impact on behavior.) But 91 percent of the third group exercised at least once per week—more than double the normal rate.

Modern therapy focuses on developing skills and learning tools to help you overcome life's challenges. Understanding is no longer the primary goal. It helps you learn to accept your own qualities and those of others. You can also learn to endure the discomfort of the difficult and often scary but necessary things in life, like asking for a raise or having a difficult conversation with your partner. You can do things like ask for a raise (retardation) in the therapist's office.

Reiki is an energy healing method that originated in Japan at the beginning of the 20th century. (Earl E. Bakken) Right Arrow According to the International Reiki Training Center, this exercise is based on the idea that within all of us there is an invisible "life force energy" that flows through our bodies. Right Arrow the Reiki Practitioner gently moves the hand over or over the client's clothed body to reduce stress and promote healthy energy flow to promote healing. An earlier study by the National Institutes of Health found that 1.2 million adults and 161,000 children in the United States received energy therapies like Reiki last year. (National Health Statistics Reports, 2007) Reiki is now used by more and more Americans to help with relaxation, anxiety, pain

management and depression popular belief (Holistic Nursing Practice) Effects of Reiki on Pain, Anxiety, and Blood Pressure in Patients Undergoing Knee Replacement: A Pilot Study is related to a phenomenon known as "biofields"(Paula Derrow and Moira Lawler, 2021). The biofield is a type of electromagnetic field that permeates and surrounds all living things. Anne L. According to Dr. Baldwin, a Reiki researcher and professor of physiology at the University Of Arizona College Of Medicine, the field extends more than 15 feet into the human body. For example, to regulate the heart rate, the heart produces an electrical field that can be measured using an electrocardiogram, or ECG (Thrane, 2014). The brain produces an electric field at a lower level than the heart. Basically, every cell in the body creates a magnetic field by generating positive and negative charges. Practicing Reiki can help treat a variety of physical and emotional problems, including insomnia, stress, depression, anxiety and pain. For example, Reiki has been shown to reduce anxiety, stress and pain in people undergoing surgery in research. In a 2017 study of 46 knee replacement patients, researchers divided them into three groups. The second group received the same number of placebo (sham) Reiki session and the third group did not tease Reiki. Upper right arrow each group received standard care. The researchers found that those who received Reiki experienced significant reductions in pain, blood pressure, respiratory rate and anxiety before and after surgery, significantly more than those who did not. Apart from reiki, anchoring can a therapeutic touch Anchoring is a neuro-linguistic programming term that refers to the process by which memory recall, state change, or other responses become associated with (anchored to) some stimulus, such that perception of the stimulus (the anchor) leads to the anchored response occurring by reflex. The stimulus could be completely neutral or even outside of conscious awareness, and the response could be positive or negative. They can be formed and reinforced by repeated stimuli, making them similar to classical conditioning. In essence, basic NLP anchoring entails eliciting a strong congruent experience of a desired state while using some notable stimulus (touch, word, sight) at the time this is most fully realized. In many cases, repetition of the stimulus will result in recurrence. Several analgesics can be used to relieve pain, but side effects and non-medical factors in women suggest that analgesia alone may not be sufficient (Chang et al., 2002; Sai et al., 2019). Nurses must also provide self-comfort during the labor process in order to manage labor pain (Chang et al., 2002). As a result, some non-pharmacological treatments to reduce labor. Touch and massage are two types of pain that a nurse can cause. Touch and massage on the back can help relieve muscle spasms, especially in pregnant women who suffer from back pain. Several studies have found that using light touch techniques can help to normalize heart rate and blood pressure. This technique involves using a light

touch and massage to create fine hairs on a standing skin surface. Several studies have also shown that this technique massage can distract labor pain, stimulate endorphins, and increase endorphin release (Gibson, 2014; Gönenç & Terziolu, 2020; Roberts et al., 2010). It can be done independently by a nurse because no oil or instruments are required (Smith et al., 2018). From the early to mid-twentieth century, conditions in modern technologically-based Western countries did not provide much support for those wishing to practice healing. The dominant paradigm for health, disease, pain, and suffering held that the mind and body were distinct entities. Science and the physical world were valued more than the emotional and mental realms. We were, in a sense, stepping away from ourselves. With health care increasingly reliant on technology, we often spent more time interacting with machines than with the living and breathing. The balance had shifted too far to one side, and when scales are tipped too far to one side, they cannot move any further. According to this attitude stands in stark contrast to that found in both modern and ancient Eastern societies. Ayurvedic, Chinese, and Tibetan perspectives on health, disease, and healing, for both the living and the dying, are based on a more holistic framework in which the duality of mind and body, of matter and energy, does not exist. Healing is prioritized over curing in these systems. And the universal cycle includes birth, life, and death. The most general definition of healing is a return to wholeness and order. This could be as simple as pain relief, or it could be a flash of insight that leads to a better understanding of oneself. In the West, we easily understand objectively measurable energy. Mainly electrical, magnetic and thermal energy. For example, EKGs and EEGs are scans of subtle temperature changes in body parts that measure patterns of electrical energy in the heart and brain. We have used pulsed electromagnetic fields for decades to accelerate bone healing in complex or slow-healing fractures. The body, emotions, thoughts, and inner self (also known as the higher self, soul, or spirit) are subtle forms of energy in both ancient and modern holistic health systems. According to a National Institutes of Health (NIH) study, there are at least 52 names for this energy in various cultures and languages. The Chinese refer to it as chi, while the Indians refer to it as prana, and other names include mana, ether, orgone, bio magnetic, and zero point. Humans, animals, plants and all other living things are bioenergetics structures that live in the physical world as an energy field system and constantly interact with each other and with the environment. These energy fields permeate space. The body can be considered the densest location of energy. The other types of energy that make up these systems are intuition, emotional, mental, vitality or etheric energy. In humans, the local concentration of these energies creates the Human Complex Energy Field (HEF), a holistic, dynamic and interdependent system. Consciousness resides in this energy and adds form, movement and order.

This energy is dynamic and guided by discipline and compassion. There is also a higher level of energy, the inner self that exists in this universe seeing order and unity. The inner self can be defined as the highest expression of the self. All forms of energy, all levels of consciousness (physical, etheric, emotional, and mental) and the inner self are all aspects of the human energy field. Visually, this energy radiates from us like waves in a pond. (Sue wright, 2006) Touch is a very intimate experience that occurs at close quarters, well within our personal space. While some may think its fine, others may feel violated and despise the touch of another. Aside from potentially destroying rapport, the nature of the therapeutic issue they mention may involve physical issues of some kind. However, when hypnotized, the client is focused. When under hypnosis, the client's attention is drawn inward, and they are frequently deeply immersed in their own ongoing experience. Being touched can completely shift their focus, reconnecting them with the outside world, which many hypnotherapists consider to be the inverse of deepening hypnosis - they are being lifted upwards, so to speak. If someone touches repeatedly, it is possible that the entire system will be ruined. Furthermore, if someone is eased, as many hypnosis sessions are, being touched may cause the client to be startled for a moment; hop or experience a minor physical shock. Even if they are used to being touched, they may be startled if they are touched while relaxed. It can be frightening to be touched while relaxed by anyone at any time, let alone while in the middle of a hypnosis session with your eyes closed and no anticipatory cues. (Adam Eason, 2011).

### **Blockages while receiving or giving energy**

Occasionally, despite a counsellor's best efforts, some clients fail to act in their best interests and negatively respond to all counselling interventions. These clients are often called oppositional, reactionary, noncompliant, intractable, and unmotivated (Dowd, 1989). The behaviours displayed by these difficult clients are often collectively referred to as resistance. In clinical terms, resistance is defined as "a process of avoiding or diminishing the self-disclosing communication requested by the interviewer because of its capacity to make the interviewee uncomfortable or anxious" (Pope, 1979) One of the reasons behind resistance behaviour of clients could be secondary gain. In psychoanalytic theory, the advantage derives from neurosis in addition to the primary gain of relief from anxiety or internal conflict. Advantages may include extra attention, sympathy, avoidance of work, and domination of others. Such gains are secondary in that they are derived from others' reactions to the neurosis instead of from causal factors. They often prolong neurosis and create resistance to therapy. Also called advantage by illness.

Clients naturally weigh trusting a perfect stranger with personal issues, as well as their fear of rejection. In some

cases, such reluctance may be due to the level of trauma or physical and mental harm a client has sustained (as in cases of child or spousal abuse) increasing the difficulty for them to open up to a counsellor. In other cases, what may look like resistance is actually a product of culture. Such behaviour needs to be recognized by counsellors as separate from resistance. Resistance can also be a frustrating symptom of the root issue that's brought a client in for counselling. Mindset of an individual plays a crucial role in determining the effect and span in which the healing process will take place. Mindsets are lenses or frames of mind that orient an individual to a particular set of associations and expectations. Mindsets, like beliefs, guide attention and motivation in ways that shape physiology and behaviour; they are related to but distinct from heuristics, which are mental shortcuts used to make decisions under uncertainty and allow individuals to make decisions quickly and efficiently to solve problems. Sometimes grounded in facts and sometimes not, mindsets are biased or simplified versions of what is right, natural, or possible. When a person comes in for counselling or therapy with the mindset of only talking touch may not be appropriate without consent as they may not be open to it or expecting it. This could interfere with their receiving capacity and overall session. However, when they enroll specifically for a healing session where they are well aware that touch could be one of the mediums to heal, when they are aware they are more receptive to the same as they come mentally open for the same.

### **Why and how to remove blockages**

There are various theories explaining the reason behind client's resistance to therapy. Some of these theories include: Psychoanalytic model of resistance

Freud's model suggests that resistance results from the patient's confrontation with unresolvable conflicts. According to this theoretical framework, the ego has several specific defenses, such as "Denial, sublimation, isolation, intellectualization, displacement, and regression, projection, and reaction formulation" (Leahy, 2003). As a result, clients may be unaware of their actual problems because their defenses protect them from the truth, exhibited as resistance (Leahy, 2003).

Behavioural models of resistance

Behaviourists may not like the term resistance, but they recognize that clients often fail to comply with therapeutic instructions (Leahy, 2003). According to the behavioural model, the "failure of the patient to comply with therapy may be the result of inappropriate reinforces or reinforcement contingencies" (Leahy, 2003). Resistant behaviour may occur when positive actions are not reinforced immediately or the client has to wait for their desired result.

### **Cognitive models of resistance**

In cognitive models such as Albert Ellis's, resistance is often the result of unrealistic expectations and other irrational beliefs. According to such models, resistance, like other irrational beliefs, requires head-on confrontation. The client must be helped to surrender irrational beliefs to move forward (Leahy, 2003).

Modern definitions come from social interaction theory, Mitchell says, and indicate that resistance doesn't exist until a counsellor and client have a conversation; resistance is borne out of the interaction style. "This says if what you're doing with the client is not working, then do something else because your interaction is creating resistance," he says. "The beauty of viewing resistance from a social interaction theory is we're empowering ourselves to do something about it." Mitchell defines resistance as something "created when the method of influence is mismatched with the client's current propensity to accept the manner in which the influence is delivered." The concept of counsellors focusing exclusively on their interactions with clients and letting change happen on its own is key to the successful management of resistance and the pivotal point of effective therapy, says Mitchell.

The skin on our body, which is actually the largest organ, when touched or we touch something the mechano-receptors in the skin are activated, and they start a chain of events by signaling to the nearest neuron that they touched something. This neuron then transmits this message to the next neuron which gets passed on to the next neuron and on it goes until the message is sent to the brain. And the brain interprets the meaning of touch. In line, with this study was conducted by specialists from Pennsylvania State University in State College has found that negative moods may change the way in which the immune response functions and thus blockage of energy which leads to the illness. If the emotion is not released the energy does not have an exit and gets locked into the body causing physical and psychological issues. This, researches provide evidence that by using the power of touch we can manipulate the flow of energy throughout the body which in turn helps to promote healing and restore the body's ability to heal itself and intention supports the healing. In a Chinese Hospital in 1996, a group of doctors placed their hands on a woman with a bladder cancer tumor. As they placed their hands on the bladder area, they repeated a mantra over and over as the cancer disappeared. Therefore, it was possible through the power of intention and touch.

To understand the power of touch and intentions it is important to understand Energy Psychology which states that we are all energy and matter. This is clearly proven as we can see electromagnetic fields in the MRI and the EEG shows electromagnetic waves in the brain. Clearly stating that we are Energy and matter are intertwined. Today we

also have ways to measure the energy field and it is done using a scientific method GDV (gas discharge visualization) also known as ELECTROPHOTONIC IMAGING. Through this you can see what's going wrong with your magnetic energy and it captures images of phenomena not quantifiable by the naked eye.

Furthermore if we are experiencing physical or emotional pain, disease, or problems of any kind, there is a disruption in the energy field that surrounds your body and now it's possible to see that field, measure it and further take action to make your life better. Japanese researcher and healer, Dr. Masaru Emoto, conducted experiments on water molecules. These experiments showed human thoughts and intentions can physically alter the molecular structure of water. Words have been found to affect water crystals. Whether in thought, vocal or even written. Our body is 70% water and when we combine the power of our hands (TOUCH) and a loving intention, we can change the well-being of our body within seconds. Water is a conductor of consciousness. We are 70 percent water. So if we add an energy vibratory intention to water, it can change the molecular structure of the water.

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