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Meanings of hugging: from greeting behavior to touching implications

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Abstract

The aim and focus of this article is to present some circumstances under which hugging occurs, as well as to describe its development from a focus on greeting behavior to therapeutic effects, reflected in emotional, physiological, and biochemical alterations. The sensation of a hug for a single person also can be evoked with electrical brain stimulation. The purpose of this article is to clarify understanding of the circumstances under which this type of behavior presents itself in Western culture. Based on published literature as well as personal observation, the article points to the fact that hugging is not only a part of greeting behavior, but also has its place as a display of empathy and /or gratitude. The importance of hugging from childhood to adulthood is discussed and clarified. The psychological and physiological ramifications of this behavior are discussed.

The word "hug" is originally derived from the Saxon and Teutonic words "hog" or "hagen," which means "to be tender of, to embrace" (Kluge & Götze, 1930). These words have influenced Ancient Norse "höggva, haggvan" and also the modern Swedish word "hugga," which among other things means "ta fatt, infånga" or "to catch or seize." "Embrace" has a Latin origin with the Latin prefix *em* meaning "here you are" and *brace*, from the word "braccia," which in the combination "braccia collo circumdare" means "put one's arms around." More specifically, a "Salutation Display demonstrates that we wish someone well, or at the very least, that we wish them no harm. It transmits signals of friendliness or the absence of hostility" (Morris, 1977, p. 77). A salutation display may consist of behaviors such as handshaking, hugging, embracing, and kissing. Hugging often occurs when people part or when having received a gift (Morris, 1977), although sometimes a hug may represent a symbolic gesture, like that between statesmen. In some situations, it may represent an ideological position like that of "tree huggers" demonstrating their ideological beliefs by literally hugging and, thereby protecting, trees.

In the Western world, introductory greeting behavior often starts with handshaking and continues with presenting the name of the promoter of the greeting (Åström, 1993). Greeting behavior varies from a nod to a colleague or acquaintances to a closer salutation consisting of a handshake with a hug (defined as enclosing and pressing each other's bodies and sometimes kissing), most often reserved for intimate friends and loved ones. These behaviors may occur in both greeting and parting situations.

Hugging behavior has been studied in the light of anthropology, anchored in communication theory, which includes many facets, e.g., facial expressions such as looking and smiling, kinesics, i.e., all discriminable bodily movements (Harper, Wiens, & Matarazzo, 1978), and proxemics, i.e., "how we structure, use, and are affected by space in our interactions with others" (Harper, Wiens, & Matarazzo, 1978. Preface. p. xii). Morris (1977, p. 81) described body contact as, "... consists of a total embrace, bringing both arms around the friend's body, with frontal trunk contact and head contact. There is much hugging, squeezing, patting, cheek-pressing, and kissing. This may be followed by intense eye-contact at close range, cheek-clasping, mouth-kissing, hair-stroking, laughing, even weeping, and, of course, continued smiling." Hugging occurs in such situations and is expressed in many social contexts, for example, when saying good-bye after parties, or as a gesture of empathy or comfort.

Generally speaking, research shows that most people acquire visual, auditory, and tactile information during the initial short salutation display and may form some passing impression of the other person. Some, however, seem not to acquire, or at least seem not to utilize, this information during the handshaking phase (Åström, 1993). The “light hug,” as the first sign in introductory greeting behavior, often combined with kissing the cheeks and without handshaking, usually only exists in fashionable circles and is used during presentation.

History of greeting

To understand the origin of the hug, one can make comparison in the animal kingdom. Many species of primates have developed some sort of greeting mechanism for announcing the recognition of one another. Black-and-white colobus (*Colobus guerza*, a type of slender ape in the tropical forests of Africa), studied in captive groups, performed sexual mounting and embracing behavior soon after an aggressive act. In non-antagonistic situations, mounting was the most frequent greeting behavior and younger subordinate individuals greeted older ones more often than vice versa (Kutsukake, Suetsugu, & Hasegawa, 2006). There was no relation between inter-relatedness, affiliation frequency, and greeting behavior, but the greeting behavior functioned as a tension-reducing mechanism in non-antagonistic situations.

Waal and Roosmalen (1979) described a greeting pattern among the anthropoid apes. It consisted of two kinds of patterns of approach: the first one being an approach from the front and the second one being an approach from the rear, referred to as “presentation.” The frontal approach comprised the following greeting behavior: touching the face, shoulder, and arm with hand, face-to-face contact, and embracing each other in ventral-to-ventral and side-by-side positions. In each case, the behavior of patting on the back can accompany the greeting. The rear approach consists of touching the back with the hand and genital examination. The great difference between man and animals is that animals do not use kissing in greeting behavior. Animals also do not have farewell displays. Morris (1977) has discussed the similarities between the greeting behavior in anthropoid apes and humans in more detail.

One of the first human experiences in life for the newborn baby is lying in the arms of its mother nursing at her breast. The child receives many forms of parental touching during its growth, particularly embracing in the form of hugs, which become symbols for something positive: joy, security, and confidence. The child learns parts of the touching behavior of adults and is observed to hug himself, dolls, stuffed animals, living animals, and people, especially the parents.

From the very beginning, humans made a point of not showing hostility to people they met for the first

time, by laying down gifts before the person with whom they wished to get acquainted—a pattern of greeting still utilized today. As an example of this behavior, although there are few written descriptions of how humans have greeted each other in the past, ceremonial descriptions can be found in the Bible, as well as in religious texts of the Orient (Goffman, 1971; Kendon, 1990). For example, when Jacob saw his brother Esau coming toward him with 400 men, he gave his brother a peace offering in the form of livestock and bowed himself to the ground seven times, until he came near to his brother. “Then Esau ran to meet him and embraced him, and fell on his neck and kissed him, and they wept” (The Holy Bible; Genesis 33:3–5). Handshaking or hugging have become a common element during the peace ritual in the Holy Mass (Pope Pius IX, 1874; Jungman 1948). The peace of greeting as a symbol of brotherly charity got a distinct place in the theology of the Holy Communion (*Svensk Uppslagsbok*, 1956).

Variables in hugging behavior

Hugging is a closer and more affectionate form of greeting than is handshaking (Åström, 1993) and takes place in the first of the four interpersonal distance zones, i.e., the intimate or close distance (Hall, 1968). This zone and its close phase is about 0 to 15 cm distance between two individuals. The five most frequently mentioned variables of hugging (Straker, 2002) include hand placement (on shoulder, etc.), body position (front, side, behind), pressure (light, strong), body touching (none, full), and the sexes of the two people (different, same).

Hand placement refers to touching the greeted person’s arm or shoulder and is sometimes preceded by handshaking. During the hug, the hands may circle, rub, or pat the back of the greeted person. It is understood by both parties what the limits are of this particular friendly behavior. Another variation is putting one’s hand on the shoulder of the receiver, using firm pressure to indicate a closer connection. Sometimes, the greeting individuals stand some distance apart from one another, only hugging at the shoulders. This behavior may be an expression of fear of too close contact with one another. Touching an arm may communicate distinct emotions (Hertenstein, Keltner, App, Bulleit, & Jaskolka, 2006) for instance love, anger, and sympathy.

Body position front to front can express a range of possible emotional attachments from “friendly” to “romantic.” A side-by-side body position, as well as same-sex hugging, with an arm around the neck or shoulders of one another, is a “brotherly” or “sisterly” expression or can be indicative of a homosexual identification. Opposite sexes, side-by-side, with arms on each other’s shoulders, may mean nothing more than a friendly gesture. Touching and hugging by friends of the opposite sex are restricted to head, shoulders, back, arms, and torso in men. Frontal torso in females belongs to the ta-

boo zones (Jourard & Friedman, 1970), which are different in relation to same-sex and parental hugging. Everybody has a special sense of body privacy. "Taboo zones" vary from person to person and from culture to culture.

Pressure in hugging is often nothing more than a measure of appreciating each other, with harder pressure mirroring the extent of appreciation. Presence of only small pressure may mean a more expectant or a neutral attitude toward the greeted person.

Attachment and proxemics

Hugging is an important element in a child's emotional upbringing. Bowlby (1969), as well as his followers, Ainsworth, Blehar, Waters, and Wall (1978), have described how intimate and emotional boundaries are formed and how essential it is that a small child from the very beginning experience and integrate them. Bowlby, the originator of attachment theory, emphasized the importance of embraces and caresses followed by encouraging and affectionate language in the child's emotional upbringing. Early experiences of attachment make it easier, or more difficult, for the child to feel confidence in self and other people. Escoll (1992, p. 62) wrote, "Being held, moving away, looking, listening for mother's voice, climbing into mother's lap, touching her face, being hugged, and hugging back are all part of the process". Ainsworth, *et al.* (1978) identified three different patterns of attachment: secure, insecure avoidant, and insecure ambivalent attachment. These acquired patterns are mirrored in the child's and in the adult's ways of communicating, both verbally and nonverbally and can be witnessed in the individual's willingness to return hugs and caresses. Clinging children are often anxiety-ridden and have parents who are sometimes physically very close but mentally absent. The clinging behavior may continue into adulthood and be manifest in particular with a partner. There have been many previous reports in the media that staff members of orphanages in Eastern Europe have complete ignorance of the importance of hugging the children. As a consequence, many of these children have experienced serious illness later in life, up to and including death (Livingston Smith, 2010).

Closeness and touching are proxemic phenomena disclosing personality and psychopathology. In proxemics, or the study of personal space, evolutionary theory suggests a very close relation between genetic and environmental determinants (Patterson, 1991). The genetic determinant has previously been very little investigated. However, the environmental determinants affecting personal space in different cultural practices, *i.e.*, family structure, social roles, and child-rearing practices, have been the focus of many studies (Åström, 1993). Mutual interests, needs, and abilities seem to cluster individuals together in similar social situations. Snyder

(1983) asserted that the choice of social situations reflects aspects of one's personality, especially seen from the well-known personality variable of introversion vs extraversion (Eysenck & Eysenck, 1964). Liepold (1963), Patterson and Holmes (1966), Cook (1970), Patterson and Sechrest (1970), and Williams (1971) all reported that people who may be classified "extraverts" according to the Maudsley Personality Inventory (Eysenck & Eysenck, 1964) required smaller personal space, which would affect hugging behaviors.

Long, Calhoun, and Selby (1976) investigated the relations between neuroticism and psychoticism and consistency in selection of interpersonal distance based on multiple-regression analysis. They found that "Neuroticism was the strongest predictor of consistency, being negatively related to interpersonal distance setting across situations" (Harper, *et al.*, 1978, p. 266). Lett, Clark, and Altman (1969) reported that results of many investigations show the need for increased personal space is greater for psychologically disturbed participants, especially those with psychoses, *i.e.*, schizophrenics. Silverman, Pressman, and Bartel (1973) found that participants with low self-esteem and neurotics generally showed less tactile communication.

However, social situations set certain bounds to an appropriate behavior. Patterson (1991) mentioned Hall's Classification of Distance Zones (1968) as being applied to basic differences in the interaction's formality. For example, "Close distances with high levels of gaze and touch are more likely in casual, social exchanges than in formal, business exchanges" (Patterson, 1991, p. 470).

Gender and cultural differences in hugging

Henley (1973) reported that males, to a greater extent than females, initiated all forms of greeting behavior predominately by handshaking. The reason for this was thought to be males' need to display control and dominance. Similarly, Dertega, Lewis, Harrison, Winstead, and Constanza (1989) have shown that embracing and hugging are more common among females than males and that male hugging behavior in public, compared to that of their female counterparts, can be misconstrued as a homosexual behavior.

These differences between the sexes were absent in a former study by Stier and Hall (1984), as well as in a latter study by Hall and Veccia (1990), who found no differences between male and female dyads. Both studies did, however, establish the presence of more hugging and kissing behavior in female-female dyads, rather than more use of laying of hands on various areas of the body, such as arm, shoulder, back, etc. in male-male dyads.

Cultural differences in close greeting performances have been observed, illustrated, and described by Morris (1977). The basis of the display in all Western cultures is the full embrace, often followed by a kiss on the cheek, which in Russia and France is practiced also

in male-male dyads. In Northern Europe, handshaking with verbal greetings are more common, whereas in Southern Europe hugging is more customary. Even the amount of playful touching behavior in different countries is illustrated by Field (1999), where preschoolers from America were observed on playgrounds and talked to and touched less by parents and peers playing with them and showed more aggressive behavior than corresponding children in France. However, the present authors would like to argue that, during the last 30 years in Sweden, there appears to have been a change from a simple "hello" to actual touching arms or hugging, especially among younger generations.

Emotional factors influencing hugging

The manner of greeting is to some extent dependent on various factors, such as emotional bonds, the length of time since the last greeting, as well as by force of habit. Extraordinary gratitude for something may initiate both handshaking and hugging behavior by the receiver. Among good friends, hugging is a natural greeting, assuming a similar greeting has not taken place recently. The positive effects of hugging are enhanced by the addition of encouraging verbal communication. A diminished friendship may be emphasized by replacing hugging with handshaking or a verbal greeting. As such altered behavior may be regarded as a rather "unfriendly" gesture, it is often avoided, for example instead using a lighter hug (Morris, 1977).

The way greeting behavior is performed often influences the dialogue that follows or, in some cases, does not follow. According to Molcho (1991), hugging behavior seems to create a more emotional quality in the initial phase of a conversation, as compared to handshaking or a verbal greeting, which is usually followed by a more formal initial phase and conversation.

Touching and especially greeting behavior may be predicted by a person's past experience and motivational characteristics. A person raised in an environment where hugging is prevalent has a tendency to incorporate hugging in his own greeting behavior. This characteristic is nearly equivalent to the concept of "trait," that is to say, as belonging to the personality. Sometimes emotions may direct the touching behavior, so hugging might be classified as a "state" behavior. Giving someone a hug presupposes a certain level of self-esteem, since the initiator may run the risk of not being accepted (Kauffman, 1971).

The hugging style during congratulations and condolences is based upon the strength of the emotions associated with the matter at hand. As an example, in condolences among close friends or relatives, hugging is often performed without words and may result in a long silent embrace (Morris, 1977).

Hugging and health

January 21st has been proposed as an official National Hugging Day in the USA, a celebration that has spread to many other countries. Its creator, Zaborney (1986), believed that Americans needed an annual holiday to promote more public performance of emotion among people. Zaborney's belief was based on his own observations that one positive effect of hugging was the facilitation of human communication. Similarly, Keating (1995) has stressed the presence of acute needs for hand-holding or hugs among the elderly, disabled, terminally ill, and long-term care residents.

This focus on hugging has given rise to research on its beneficial effects. At a meeting of the American Psychosomatic Society in Phoenix, Elias (2003) reported that "a brief hug and 10 minutes' hand-holding with a romantic partner greatly reduce the harmful physical effects of stress" (p. 1). In a study of 38 cohabiting couples, Grewen, Girdler, Amico, and Light (2005) observed that greater partner support (defined as a brief episode of warm touching contact) was linked to higher magnitudes of plasma oxytocin, norepinephrine, cortisol, and blood pressure and that these effects may be greater for women than for men. Similarly, Light, Grewen, and Amico (2005) reported that more frequent partner hugs were linked to higher oxytocin levels, lower blood pressure, and lower heart rate in premenopausal women. Lehr (2009) summarized the beneficial effects of a hug, including increased production of endorphins which strengthen the body's immune system. Field (2010) summed up empirical research on touch including hugging and described the consequences of too little touch for socio-emotional and physical well-being in childhood and adulthood. This need is strong enough that a device has been created to allow persons to hug themselves virtually. The Sense-Roid is described as "a mannequin covered in tactile sensors and a tactile jacket with vibration motors and artificial muscles which recreate the feel of a hug" (Sense Roid Lets People Hug Themselves, p. 1).¹

Conclusions

As a rule, hugging may refer to physical sensations, a psychological sense of well-being, and often a positive emotional experience. In particular, the positive emotional experience gives rise to biochemical and physiological reactions, such as a higher magnitude of plasma oxytocin, norepinephrine, cortisol, and changes in blood pressure. In the last few years, researchers have commented that in addition to hugging, bodily touches of other kinds, such as hand-holding, also give rise to both positive psychological and physiological changes.

The duration of the hug, the style of body touching,

¹Sense-Roid lets people hug themselves. (2011) Retrieved from <http://www.diginfo.tv/v/11-0137-r-en.php>. The University of Electrocommunications, Osaka, Japan.

the pressure of the body, and the activity of arms and hands disclose the intensity of relationship. The more frequent these behaviors, the closer the relationship. The way one returns a hug can vary greatly, dependent upon the emotional state of the other person. In other words, the hug may be more "state-" than "trait-dependent." However, the extraverted personality facilitates taking the initiative in hugging, as extraversion is associated with spontaneity, impulsiveness, warmth, and sociability. Anxiety, lack of self-esteem, and lack of self-confidence, which are evident in neuroticism, may decrease the likelihood of taking the initiative to hug.

The change from handshaking to hugging during an encounter is associated with a greater emotional involvement in one another often announced by a participant raising the arms, in a display of the intent to hug. The very first time hugging occurs between individuals seems most often to be upon parting.

Experiences of hugging by parental figures in early childhood may make hugging more prevalent in adulthood. As a rule, a hugging person produces an impression of friendship and openness, which sometimes may be reciprocated by more controlled individuals. These effects may be further enhanced if combined with a smile and verbal greetings, such as "It's great to see you" or on parting, "Looking forward to seeing you again." Also, after the encounter, thoughts of the hugging may stimulate and put the individual in a more positive mood.

The prevalence of hugging, particularly among young people, has been reported from time to time in the mass media and might have gained ground, although there is no conclusive empirical evidence for this. A change from less nodding and handshaking to more hugging and embracing in a friendly encounter may originate from a need for closeness and affection, since hugs are a manifestation of concern and support of an individual. A hug has great positive significance most of the time, although in some situations may be considered more of a social requirement, than a natural and free behavior. Such aspects must be included in any observational study of hugging behavior.

Further research is needed to study physical sensitivity and reactions during the hugging and the most frequent emotions and thoughts during this short space of time. The ability to "read" or understand the message of a hug may depend on many factors and ought to be a natural topic of the nonverbal communication research. If the effects of hugging prove to be beneficial to both individuals and society, encouragement in an educational context might become a vital part of public wellness programs.

References

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978) *Patterns of attachment: psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.
- Åström, J. (1993) Introductory greeting behaviour in relation to sex, age, physical characteristics, attitudes, personality, and psychopathology: approaches by interviews, observations, and experiments. Unpublished doctoral dissertation. Linköping Univer., Medical Dissertations No. 403.
- Bowlby, J. (1969) *Attachment and loss: attachment*. Vol. 1. New York: Basic Books.
- Cook, M. (1970) Experiments on orientation and proxemics. *Human Relations*, 23, 61-76.
- Dertega, V. J., Lewis, R. J., Harrison, S., Winstead, B. A., & Constanza, R. (1989) Gender difference in the initiation of intimacy. *Journal of Nonverbal Behavior*, 2, 83-96.
- Elias, M. (2003) Study: hugs warm the heart, and may protect it. *USA Today*. Retrieved from http://www.usatoday.com/news/health/2003-03-09-hug-usat_x.htm, March 10.
- Escoll, P. J. (1992) Vicissitudes of optimal distance through the life cycle. In S. Kramer & S. Akhtar (Eds.), *When the body speaks*. Northvale, NJ: Jason Aronson. Pp. 59-87.
- Eysenck, H. J., & Eysenck, S. B. G. (1964) *Manual of the Eysenck Personality Inventory*. London: Univer. of London Press.
- Field, T. (1999) Preschoolers in America are touched less and are more aggressive than preschoolers in France. *Early Child Development and Care*, 151, 11-17.
- Field, T. (2010) Touch for socioemotional and physical well-being: a review. *Developmental Review*, 30, 367-383.
- Goffman, E. (1971) *Relations in public*. New York: Basic Books.
- Grewen, K. M., Girdler, S. S., Amico, J., & Light, K. C. (2005) Effects of partner support on resting oxytocin, cortisol, no blood pressure before and after warm partner contact. *Psychosomatic Medicine*, 67, 531-538.
- Hall, E. T. (1968) Proxemics. *Current Anthropology*, 9, 83-108.
- Hall, J. A., & Vecchia, E. M. (1990) More "touching" observations: new insight on men, women and interpersonal touch. *Journal of Personality and Social Psychology*, 59, 1155-1162.
- Harper, R. G., Wiens, A. N., & Matarazzo, J. D. (1978) *Nonverbal communication: the state of the art*. New York: Wiley.
- Henley, N. M. (1973) Status and sex: some touching observations. *Bulletin of the Psychonomic Society*, 2, 91-93.
- Hertenstein, M. J., Keltner, D., App, B., Bulleit, B. A., & Jaskolka, A. R. (2006) Touch communicates distinct emotions. *Emotion*, 6(3), 528-533.
- The Holy Bible*. (1953) Oxford, UK: Oxford Univer. Press.
- Jourard, S. M., & Friedman, R. (1970) Experimenter-subject distance and self-disclosure. *Journal of Personality and Social Psychology*, 15, 278-282.
- Jungman, J. A. (1948) *Missarum Sollemnia: Eine genetische Erklärung der römischen Messe*. Vienna, Austria: Herder Verlag.
- Kauffman, L. E. (1978) Tacesics, the study of touch: model for proximal analysis. In R. G. Harper, A. N. Wiens, & J. D. Matarazzo (Eds.), *Nonverbal communication: the state of the art*. New York: Wiley. Pp. 149-161.
- Keating, K. (1995) *Hug therapy book*. Minneapolis, MN: Hazelden Information & Educational Services.
- Kendon, A. (1990) *Conducting interaction: patterns of behaviour in focused encounters*. Cambridge UK: Cambridge Univer. Press.
- Kluge, F., & Götze, A. (1930) *Etymologisches Wörterbuch der deutschen Sprache*. (11th ed.) Berlin: Walter de Gruyter.

- Kutsukake, N., Suetsugu, N., & Hasegawa, T. (2006) Pattern, distribution, and function of greeting behavior among black-and-white colobus. *International Journal of Primatology*, 27, 1271-1291.
- Lehr, L. J. (2009) *A hug: the miracle drug*. Retrieved from www.HelpINeedaHug.com. [not archival]
- Lett, E. E., Clark, W., & Altman, I. (1969) *A propositional inventory of research on interpersonal distance*. Research Report No. I. Bethesda, MD: Naval Medical Research Institute.
- Liebold, W. E. (1963) Psychological distance in a dyadic interview. Unpublished doctoral dissertation, Univer. of North Dakota, Grand Forks.
- Light, K. C., Grewen, K. M., & Amico, K. A. (2005) More frequent partner hugs are linked to higher oxytocin levels, lower blood pressure, and heart rate in premenopausal women. *Biological Psychology*, 69, 5-21.
- Livingston Smith, S. (2010) *Keeping the promise: the critical need for post-adoption services to enable children and families to succeed*. New York: Evan B. Donaldson Adoption Institute.
- Long, G. T., Calhoun, L. G., & Selby, J. W. (1976) Personality characteristics related to cross-situational consistency in interpersonal distance. Paper presented at the meeting of the Southeastern Psychological Association, New Orleans, LA.
- Molcho, S. (1991) *Körpersprache*. Munich: Mosaic Verlag GmbH.
- Morris, D. (1977) *Manwatching: field guide to human behavior*. New York: Abrams.
- Patterson, M. L. (1991) A functional approach to nonverbal exchange. In R. S. Feldman & B. Rimé (Eds.), *Fundamentals of nonverbal behavior*. Cambridge, UK: Cambridge Univer. Press.
- Patterson, M. L., & Holmes, D. S. (1966) Social correlation correlates of the MMPI extraversion-introversion scale. *American Psychologist*, 21, 724-725.
- Patterson, M. L., & Sechrest, L. B. (1970) Interpersonal distance and impression formation. *Journal of Personality*, 38, 161-166.
- Pope Pius IX. (1874) *Omnem Sollicitudinem: on the Greek-Ruthenian rite*. *Encyclical of Pope Pius IX*.
- Silverman, A., Pressman, F., & Bartel, H. (1973) Self-esteem and tactile communication. *Journal of Humanistic Psychology*, 13, 73-77.
- Snyder, M. (1983) The influence of individuals on situations: implications for understanding the links between personality and social behavior. *Journal of Personality*, 51, 497-516.
- Stier, D. S., & Hall, J. A. (1984) Gender differences in touch: an empirical and theoretical review. *Journal of Personality and Social Psychology*, 47, 440-459.
- Straker, D. (2002) *Changing minds*. Retrieved from <http://changingminds.org/techniques/body/greeting.htm>.
- Svensk Uppslagsbok*. (1956) Malmö, Sweden: Förlagshuset Norden.
- Waal, F. B. M., & Roosmalen, A. (1979) Reconciliation and consiliation among chimpanzees. *Behavioral Ecology and Sociobiology* 5(1), 55-66.
- Williams, J. L. (1971) Personal space and its relation to extraversion-introversion. *Canadian Journal of Behavioral Science*, 3, 156-160.
- Zaborney, K. (1986) *National hugging day*. Retrieved from www.nationalhuggingday.com. [not archival]

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