12 Nonverbal Interaction in Medical Communication

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> The task of becoming spontaneously involved in something when it is a duty to oneself or others to do so, is a ticklish thing, (...) The individual's actions must happen to satisfy his involvement obligations, but in a certain sense he cannot act in order to satisfy these obligations, for such an effort would require him to shift his attention from the topic of conversation to the problem of being spontaneously involved in it.
>
> Goffman 1972: 155

Abstract: The nonverbal interaction[1] (lat. *non*; *verbum* word; *inter* between; *actio* execution, action, performance, gesture, representation) comprises the domain of human interaction that is *not* verbal. In this chapter, the specifics of nonverbal interaction - as compared to verbal interaction - are outlined first. After presenting these general principles, selected sub-areas of nonverbal interaction that are of particular importance for doctor-patient interaction will be discussed. The learning objectives for nonverbal interaction in the doctor-patient conversation presented thereafter are based on these theoretical and empirical findings. Practical exercises are also provided. Finally, the role of the analysis of nonverbal interaction in self and external evaluation is explained.

12.1 Specifics of nonverbal behavior and nonverbal interaction

In the following, special features of non-verbal interaction - in distinction to verbal interaction - are presented, which are of particular importance for medical conversation.

[1] The term "nonverbal" has the disadvantage that it defines the subject by exclusion (of the verbal). However, in the absence of generally accepted alternative terms, it is used in this book chapter. The term "nonverbal communication" (lat. *communicatio*, figure of speech with which the speaker addresses the listeners and consults them) suggests a conscious exchange of information. In fact, however, the nonverbal exchange takes place mainly unconsciously, so that the more neutral term "nonverbal interaction" is used in this book chapter.

12.1.1 Nonverbal interaction as unconscious level of the doctor-patient conversation

In every interpersonal interaction, nonverbal behavior of the interaction partners can be observed in the form of gestures, facial expressions, body orientation, et cetera. However, even when people are alone, they show nonverbal behavior, e.g. self-touch when thinking or gestures when talking to themselves.
Regardless of whether the nonverbal behavior is exhibited in the presence or absence of others, it occurs predominantly unconsciously. Self-touch, gestures, or changes in body orientation are typically performed without the person being aware of it. While it is possible for the agent to become aware of his or her behavior during or immediately after execution, initiation is usually unconscious. An intentional smile or an intentional mirroring of the interaction partner's posture (as examples of conscious initiations) are rather the exception in everyday interpersonal interaction. Such behavior can also be experienced as manipulative by the interaction partner, since in this case the agent intervenes in interaction processes that normally take place unconsciously.

Only a few forms of nonverbal behavior are generally performed consciously. This applies primarily to culturally defined nonverbal conventions, such as greeting rituals (in our culture: shaking hands) or emblematic gestures. Emblems are formally and semantically unambiguously defined hand signs within a culture that can be used to replace language, e.g. the peace sign.

Nonverbal behavior and correspondingly also nonverbal interaction are therefore largely unconscious for the conversation or interaction partners. The unconscious nonverbal interrelation can be demonstrated on a temporal, formal and semantic level. Interaction partners show temporal coordination not only of their verbal utterances ("turn-taking," Sacks et al. 1974), but also of their nonverbal behaviors (Lausberg 2011). The body movements of interaction partners are temporally coordinated, regardless of whether they occur together with verbal utterances, like most gestures, or not, like self-touch. Synchronous movements of interaction partners are particularly striking (Condon, Ogston 1966, Bebee et al. 1982). For teacher-student dyads, temporal attunement (including synchronicity) has been shown to be associated with better relationship quality (Bernieri 1988). In contrast, disruptions in unconscious temporal

attunement have been demonstrated in mental illness (Condon, Brosin 1969) and in disturbed mother-child interactions (Kestenberg, Sossin 1979).

The unconscious coordination of interaction partners affects not only temporal but also formal aspects of nonverbal behavior. Empirical evidence is particularly good for the mirroring of body positions and orientations between interaction partners (see § 12.2.4). The ability to take on the nonverbal expression of the interaction partner is inherent early in human development: Already at the age of 2-3 weeks, infants can mirror mimic expressions of the interaction partner (Metzloff, Moore 1977).

In the case of speech-accompanying gestures, the unconscious mutual reference of the conversational partners even concerns the semantic level, i.e. the partners mutually refer to the meaning of their gestures. As a rule, neither the speaker performs the gesture consciously, nor does the listener perceive the gesture consciously. Although the partner's gestures are processed unconsciously, the gesturally conveyed content has nevertheless been shown to contribute to improved comprehension and recall of the communicated content (Cohen, Otterbein 1992, Feyereisen 1999). Accordingly, students also learn better when teachers accompany their explanations gesturally (Singer, Goldin-Meadow 2005, Cook, Goldin-Meadow 2006). The unconscious processing of gestural content can be demonstrated electroencephalographically: When contents of gestures and words contradict each other, event-related potentials show that the brain immediately detects the incongruence (Kelly et al. 2004).

Conversational partners not only process the meaning content of their gestures, but they can also adopt gesture forms from each other and develop them formally and semantically (Case study E 12.1).

E 12.1 Case Study 1: Patient J.[2]

A student presents to her family doctor with a lumpy feeling in her throat (here: somatoform disorder). While describing her complaints to the doctor, she points to her throat and touches it (*body-deictic* gesture). [3]

This pointing gesture reflects her understanding of the symptom, that something is wrong with her throat. The doctor picks up the gesture and performs it again and again in the course of the conversation when referring to the symptom. In doing so, he gradually modifies the gesture: he loosens the touch to the throat and forms the hand as if it were holding something imaginary (*form presentation* gesture). With this gesture, the doctor figuratively conveys his symptom concept to the patient: he sees the lumpy feeling in the throat not as a manifestation of a concrete, structural disorder in the throat, but as an expression of an abstract problem (here: the patient's school anxiety). In the course of the conversation, the patient understands the doctor's symptom concept. Although the doctor himself was not aware of his gestural intervention, it can be assumed on the basis

2 In all of the case studies listed, the method was as follows: With the consent of the patient and physician, the conversation was videotaped. The video-recorded nonverbal behavior of doctor and patient was analyzed without sound by two independent certified raters using the NEUROGES®-ELAN system (Lausberg, Sloetjes, 2009, rev. 2015). In a second analysis step, the nonverbal behavior was put in relation to the verbal statements.

3 Terms in *italics* are operationalized movement forms and gesture types of the objective and reliable NEUROGES® system for the analysis of nonverbal behavior and gesture (Lausberg 2013, Lausberg, 2019).

of the above-mentioned empirical findings that the intervention was effective in that it gave the patient a new understanding of her symptom in a pictorial way, i.e., via gestural representation (detailed case presentation in Lausberg 2011).

Heath demonstrated impressively in microanalytical behavioral studies of doctor-patient conversations (1984) how finely gestures, gaze and verbal utterances of patient and doctor are coordinated. Goffman (1972, see quote above) addressed the dilemma between the high importance of good nonverbal coordination for the quality of the interaction and the impossibility to control this dimension of the interaction volitionally. The deliberate execution of nonverbal behavior not only requires - as Goffmann points out - attention, which is then no longer available for verbal exchange, but on the other hand it also leads to a change in behavior. The consciously initiated execution of a nonverbal behavior or action differs from its unconsciously initiated execution with respect to kinematic and neuropsychological parameters. Thus, the casual grasping of a glass (e.g., to take a drink during a conversation) differs measurably from the intentional grasping of a glass (e.g., after being prompted to grasp the glass) in several kinematic parameters (Bock, Hagemann 2010). Numerous neuropsychological studies also show that voluntary and involuntary movements are controlled by different brain regions (Liepmann, Maas 1907, Buxbaum et al. 1995, Lausberg et al. 1999). The psychological effect on the performer himself is also different: only spontaneous, involuntary, but not voluntary self-touch of the face electroencephalographically leads to a change in theta activity during noise exposure, which can be interpreted in terms of stress regulation (Grunwald et al. 2014, see also § 12.2.1). Furthermore, it can be assumed that the interaction partner also differentiates between spontaneous and intentional nonverbal behavior of the agent. A joyful versus polite smile[4] is regularly answered by the interaction partner with the corresponding smile, joyful versus polite (Heerey, Kring 2007, see § 12.2.3).

In summary, nonverbal behavior and correspondingly nonverbal interaction are primarily unconscious. The unconscious interrelatedness of the interaction partners shows in their nonverbal behavior on temporal, formal and semantic levels. Since the conscious execution of a nonverbal behavior differs from the unconscious execution in several aspects, the conscious modification of a nonverbal behavior can significantly disrupt

4 In this experiment, however, smile awareness was not specifically tested.

the implicit, finely tuned interplay between the partners. For nonverbal interaction in the doctor-patient conversation this means that intentionally executed nonverbal behavior of the doctor can have a rather irritating effect on the patient and therefore requires a reflected application or nonverbal interaction training.

12.1.2 Universal, individual and cultural factors of nonverbal behavior

A person's nonverbal behavior is composed of universal, individual, and cultural components.

(i) Universal: Certain nonverbal patterns of expression in facial expression, gesture and posture are innate. They are universal responses to emotionally significant stimuli[5] (Darwin 1872, Eibl-Eibesfeldt 1979). For example, connatally blind athletes of different nations, who have never observed nonverbal expression patterns in others, show the same gestures and body postures during pride and shame as sighted athletes (Tracy, Matsumoto 2008). Cognitive processes also appear to be universally associated with similar nonverbal behavior. Spontaneous hand signals of deaf children from different cultural groups show structural similarities (Goldin-Meadow, Mylander 1998). Similarly, nonverbal interactive behavior in basic relationship qualities such as affection or dominance are also universally characterized by similar forms (Morris 1977).

(ii) Individual: In the course of development, the individual links the above-mentioned innate expression patterns with individually significant stimuli (cf. Leventhal 1982; schematic emotional processing), e.g., the involuntary appearance of a fearful facial expression at the sight of a dog. Furthermore, the individual also develops his or her own nonverbal behavior, which may be unique in form, e.g., a very particular way of brushing back hair. Even primarily practical actions, such as pushing up a pair of slipped glasses, can be linked to mental states in an individually specific way, e.g., pushing up the glasses when embarrassed, i.e., even if the glasses had not slipped (cf. Darwin 1872, "The principle of serviceable

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5 For certain mimic expression patterns, it could be documented that these can occur involuntarily, i.e. without subjective emotional experience, in neurological diseases of the brain stem ("pathological crying and laughing", Poeck, Hacke 1998). Furthermore, in 2-3 week old infants, mimic expressions can be elicited by facial expressions of the interaction partner (Metzloff, Moore 1977).

associated habits"). Individual associations of particular behavior with particular mental states are also found in interpersonal relationships. As Scheflen's analysis (1974) of a psychotherapy impressively showed, this also applies to therapeutic relationships: A certain sitting position of the patient, recurrent in the therapy sessions, was always followed by a certain gesture ("the bowl") of the therapist. This nonverbal interaction pattern occurred regularly in a context of flirting between patient and therapist. Such interaction patterns can already be evidenced in the course of the first conversation between doctor and patient (case study B 12.2).

E 12.2	Case study 1 (continued): Patient J.
The above-mentioned patient regularly performed repetitive rocking movements with her upper body while the doctor was speaking. She regularly interrupted these movements when she herself began to speak.	

(iii) Cultural: Furthermore, the individual learns certain culture-specific, conventionalized nonverbal behaviors in the course of his or her development. This applies, for example, to the emblematic gestures already mentioned above (§ 12.1.1), which have a defined form and meaning within a culture. Emblematic gestures are therefore - just like language - mostly only understood within one (language) culture. In contrast to universal mimic expression patterns described under (i), which are associated with "genuine" emotional experience, mimic expressions, which primarily serve social regulation, vary between cultures (and within cultures between genders, social status, etc.). For example, an American woman is more likely to show her teeth ("cheese") when smiling politely, whereas a traditionally educated Korean woman, for whom showing teeth would be unseemly, smiles with closed lips. Accordingly, nonverbal interaction between individuals is also subject to certain culturally determined rules.

In summary, the nonverbal behavior of an individual or the nonverbal interactive behavior between individuals is composed of universally, individually and culturally determined behaviors. Since only universal and cultural behavioral components have a supra-individual form and meaning, only these components of patient behavior can be interpreted ad hoc by the doctor. If the patient and the doctor come from different cultures, it is advantageous if the doctor knows the nonverbal rules of expression of the patient's culture. The individual behavioral components of the patient should by no means be (pre-)quickly interpreted, but initially only

recognized. Only after longer or repeated patient contact can the doctor infer the meaning of an individual nonverbal behavior by analyzing the context (emotional, social, thematic, etc.).

12.1.3 Nonverbal behavior as a reflection of emotional, cognitive and interactive processes

Nonverbal interaction or communication is traditionally divided into several sub-areas: Posture, gesture, touch behavior, facial expression, gaze behavior, voice and speech melody, proxemic (personal space and territory) (cf. Knapp, Hall 1992). The division into these subdomains was essentially adopted from expressive psychology[6] (cf. Aspendorf, Wallbott 1982), in which physiognomonics, facial expression, gesture, posture, gait, voice, and handwriting were studied as parameters of personality. For this reason, most subdomains of nonverbal interaction provide information both about the interaction per se, e.g., about openness or dominance between persons, and about how the individual feels and thinks (Fig. 12.1, solid arrows).

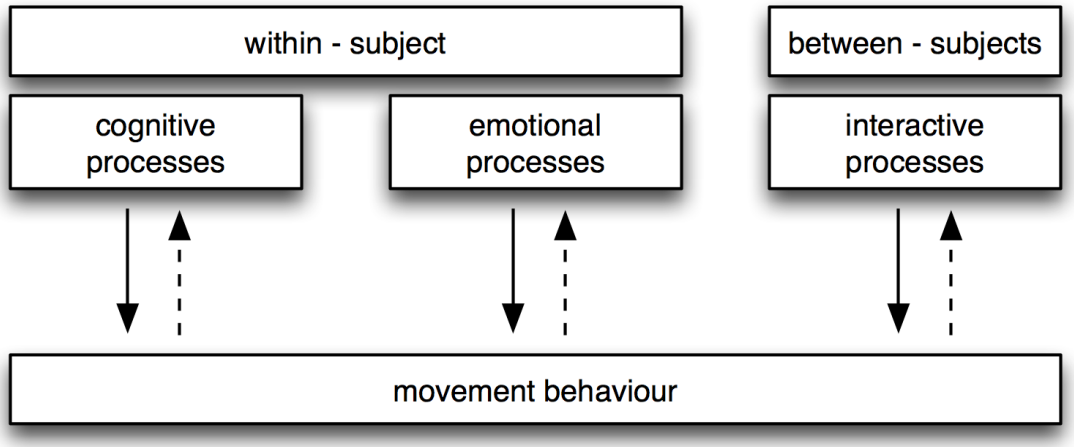

Fig. 12.1: Bi-directional link between nonverbal behavior and cognitive, emotional and interactive processes

In this sense, v. Uexküll's bio-psycho-social model also considers "movement behavior as a symptom": "Symptoms are signs that inform about

6 The study of some of these parameters such as gait, posture, facial expression or gesture as an expression of personality can be traced back to ancient times.

the state of living systems. A patient's gait, posture, and facial expression inform the doctor about the state the patient is in" (1986: 26; translation of the original quote from German). Of particular interest here is that, as already pointed out in § 12.1.1, nonverbal behavior is primarily unconscious and accordingly can reflect unconscious (implicit) cognitive, emotional, and interactive processes. Observation of the patient's nonverbal behavior therefore enables the doctor to gain insight into the patient's non-reflected feelings and images, e.g. the patient's suppressed fear of surgery or idea that the own illness is incurable. Furthermore, the patient's gestures can reflect thoughts of which he is aware but which he does not verbally address.

In addition to information about the patient's experience and thinking, the doctor also gains insight into their interaction when nonverbal aspects are taken into account during the conversation. Furthermore, observing his own nonverbal behavior opens up new insight into his own experience. The connection between nonverbal behavior and cognitive, emotional and interactive processes will be explained in more detail in the following sections on the basis of the individual nonverbal sub-areas. The focus is not only on how these processes are manifested in nonverbal behavior, but also - conversely - how these processes can be influenced via nonverbal behavior (Fig. 12.1, dashed arrows).

12.2 Subdomains of nonverbal interaction

The above-mentioned non-verbal subdomains are of varying importance for the doctor-patient interaction.[7] With regard to the application of this book, the relevance is defined as follows: 1. there is theoretical and empirical evidence for the importance of this subarea for the doctor's conduct of the conversation; 2. the doctor can observe the behavioral phenomenon well during the conversation in the patient and in himself; 3. the doctor can change this component of the nonverbal behavior, if necessary, in himself during the conversation without disturbing the interaction flow.

Based on these criteria - in agreement with Davis and Hadiks (1994) - body position and orientation as well as gestures and touches of the hands are particularly relevant nonverbal parameters for the doctor-

7 For a general account of nonverbal interaction and communication, please refer to the book by Knapp and Hall (1992).

patient interaction. In particular, body position and orientation can be easily observed during the interview, since they are usually assumed unchanged over a longer period of time. Accordingly, the doctor also has enough time to change his sitting position and orientation if necessary. Likewise, the doctor can easily observe his own hand movement behavior and that of the patient during the conversation, especially if longer-lasting behavioral phenomena are involved, such as continuous self-touching of the hands. However, while facial expressions are often the subject of research studies, in practice some emotionally significant facets of facial expressions are difficult to capture consciously. For example, while socially desirable facial expressions such as polite smiles can be readily observed during the doctor-patient conversation, the fleeting facial microexpressions often associated with emotionally relevant processes, especially of negative valence, can hardly be explicitly recognized during conversation (cf. § 12.2.2). Rather, they are likely to be processed implicitly, which, however, does enable to explicit therapeutical intervention. Similarly, the doctor himself can also only register his own facial expressions by means of somatosensory perception. In the following, especially in the learning opportunities, the focus will therefore be on hand movement behavior and body position and orientation.

12.2.1 Hand movement behavior

During the conversation, the hands of many patients and doctors are constantly in motion. These hand movements can be described descriptively on the basis of the spatial path (*phasic*[8] *, repetitive, irregular*) and the action location (*within body, on body, on attached object, on separate object, on person, in space*) (Lausberg 2013, Lausberg 2019) (see pictures of the hand movements in the NEUROGES short scales picture lexicon for hand movements in the appendix).

Hand movements *in space*

In hand movements *in space,* the hand acts in front of the body, often at chest or abdominal level (gesture space). The movement path (trajectory)

8 Operationalized values of the NEUROGES analysis system for nonverbal behavior and gesture (Lausberg, 2013, 2019) are marked by cursive print.

can be divided into phases (phase structure), typically consisting of (i) transport phase, in which the hand is transported to a location in the gesture space, (ii) complex phase, in which the hand describes a complex *phasic* (one-way trajectory) or *repetitive* (back-forth trajectory) spatial path, e.g., pointing to a somewhere or conducting repetitive accentuating (*emphasis*) gestures in the air, and (iii) retraction phase, in which the hand is returned to the rest position.

Hand movements *in space* almost invariably have a gestural function[9,10]. They often accompany verbal utterances in interaction, but can also occur during soliloquy, when reflecting about something. In conversational situations, they accompany verbal utterances even when the hand movements cannot be seen by the interlocutor, e.g., during telephone calls. Hand movements *in space* can therefore also be observed in conversations between blind partners.

Although hand movements *in space* are predominantly performed accompanying speech, neuropsychological studies indicate that they can be primarily generated independently of speech (Feyereisen 1987). While speech production is localized in the left hemisphere in right-handed people, however, many gestures are generated in the right hemisphere (Lausberg et al. 2007, Lausberg et al. 2023). Gesture production is therefore not only associated with left-hemispheric speech production, but also with right-hemispheric functions such as emotional processes, prosody, or spatial reasoning. Accordingly, gestural hand movements are increasingly performed during imaginative thought processes, to which they contribute via the pictorial formation of thoughts. For example, when talking about spatial relations (Emmorey et al. 2000, McNeill 1992), shapes (Barosso et al. 1973, Beattie, Shovelton 2006), or actions (Feyereisen, Havard 1999), the speaker is more likely to gesture while doing so. This is consistent with the everyday observation that directions are regularly accompanied by gestures. In experimental settings, subjects show significantly more gestures in cognitive tasks that require spatial imagination and anticipation, such as Piaget's testing for measurement invariance (shaking-

9 The exception is fanning fresh air with the hand, which is a movement *in space*, too. However, it is functionally a practical action, since air is physically manipulated, and not a gesture.

10 In the following, the term gesture is used when the emphasis is on the functional aspect of hand movements *in space*. Movements of the feet, head and eyes can also function as gestures, e.g. pointing at something with the feet or the gaze (pointing gestures) or nodding with the head (emblematic gestures).

over test), than in interference tasks, such as the Stroop test (Barosso et al. 1978).

Gestures can refer not only to concrete but also to abstract forms, actions, or spatial relations, such as proximity in an interpersonal relationship (Case Study E 12.3).

E 12.3	Case study 2: Patient F.

A patient with mild depression and atypical anorexia worked on her relationship with her mother in short-term psychodynamic psychotherapy. The focus of the psychodynamic therapy was on low self and object differentiation. In the course of therapy, the patient increasingly learned to differentiate between her own needs and those of her mother. This development was also reflected in her gestural behavior. At the beginning of the therapy, the patient gesturally located her mother in the gesture space near the center of her body, i.e., when she referred to her mother, she pointed toward her own abdomen. At the end of therapy, she projected her mother gesturally distant from her body in the space to the left of her body (detailed case presentation in Lausberg, Kryger 2011).

Since gestures are partly generated independently of language, they can depict other aspects than words. Contradictions ("mismatches") can even occur between gestural and verbal statements (Lausberg et al. 2000, Garber, Goldin-Meadow 2002, Lausberg, 2024) (Case study E 12.4). The patient's gestural hand movements therefore provide the doctor with valuable information in addition to the patient's verbal statements.

E 12.4	Case study 3: Patient S.

A patient who had been suffering from colon irritabile and depressed mood for several years broached the subject of her marriage in psychotherapy. In this topic, discrepancies between gestural and verbal statements were noticeable. For example, the patient performed a left-handed *egocentric direction* gesture as if she were pushing something away downward. At the same time, she said, "That's when I adapted to my husband." The discrepancy between gestural and verbal statement reflected the ambivalent relationship with her husband.

Not only the significance of individual gestures, but also the quantity, speed and duration of hand movements *in space* provide the doctor with

information about the patient's psychological state. Thus, in clinical depression there is a decrease in the frequency and speed of gestures (Ulrich, Harms 1979, Ellgring 1986, Wallbott 1989). When the depression improves, frequency and speed of gestures increase again. Furthermore, people who have difficulty in verbalizing their emotional experience (alexithymia) show a decrease in the duration of hand movements *in space,* reflecting a decrease in gestural complexity, when confronted with emotional scenarios (Lausberg et al. 2015). For emotionally relevant topics in therapeutic conversations, gestures are characterized by medium duration, medium spatial complexity in combination with high dynamics (Davis, Hadiks 1990).

Not only the gestural behavior of the patient, but also that of the doctor himself is relevant for the doctor-patient interaction. The finding presented above, i.e., that students learn better when their teachers accompany explanations gesturally, has direct implications for the doctor's conversation. It is plausible that patients also understand their doctor's messages better when the doctor conveys his messages both verbally and gesturally (see also Case Study E 12.1). In that case, the doctor uses both the verbal and the gestural, i.e., pictorial, analogue, spatiotemporal path of communication. In his microanalytic doctor-patient study already mentioned above, Heath (1984) demonstrated in particular how gestures guide the gaze of the interaction partner and promote his engagement in the interaction. In general, higher gesture production by the doctor seems to be associated with higher patient satisfaction (Hall et al. 1995). It can be assumed that, among other things, the doctors' improved comprehensibility due to additional pictorial mediation as well as the impression of their great engagement created by gestural use contribute to patient satisfaction.

In summary, the hand movements *in space*, which the patient spontaneously performs to accompany speech, provide the doctor with valuable insights into the patient's experience and thinking. This is particularly true with regard to aspects which the patient is not aware of or does not verbalize. Conversely, gestural activity on the part of the doctor improves the comprehensibility of his messages and generally increases patient satisfaction.

Hand movements *on body* and on *attached* or *separate objects*

Another large group of hand movements take place *on body*, on *attached object*, e.g. necklace, on *separate object*, e.g. arm rest, or *on person.* In

these hand movements, the hand moves directly and dynamically on the counterpart. The movement path (trajectory) can be *phasic,* e.g., brushing along the back of the chair, *repetitive,* e.g., scratching the forearm, or *irregular,* e.g., finger fidgeting. To differentiate, let's mention static contact, where the hand does not perform a displacement on the counterpart, e.g., the hand statically holds a pen and acts *in space* with the pen in hand (gesture) or the hand rests on an armrest. The latter example is not a hand movement, but a *rest position* within the framework of a body position (see § 12.2.4).

30-70% of hand movements in therapeutic interactions or interviews occur *on body* or *on attached object.* These forms of hand movement, which have been grouped under the term body-focused in prior research (Freedman, Hoffmann 1967), typically occur under conditions that could be broadly described as stress, unless there is an obvious practical purpose[11]. Thus, in experimental settings such as the Stroop test (see above, Barosso et al. 1978), significantly more hand movements are performed *on body* and *on attached objects* than in the shaking-over test. In interviews with personal and sometimes burdensome topics, body-focused hand movements occur significantly more often than in interviews with impersonal topics (Sousa-Poza, Rohrberg 1977). Similarly, study participants show more body-focused hand movements in interviews with cool-tempered interviewers than in interviews with warm-tempered, empathetic interviewers (Freedman et al. 1972). Field-dependent subjects (cf. Witkin, Lewis 1954) perform significantly more continuous body-focused hand movements, especially hand-to-hand, than field-independent subjects (Freedman et al. 1972). Similar ("fidgeting") is also true for individuals with social anxiety in conversations with unfamiliar people (Heerey, Kring 2007). In general, in conversations between persons who do not know each other, "fidgeting" is more often performed by both partners simultaneously than by one partner alone. In dyads in which one partner suffers from social anxiety, both partners perform more "fidgeting" - mostly initiated by the social anxiety partner - than in dyads in which neither partner is affected. In clinically depressive states, an increase in body-focused hand movements can be observed, which declines again when the depression improves (Ulrich, Harms 1979) (case study E 12.5).

[11] Mentally triggered body touch can be differentiated from physically triggered body touch based on the movement form (Lausberg 2019, Lausberg, 2024).

E 12.5	Case study 2 (continued): Patient F.

In the course of the successful psychotherapy, the above-mentioned patient showed a significant decrease in *irregular* hand movements *on body*, accompanied by an improvement in her depression and eating disorder. Whereas at the beginning of the therapy she spent 10.12 seconds per minute with *irregular on body* movements, at the end of the therapy the proportion of time spent was only 0.83 seconds per minute.

There is thus convincing empirical evidence that hand movements *on body* or *on attached object* occur more frequently during stress and depressive states. The above-mentioned study by Grunwald et al. (2014) also provides initial evidence that this behavior may not only reflect stress, but may even represent an effective form of stress regulation, since the spontaneous self-touch of noise-exposed subjects electroencephalographically led to an increase in theta activity. Moreover, there is recent evidence that not only being touched by others (see below) but, likewise, self-touch, in particular, *repetitive on body* movements is associated with a release of the hormone oxytocin (von Au et al. 2025), which increases well-being. The proposition of a stress regulating function, which differs for *phasic*, *repetitive*, and *irregular on body* movements (Lausberg 2022), is in line with findings of self-touching behavior in patients with social phobia and depression (Kreyenbrink et al. 2017, Reinecke et al. 2020, 2021, Puma 2025).

For being touched - under certain conditions - a positive effect is already well documented. In premature infants, massage treatment causes faster weight gain and a decrease in blood cortisol levels (Schanberg, Field 1987, Guzzetta et al. 2009). Frequent partner hugs correlate with lower blood pressure and heart rate in women (Light et al. 2005). In contrast to experimental studies, however, the findings are heterogeneous in studies of doctor-patient contact. In this context, touching of the patient by the doctor may occur as part of the physical examination or as social-expressive contact (see Albardiaz 2014). A variety of factors in the patient and doctor, such as gender, age, culture, personality, or role stereotypes, influence the effect of touch by the doctor on the patient. Regarding more negative effects, it has been reported that touch was experienced as dominant by patients during the study (Street, Buller 1987) and that more touch by the doctor even correlated with lower patient satisfaction (Hall et al. 1995).

In summary, the hand movements *on body* or *on attached object* during the conversation provide the doctor with valuable clues as to whether the patient may be stressed, anxious, or depressed. Heerey and Kring's study suggests that the doctor himself may (unconsciously) tend to adopt this nonverbal behavior from the patient during the conversation. What effect the doctors's touch has on the patient is determined by a variety of factors. Therefore, a behavioral maxim cannot be formulated at the current state of research. It is therefore recommended for the time being that the doctor trains his external perception to perceive fine nonverbal signs of acceptance or rejection of his touch in the patient.

12.2.2 Facial expression

Movements of the facial musculature serve various functions, such as eating, speaking, closing/opening the eyes, and also mimic expression (§ 12.1.2). Based on the contraction patterns of the mimic muscles, Friesen and Ekman (1984) distinguish seven facial expressions named after hypothetically associated emotional experiences: Fear, Disgust, Sadness, Anger, Contempt, Surprise, and Joy. As discussed above, in doctor-patient conversations, facial expressions associated with negative affect, in particular, are rarely shown in full expression and therefore are primarily to be assessed via microanalytic studies. During doctor-patient conversations the doctor therefore often explicitly recognizes only clear mimic expressions. Furthermore, the fact that in conversation mainly facial expressions associated with positive affect are shown reflects that many facial expressions are displayed for social purposes and do not necessarily reflect what the person actually feels in that moment.

In conversations, people with social anxiety show joyful smiles and frowns with equal frequency, but polite smiles more often than people without social anxiety (Heerey, Kring 2007). People who have difficulty verbalizing emotional experience (alexithymia) show lower spontaneous facial expressions (v. Rad 1983, Taylor et al. 1991), especially of negative affect (Rasting et al. 2005). In microanalytic studies, different patterns of reduction in facial expression are found in patients with different psychosomatic disorders such as asthma, ulcerative colitis, and somatoform disorders (Steimer-Krause et al. 1990). Clinical depression is associated with a reduction and slowing of facial expressions (Juckel 2005). When depressive disorder improves, 61% of patients show an increase in smiling and 31% show a general increase in facial expressions (Ellgring 1986).

Mental disorders are therefore reflected in facial expression in different ways.

As explained above, joyful versus polite smiles, which are differentiated inclusion and non-inclusion, respectively, of the eye region, are responded to by the interaction partner with the corresponding smile, i.e., joyful versus polite (Heerey, Kring 2007). However, people with social anxiety are more likely to return joyful smiles with polite smiles than people without social anxiety.

In geriatric patients, a high degree of facial expression (smiling, frowning) and nodding on the part of the caregiver correlates with better treatment success (Ambady et al. 2002). "Standardized patients" report higher satisfaction when doctors smile more (Griffith et al. 2003). However, microanalytic studies by Merten and Krause (1998) for psychotherapeutic settings show that successful therapists mimically display more negative affect (anger, contempt, disgust) than non-successful therapists. The findings were interpreted to mean that the successful therapists' mimic expression of negative affect compensates for the patients' one-sided positive mimic expression. Thus, the therapists mimically show those affects that the patients themselves cannot generate (Krause, Merten 1999). In patients with panic disorder, a high smile frequency of the therapist in the first session even correlates with a worse therapy outcome (Benecke, Krause 2005).

General guidelines for the mimic expression of the doctor can therefore hardly be given in the current state of research. The findings rather speak for the necessity of the self-reflexive fit of the doctor.

12.2.3 Gaze behavior

Gaze behavior is defined by movements of the eyeballs in different directions. Gaze movements are coupled to attentional processes. A change in gaze direction is accompanied by a change in attentional focus (Shepard et al. 1986, Chelazzi et al. 1996, Schneider, Deubel 1996). In conversation, gaze can serve to regulate interaction, e.g., as an invitation to the partner to respond, to observe, e.g., to check whether the partner is listening, and to express, e.g., to reproach (Kendon 1967). In this context, interactive gaze behavior is subject to cultural norms (cf. Knapp, Hall 1992). Gaze behavior may also reflect the person's mental state. In clinical depression, the patient's eye contact with the doctor is diminished

(Ellgring 1986). Improvement of depression is accompanied by an increase in eye contact with the doctor in 58% of patients.

The doctor's gaze away from the patient correlates positively with the patient's gaze away from the doctor (Street, Buller 1987). More eye contact by the doctor is associated with higher patient satisfaction (Bensing 1991). Similarly, "standardized patients" report higher satisfaction when doctors make more eye contact (Griffith et al. 2003). In general practices, doctor-to-patient eye contact ("patient-directed gaze") correlates positively with the extent to which patients address psychosocial problems and doctors address the problems affectively and professionally (Bensing et al. 1995). In this context, doctors with high patient-directed gaze are better informed about the patient's psychosocial history and better grasp the patient's psychological problems.

12.2.4 Whole body behavior

Posture

A posture is defined as the momentary or habitual alignment of the body in the upright position or sitting position relative to the vertical, horizontal and sagittal body axis. A person’s habitual posture is influenced by personality in addition to individual anatomy, lifestyle (e.g. sedentary), family and cultural factors. Lowen (1988), among others, therefore developed a typification of postures in relation to personality. In addition to these potentially permanent factors, temporary mental states can also affect posture. In clinical depression, a saggy, downcast posture is often observed. Even short-term psychological and physical states can temporarily affect posture, e.g., a passingly slumped posture after a defeat or during fatigue.

Body position

A body position is defined as a temporary arrangement of torso, head and limbs. It can be functionally a *rest* position, in which a person relaxes, or a *pose,* in which a person expresses a mental state. Each person has an individual repertoire of *rest* positions, e.g., certain sitting or standing positions to which the person returns again and again (cf. "home base position," Davis 1991). A frequent change of *rest* positions was registered in

patients with social phobia in therapeutical conversation, revealing a general restlessness (Kreyenbrink et al., 2016; Neumann et al., 2017).
In contrast, *poses* are whole-body expression patterns. They are static expressive behaviors that involve the entire body, e.g., the victory pose, and they can be associated with specific mental states (Case Study E 12.6).

E 12.6	Case study 3 (continued): Patient S.
During the therapy sessions, the above-mentioned patient repeatedly assumed a very obvious sitting position in which she stretched her knees while sitting and held both lower legs against gravity. She maintained this tense sitting position for up to 2.5 minutes. Adopting this sitting position was regularly associated with topics that were stressful for her.	

When analyzing body positions in conversations, with regard to the positioning of the upper or lower extremities, three types of arrangements of the arms or legs are differentiated: *open* (uncrossed without contact, e.g. arms rest on arm rests), *closed* (uncrossed with contact, e.g. hands rest folded in the lap), *crossed* (e.g. sitting with crossed arms) (see pictures of the hand positions in the NEUROGES picture lexicon for hand positions in the appendix). A direct change from one body position to another is called *shift*. Doctors who showed an open position of the arms were judged more positively by patients than those who kept their arms closed or crossed (Harrigan, Rosenthal 1983, Harrigan et al. 1985). Patients with social phobia show more *crossed* rest positions and significantly shorter *closed* and *open* rest positions than their therapists (Kreyenbrink et al., 2017). For the performer himself, adopting a closed sitting position seems to lead to an increase in the experience of negative emotions (Rossberg-Gempton, Poole 1993). Further, in cognitive tests, a positive correlation between the participants' stress level and the proportion of time spent in *crossed* positions is found (Heubach, 2016).

Furthermore, with regards to the trunk, the orientation of the horizontal and vertical body axes relative to the interaction partner is of interest. The horizontal axis is operationalized using the angle relative to the interaction partner: facing (0°- 3°), neutral (3°- 15°), facing away (> 15°) (Davis, Hadiks 1990). Upper body and lower body are coded separately. The orientation in the vertical axis is described as forward, back, upright, right, and left. A more averted body orientation of the doctor is experienced as dominant by patients (Street, Buller 1987). In

psychotherapeutic settings, the patient's horizontal and vertical body orientation, summarized as "accessibility," correlates with his or her degree of self-opening and engagement (Davis, Hadiks 1990). As an example, if the patient faces the doctor and has a forward lean, her or his body orientation has high “accessibility”. Similarly, the therapist's "accessibility" correlates with the therapist's own involvement (Davis, Hadiks 1994). Furthermore, there is a significant correlation between the "accessibility" of therapist and patient and the "accessibility" of the therapist and the patient's self-awareness.

Regarding the relation between the sitting positions of doctor and patient, noncongruent and congruent forms are distinguished (see Charny 1965). In psychotherapeutic settings, congruent sitting postures of therapist and patient are associated with positive, interpersonal, specific verbalized themes tied to the therapeutic situation (Charny 1965). Noncongruent sitting positions of therapist and patient, on the other hand, tend to be associated with self-referential, nonspecific, and contradictory expressions and negations.

Proxemics

Proxemics describes the spatial distance between persons: intimate, personal, social, and public space (Hall, 1966). In doctor-patient conversations, proxemics plays a limited role if the spatial distance between patient and doctor is predetermined by the interior furnishings, e. g. the chairs cannot be moved closer or further apart. In contrast, the regulation of the spatial distance between doctor and patient can be well observed in flexible conversation settings or during hospital rounds. Closer spatial proximity between doctor and patient seems to be associated with higher patient satisfaction (Hall et al. 1995). However, it can be assumed that the influencing factors already discussed above for body touch play an equally important role in the experience of physical proximity or distance.

12.2.5 Summary

In summary, the different subdomains of nonverbal behavior are associated in different ways with cognitive, emotional, and interactive processes. Hand movements *in space* are mainly associated with cognitive processes, e. g. the pictorial formation of thoughts in gesture. In contrast,

hand movements *on body* or *on attached object* serve self-regulation (unless there is a practical purpose) and are displayed more frequently in stressful situations, depression and anxiety. Facial expressions are associated with emotional experience, but are even more often displayed for regulating social interaction. Gaze behavior is related to attentional processes. While the habitual posture is influenced personality, body positions in interaction reflect the psychological relation between the interactive partners.

12.3 Learning objectives for nonverbal interaction in doctor-patient conversation

Many of the empirical studies on nonverbal doctor-patient interaction listed above focus primarily on the doctor's nonverbal behavior with the goal of identifying behavior patterns that are associated with high patient satisfaction (e.g., Bensing et al. 1995, Hall et al. 1995, Ambady et al. 2002, Griffith et al. 2003). With regard to the development of nonverbal interaction training for doctors, this research approach would suggest formulating maxims for the doctor's nonverbal behavior, such as "Smile at the patient!"; "Look at the patient!"; "Orient your body toward the patient!"; "Adopt an open posture!".

Such maxims would make unrestricted sense if nonverbal behavior were exclusively universal and culturally shaped. Patients (with a certain cultural background) would then interpret a certain nonverbal behavior of the doctor in the same way. However, because of the individuality of nonverbal behavior (§ 12.1.2), one and the same doctor's behavior can be experienced quite differently by different patients. One patient may experience a touch by the doctor as pleasant, another as intrusive. Schmid Mast (2007) discusses the influence of different moderators, such as gender, age, education, and type or severity of the medical problem. Since these factors have a considerable influence on one's own nonverbal behavior and the interpretation of the nonverbal behavior of others, Schmid Mast concludes: "The existing results rather speak to a doctor training that is not "one size fits all"" (2007: 317).

Another decisive limitation of the use of maxims is that nonverbal behavior and nonverbal interaction are primarily unconscious (§ 12.1.1). Consciously changing one's own nonverbal behavior in accordance with maxims can therefore disrupt the fine nonverbal coordination between

doctor and patient, which normally takes place unconsciously. Moreover, the patient might get the impression that the doctor is not authentic. If the execution of behavioral maxims is aimed at, it must therefore take place in the context of self-perception and the perception of others. In the sense of the didactic orientation of this textbook, a self-reflective fit of the doctor (§ 12.1) is therefore also required in nonverbal behavior.

Thus, rather than by fulfilling behavioral maxims the potential of nonverbal interaction is benefitted from via self-awareness and awareness of the patient's nonverbal behavior as well as by creative nonverbal interventions. The patient's nonverbal behavior is informative for the doctor because it provides information about unconscious (implicit) or nonverbalized aspects of the patient's emotional experiences and thoughts (§ 12.1, § 12.2). Similarly, the doctor's awareness of his or her own nonverbal behavior is revealing. In addition, the doctor can open up the imagistic processing level to the patient through creative nonverbal interventions.

With this in mind, the following learning objectives for training doctors in nonverbal interaction emerge:

Theoretical knowledge of nonverbal behavior, nonverbal doctor-patient interaction, and the objective analysis of nonverbal interaction

The theoretical knowledge of nonverbal behavior and nonverbal interaction in the doctor-patient conversation is a prerequisite for differentiated perception of others and self-perception and for the responsible implementation of nonverbal interventions. Theoretical knowledge should include the specifics of nonverbal behavior and nonverbal interaction (as compared to verbal communication), the subdomains of nonverbal interaction, and empirical findings on doctor-patient interaction. Knowledge in the objective and reliable analysis of nonverbal behavior and nonverbal interaction further enables the doctor to structure his self-observation and the observation of the patient and to avoid rash subjective interpretations of nonverbal behavior (cf. Lausberg 2013, § 12.3.1).

Objective perception of one's own nonverbal behavior

By means of introspection (cf. § 12.1), the doctor can explore the link between nonverbal behavior and psychological processes in himself. The doctor's perception of his own nonverbal behavior enables new insights to his state of mind during the conversation, e.g., when she or he notices

that she or he spontaneously assumes a *closed* body position with a patient during initial contact.

Here it is crucial that self-perception is objective (see learning objective above: Knowledge in the objective analysis of nonverbal behavior), since the degree of objectivity of the perception of one's own nonverbal behavior correlates with the degree of objectivity of the perception of others. This correlation has been documented, for example, for the description of one's own gait and the gait of other people (Wolff 1943) and for the identification of one's own voice and the voice of other people (Sackheim, Gur 1978). Therefore, an objective and differentiated perception of one's own nonverbal behavior not only serves self-perception per se, but it also improves the perception of others.

Objective perception of the patient's nonverbal behavior

The differentiated perception of the patient's nonverbal behavior complements the information the doctor obtains from the patient's verbal statements. This applies in particular to unconscious (implicit) emotional and cognitive processes or non-verbalized experience and thinking. Perceiving the patient's nonverbal behavior therefore enables the doctor to respond to the patient more comprehensively (§ 12.1.1).

The relevance of the doctor's nonverbal decoding skills was demonstrated by a study of 28 family doctors (DiMatteo et al., 1986). The doctors' nonverbal decoding skills correlated negatively with appointment cancellations or non-appearance at appointments on the part of the patients. The worse the doctors perceived their patients' nonverbal emotional expression, the more frequently the patients did not show up for the agreed appointments.

Development of one's own nonverbal expressiveness

As already stated in § 12.2.1, a high level of gestural expressivity on the part of the doctor is associated with greater patient satisfaction. This is probably due to the fact that the patient understands the doctor's messages better, since the doctor not only verbally but also gesturally and via facial and postural expression conveys the message. Thereby, the patient can learn from the doctor how to express feelings and thoughts non-verbally. The patient experiences the doctor as more engaged, too.

A specific test of the "nonverbal encoding skills" of doctors was carried out in the above-mentioned study by DiMatteo et al. (1986) with a test in

which the doctors were asked to show mimic and prosodic expression[12] of joy, sadness, anger and surprise. Doctors who demonstrated high competence in this task also achieved higher patient satisfaction in their practice with regard to emotional care ("affective care"). The findings demonstrate the relevance of the nonverbal expressive competence of the doctor.

Implementation of nonverbal interventions in the conversation

As explained in § 12.2.1, the performance of co-speech gestures promotes thinking and problem solving in the performer himself, since the gestural formation stimulates an analogous spatial-temporal, imagistic cognitive processing. The doctor can further facilitate the imagistic processing in the patient. For example, he can encourage the patient to find a gesture or a body position for a topic that the patient has difficulty putting into words, e.g., a gesture for relationship dynamics. Likewise, he can offer the patient different gestures and ask him, for example, to check whether they are coherent as an image for a certain feeling or view. By working with gestures or body positions, the doctor thus opens up the nonverbal level for the patient to improve understanding, processing, and expression.

Verbalization of the patient's nonverbal behavior

This learning objective requires specific therapeutic competence and therefore cannot be discussed further within the scope of this book chapter (cf. § 20, 30-34).

12.4 Exercises to develop nonverbal competence in the doctor-patient interaction

Based on the learning objectives outlined above, the following practical exercises have been developed by the author to improve the doctor's perception of the own nonverbal behavior and that of the patient, the nonverbal expressiveness, and the conduction of nonverbal interventions.

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12 Expressive movements of the body including the hands (gestures) were not required in the test.

The exercises gradually increase in complexity from self-perception to nonverbal intervention. Some of the techniques are drawn from body- and movement-oriented psychotherapeutic practices and are applied here to nonverbal interaction. The questions or tasks listed in the boxes are exemplary and are not to be understood as a complete overview.

12.4.1 Self-perception and perception of the patient

Use the "spotlight technique"

During the conversation with the patient, the doctor's attention is primarily focused on the verbal exchange. A prolonged shift of attention to the nonverbal interaction would lead to an interruption of the verbal communication flow. The doctor must therefore learn as a technique to direct attention to specific nonverbal aspects for brief moments - usually while listening - ("spotlight technique") and then immediately rejoin the verbal communication flow.

As discussed above, body position and proxemics are easy to recognize because they are relatively long-lasting nonverbal behavioral phenomena (examples Box 12.1).

Box 12.1	Self-perception and perception of the patient: body position and proxemics

- Are my arms/hands *open* (*uncrossed without contact)*, *closed* (*uncrossed with contact)*, or *crossed* (see NEUROGES picture lexicon for hand positions in the appendix)?
- Are the patient's arms/hands *open*, *closed*, or *crossed*?
- Is my upper body facing the patient (0-3°), neutral (3-15°), or facing away (≥ 15°)?
- Is the patient's upper body facing me, neutral, or turning away?
- How large is the spatial distance between the patient and me? Who determined the distance?

Observe changes in specific nonverbal behaviors of the patient in the course of conversation

Another technique is to choose a characteristic nonverbal behavior of the patient, e.g., a specific body position, gesture, or self-touch, and to

monitor this specific behavior during the course of the interview. This perceptual technique is used to observe a particular nonverbal behavior as it progresses and to identify the context in which it regularly takes one form or another (examples Box 12.2). At the beginning of nonverbal interaction training, the doctor should focus on one nonverbal behavior. With increasing experience, two or more behaviors can be followed during the conversation.

Box 12.2	Observation of a specific nonverbal behavior of the patient in the course of a conversation

- On which topics/after which of my interventions does the patient change his body position? When does he adopt a more *open* (or *closed)* body position?
- On which topics/after which of my interventions does the patient orient more towards me (or turn away from me)?
- With which topics/after which of my interventions does the patient begin to perform hand movements *in space* (or *on body* or *on attached object*) (cf. NEUROGES picture lexicon for hand movements in the appendix)?

Observations of behavioral changes that promote the process (opening of the body position, orientation towards the doctor, hand movements *in space*) enable the doctor to identify his own constructive interventions as well as topics that represent resources for the patient. Conversely, process-inhibiting behavioral changes (closing of the body position, turning away from the doctor, hand movements *on body* or *on attached objects*) show the doctor which of his interventions or which topics lead to withdrawal, turning away and increased self-regulatory activity in the patient.

Capture gesturally conveyed information

Hand movements *in space* (gestures) that usually catch the eye are those that point to places or indicate directions, pantomime actions, or present shapes, spatial relations or movement qualities. These gestures provide information among other about sensory-motor experiences or mental images (examples Box 12.3). When observing gestures, it is important not to interpret hastily (cf. Lausberg, Sloetjes, 2015), but to first describe as precise as possible the movement form of the gesture. It is important to not be biased by the accompanying verbal statement, since verbal and

gestural message may convey different and even contradictory information in particular in case of unconscious conflicts (12.2.1; for a detailed review on gesture speech mismatch see Lausberg, 2024).

Box 12.3 Observation of the patient's gestures

- Pay attention to pointing or directional gestures (*egocentric deictics, egocentric directions*): Do these refer to concrete places or to abstract places such as the localization of persons in the imagined space, goals, or developments?
- … to pantomime gestures (*pantomime*), in which the patient acts as if: On which topic does the patient embody an action?
- … to gestures that present forms (*form presentation*): Do these represent symptom or disease concepts?
- … to gestures that present spatial relations (*spatial relation presentation*): Do these stand for relations between persons or for temporal relations?
- … to gestures that present motion qualities *(motion quality presentation*): Do these represent ideas of developmental processes or relationship dynamics?
- If you have identified a particular gesture of the patient, e.g., a gesture representing the patient's symptom concept (cf. B 12.1): Does this gesture change in the course of the conversation or at later appointment?

12.4.2 Nonverbal expression

Develop nonverbal expressive competence

One's own general nonverbal expressiveness can be further developed through expressive exercises, e.g., Nonverbal Encoding Task (DiMatteo et al. 1986). Just like verbal expressiveness, gestural expressivity can be developed and practiced (examples Box 12.4). The idea is to create an image that is realized in gesture. As compared to drawings, gesture has the advantage that it can not only depict visual but also sensori-motor experiences, e.g. how something moves or feels like. This can be done during the preparation or follow-up of a conversation.

Box 12.4 Development of gestural expressivity

- Before the conversation (preparation): Try to find a gestural image that depicts the solution of the patient's problem or at least emphasizes positive aspects, e.g., in order to gesturally depict a good relationship, both hands can represent two partners who approach each other with a certain dynamics. Take time to find a gestural image that *feels* right.
- After the conversation (follow-up): Try to find a gestural image that depicts the problem or at least a major concern of the patient, e.g. a motion quality that depicts his or her emotions in a difficult relationship. Take time to find a gesture that *feels* right.

It is not necessary to voluntarily/explicitly execute the prepared gesture during the next conversation. There is some likelihood that you will spontaneously perform the gesture if the mental image is coherent in the given conversational context. You may also spontaneously perform a modified form of the rehearsed gesture that is intuitively more coherent for you in the given context. Even if there is a risk that you will not spontaneously display the gesture during the conversation, this method, which relies on implicit processing, has the advantage that the unconscious finely tuned interaction is not disturbed (in contrast to the voluntary execution) (see § 12.1.1).

Implement nonverbal behavioral maxims only under the guideline of a self-reflective fitting

During the conversation, the doctor can consciously influence her or his nonverbal interactive behavior in accordance with maxims. As already explained above, however, changes in one's own nonverbal behavior should only be made against a background of self-reflexive appropriateness (examples in Box 12.5). Further, due to their relatively long duration, body positions compared to other nonverbal behaviors can best be influenced in terms of maxims.

Box 12.5	Change of body position according to maxims while self-reflecting the fitting

- If you notice a *closed* or even *crossed* body position in yourself, try to open it in small steps, checking whether you still feel comfortable in the position and how the patient reacts to the opening of your body position.
- If you notice an averted body orientation in yourself, try to turn your body toward the patient in small steps. However, the feeling of coherence of your orientation in the relationship has priority.

Introduce the patient to sensorimotor and pictorial processing and expression

Furthermore, the doctor can offer the patient gestures as "formulation assistance" for sensorimotor or pictorial aspects of her or his experiences or thoughts (example Box 12.6). In this way, she or he opens up the sensorimotor or pictorial level of processing and expression to the patient. This technique requires the doctor's spontaneous creativity during the conversation. If there are several appointments with the patient, the doctor can of course develop gestural formulation suggestions when preparation the appointment.

Box 12.6	Offers of a gestural expression to the patient

If you notice that the patient has difficulty naming a particular feeling or putting a particular thought into words, you can offer a gestural expression: "Would this gesture be appropriate for …. your feeling, your relationship, your situation, etc.?"

Finally, the doctor can also encourage the patient to find a gesture for his or her own feeling or thought (example Box 12.7). In case of emotional experiences, the doctor can also ask the patient to adopt a certain posture or body position. While gestures serve to enact and require a higher level of cognitive processing, notably abstracting, postures and body positions serve to embody and facilitate the emotional experience (Lausberg, in prep.).

Box 12.7	Stimulation of the patient's nonverbal expression

If you notice that the patient has difficulty naming a certain feeling or putting a certain thought into words, you can encourage him to develop a gesture for it himself: "With which gesture would you ... represent your feeling, symptom, health development, relationship, wishful thinking about the relationship etc.

12.5 Self-evaluation and external evaluation

The analysis of nonverbal interaction is an effective method for self and external evaluation in professional training, practice and research. The potential of this method lies especially in the fact that unconscious processes in interaction are captured. While the analysis of nonverbal behavior was a laborious undertaking 20 years ago, current technical developments allow for easy recording of conversations via video and objective and reliable analysis of nonverbal interaction by applying behavioral analysis systems in combination with annotation software (e.g., NEUROGES-ELAN: Lausberg, Sloetjes 2009/2015). Further, the objectivity and reliability of analysis systems has improved substantially, e.g. for the NEUROGES system for the analysis of nonverbal behavior and gesture the complete research coding manual is available for free download: https://www.peterlang.com/document/1110847. Due to the large number of current research projects on the development of (partially) automatic analyses of nonverbal behavior, among others Artificial Intelligence, it can be assumed that in addition, these approaches will be available for the analysis of nonverbal interaction in the medium term.

12.5.1 Self-evaluation and self-supervision

In training and practice, the doctor has the opportunity to record the conversation with the patient on video and then analyze it. The patient must give his or her written consent for this. The declaration of consent should comply with the usual legal data protection standards and provide for the most restricted use possible of the video recording, e.g., exclusive use by the doctor (and a supervisor if necessary). Furthermore, the options should be listed to watch and discuss the video together with the

patient and to delete the video immediately after recording or at a later time, if desired by the patient.

The self-evaluation of the interview on the basis of the video recording can in principle be carried out using the same questions that were listed for the learning opportunities for self-perception and perception of the patient (cf. Box 12.1-3). For an analysis of hand movement behavior, for example, the NEUROGES short scales (see Appendix) can be used, and for an analysis of body positions, the Position Coding by Davis and Hadiks (1994).

12.5.2 External evaluation and research

In the aforementioned study, DiMatteo et al. (1986) illustrated the need for external evaluation of nonverbal behavior compared to self-evaluation: The doctors' ability to express emotions mimically and prosodically, as determined by external evaluation, correlated positively with patient satisfaction with regard to emotional care. In contrast, the doctors' self-assessment of their nonverbal expressive ability did not correlate with patient satisfaction.

External evaluation of nonverbal interaction is usually carried out by raters who have been trained and in the best case, certified for a specific analysis system. The objective and reliable analysis of nonverbal behavior enables basic research to explore the relationship between parameters of nonverbal behavior and cognitive, emotional, and interactive processes (Lausberg, 2022; Lausberg, 2024). Based on these findings, nonverbal behavior can be used to assess and improve non-verbal doctor-patient interaction. Furthermore, the effectiveness of communication training can be evaluated. Notably, the analysis of nonverbal interaction with NEUROGES-ELAN and the assessment of doctor behavior with the Cologne Manual & Evaluation of Medical Communication (C-M+EMC) (see appendix) reflect different aspects of the interaction (Gabor et al. 2014). An example of this is the current evaluation of the KomPASS training program for competence development on oncology (see § 43).

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Appendix

NEUROGES® Short Scales

The NEUROGES® short scales are a paper and pencil version of the Structure, Focus and ContactRP categories of the NEUROGES® analysis system for nonverbal behavior and gesture (Lausberg, 2013; Lausberg, 2019). The theoretical background and development of the NEUROGES® system is described in book I *Understanding Body Movement* (Lausberg, 2013; free download: https://www.peterlang.com/document/1067495), and the complete research coding manual is provided in book II *The NEUROGES® Analysis System for Nonverbal Behavior and Gesture* (Lausberg, 2019, free download: https://www.peterlang.com/document/1110847).

The NEUROGES® short scales register body movements (see 12.2.1) and rest/pose positions (see 12.2.4). They can be separately applied to code upper limbs (i.e., shoulders, arms, hands with fingers; hereafter: hands), lower limbs (hips, legs, feet), head, and trunk (see book II, pp. 41, Parts of the body submitted to the analysis). The ongoing stream of movement behavior is segmented into **movements**, when the part of the body moves, and **positions**, when the part of the body rests (or more rarely, poses with muscle tension, e.g. as in the thinker pose; see book II, pp. 83 for the distinction between *rest* and *pose*).

In this instruction, the coding procedure is exemplified with the hands, since – among the four parts of the body - they dispose of the largest range of expressivity and are therefore, most informative for the therapist. However, analysis and coding procedure are the same for the other three parts of the body.

Analyzing hand movements

The **picture lexicon for hand movements** shows 16 values that are defined by the combination of two NEUROGES categories, Structure (see the 3 rows in the picture lexicon) and Focus (see the 6 columns in the picture lexicon).

The Structure is primarily defined by the trajectory of the movement, i.e., the path that results from the displacement of the hand (book I, pp. 177; book II, pp. 59). It may be:

(i) *phasic* (picture lexicon row 1): the trajectory is characterized by distinct phases: (i) the hand is transported somewhere (unidirectional path), (ii) performs there a complex one-way movement path (indicated in the picture lexicon row 1 by the arrows) or is held against gravity, (iii) is moved back to rest position (e.g. pointing, moving the hair back, grasping a cup)
(ii) *repetitive* (row 2): the trajectory is characterized by distinct phases: (i) the hand is transported somewhere (unidirectional path), (ii) performs there a repetitive, i.e., forth-back-forth movement path (indicated in the picture lexicon row 2 by the arrows), (iii) is moved back to rest position (e.g. performing a series of baton gestures, scratching, hammering)
(iii) *irregular* (row 3): the trajectory is characterized by the absence of distinct phases; the hand is not transported to a specific location but it starts moving in the rest/pose position where it happens to be with small unstructured movement paths in the position, and it is not displaced (e.g. hand-to-hand fidgeting, fidgeting on the arm rest).

The Focus refers primarily to the location where the hand acts (on) (book II, pp. 91). The location of acting may be:

(i) *within body* (column 1): on body-internal structures such as muscles, tendons, or joints, by moving them without touching them, e.g. rolling the shoulders when they are tense
(ii) *on body* (column 2): on the body surface, e.g. scratching the cheek
(iii) *on attached object* (column 3): on an object that is attached to the body, e.g. adjusting the tie
(iv) *on separate object* (column 4): on an object that is separate from the body, e.g. playing with a pen
(v) *in space*[13] (column 5): in the body-external space without touching anything, e.g. performing a gesture
(vi) *on person* (column 6): on another person's body, e.g. shaking hands

A special case is *shift*[14] movements, in which the hand is transported directly without any detour (unidirectional path) from one hand position to another (see picture lexicon for hand positions bottom shows a *shift* from open to crossed, as defined below, or vice versa).

---

13 *Since* irregular *movements are displayed in the* rest/pose *position, they cannot occur* in space *(in the air) nor* on person.

14 Shift *is technically a Structure value (see book II, pp. 78). However, it cannot be combined with a Focus value, since within the movement per se, there is no Focus. Rather, the hand is transported somewhere and then rests/poses again in a new position.*

Analyzing hand positions

A hand position is coded if both (!) hands *rest* or *pose* or perform *irregular* movements (since in *irregular* movements the hand remains in the *rest/pose* position). If at least one hand performs *phasic* or *repetitive* movements, the hand movement is coded.
The **picture lexicon for hand positions** (top row) shows three values that are based on the NEUROGES ContactRP category (book II, pp. 127, Step 4 b, r/p values). ContactRP categorizes the spatial relation between the hands, more precisely between the knuckles (metacarpophalangeal joints). The spatial relation may be:

(i) *open*: knuckles uncrossed, hands without touch, e.g. right hand rests on right arm rest, left hand rests on left arm rest
(ii) *closed*: knuckles uncrossed, hands in touch, e.g. hands are folded on the lap and perform irregular hand-to-hand movements
(iii) *crossed*: knuckles crossed, hands in or without touch, e.g. posing with crossed arms

Coding movement behavior

On the **coding sheet for hand movement behavior** in the field on the right, the NEUROGES values (16 StructureFocus, 3 ContactRP, and *shift*) are given with the corresponding coding abbreviations. In the six double rows, the therapist's movement behavior is annotated with the coding abbreviations in the upper row marked with **T**, and the client's movement behavior is annotated in the lower row marked with **C**. The movement behavior is coded continuously from left to right, starting in the first double row, followed by the second double row, and so on.

Each double row contains 20 vertical double fields (top and bottom), which refer to interactive events. An interactive event is defined by the co-occurrence a specific behavior (as defined by one of the NEUROGES values) of the client and a specific behavior (as defined by one of the NEUROGES values) of the therapist. T's and C's simultaneously displayed NEUROGES values are entered in the double field: the coding abbreviation of T's NEUROGES value at the top, e.g. **V**, and the coding abbreviation of C's NEUROGES value at the bottom, e.g. **ROB**.

T	**V**										
C	**ROB**										

A new interactive event begins as soon as one of the partners changes the movement behavior, i.e., she/he displays a different NEUROGES value, e.g. C changes from *repetitive on body* to *crossed*. C's value is entered in the next field at the bottom, e.g. X. If the other partner continues with the same value, e.g. T remains in the *closed* position, the coding abbreviation of the preceding field is prolonged with a line.

T	**V**	**-----**									
C	**ROB**	**X**									

Special case: A *shift* is not coded as a separate event, since it basically constitutes only the preparation (transport phase) for the new *rest/pose* position. Therefore, in case of *shifts*, the coding abbreviation is placed in the same field as the coding abbreviation of the new position, e.g. ⇒ **II.**

T	**V**	**------**	**------**								
C	**ROB**	**X**	**⇒ II**								

Special case: In case of *irregular* movements, in addition, the position is coded with the ContactRP value. The abbreviation for the *irregular* movement is placed in the same field as the hand position value, e.g. *closed* + *irregular on body*.

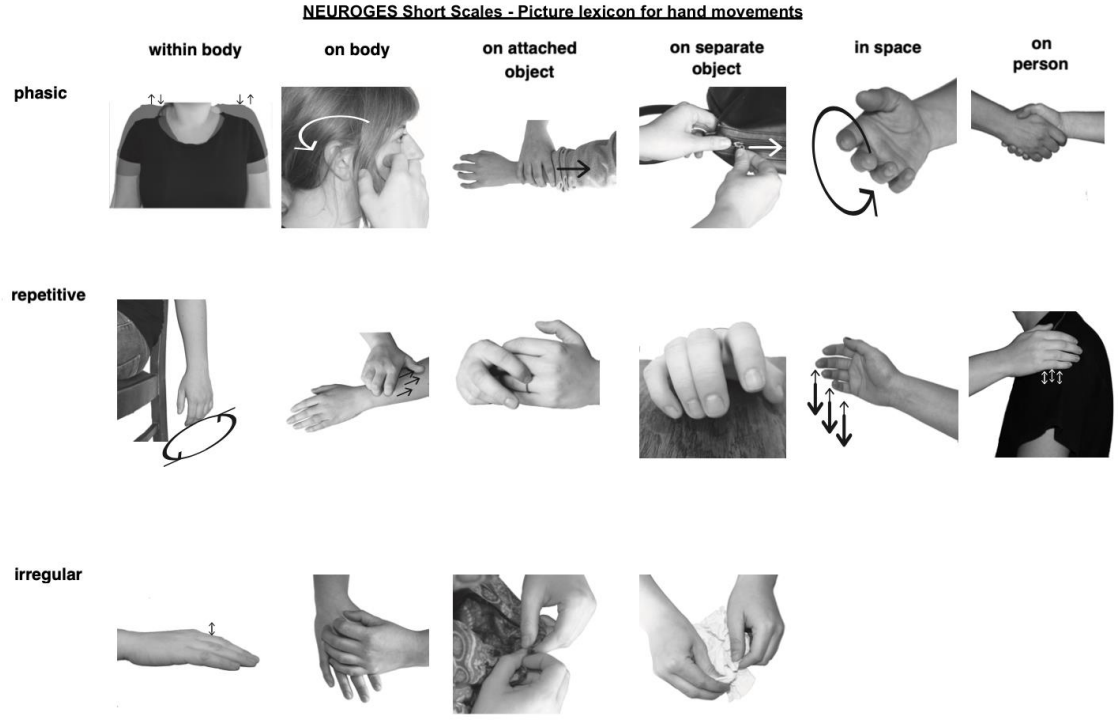
T	**V**	**------**	**------**	**IOB V**							
C	**ROB**	**X**	**⇒ II**	**II**							

Special case: Only in rare cases the two moving hands simultaneously perform two different Structure values. Both values are placed in one field.

T	**V**	**------**	**------**	**IOB V**	**PIS RIS**						
C	**ROB**	**X**	**⇒ II**	**II**	**-----**						

If an even more fine-grained segmentation of movement behavior and consequently of interactive events is aimed at, the following additional distinctions can be included:

1. Hand laterality: in hand movements, the hand that performs the value can be noted: right hand (rh), left hand (lh), both hands (bh), e.g. *rh phasic in space* (while lh rests); *closed + bh irregular on body*.
2. Hand position variations: Individuals may display variations of *open, closed,* and *crossed* positions during a conversation. A variation from the original position can be marked with *, e.g. X*. Alternatively, to register the individual's position repertoire, the variations can be marked with a, b, c, etc., e.g. IIa, IIb, etc.



from: Hogrefe K, Rein R, Skomroch H, Lausberg H (2016): Co-speech hand movements during narrations: What is the impact of right v. left hemisphere brain damage?. Neuropsychologia 93: 176-188.

NEUROGES Short Scales - Picture lexicon for hand positions

II

open

V

closed

X

crossed

⇒

shift

modified according to Lausberg & Kreyenbrink, 2018
in: http://verlag-gespraechsforschung.de/2025/medical-communication.html

NEUROGES Short Scales – Coding Sheet for Hand Movement Behavior

Therapist (**T**):________________ Client (**C**):________________ Date:________ Page:______

T																				
C																				
T																				
C																				
T																				
C																				
T																				
C																				
T																				
C																				
T																				
C																				

Hand movements:

Irregular:
- ***IWB*** = *Irregular **W**ithin **B**ody*
- ***IOB*** = *Irregular **O**n **B**ody*
- ***IOA*** = *Irregular **O**n **A**ttached Object*
- ***IOS*** = *Irregular **O**n **S**eparate Object*
- ***IOP*** = *Irregular **O**n **P**erson*

Repetitive:
- ***RWB*** = *Repetitive **W**ithin **B**ody*
- ***ROB*** = *Repetitive **O**n **B**ody*
- ***ROA*** = *Repetitive **O**n **A**ttached Object*
- ***ROS*** = *Repetitive **O**n **S**eparate Object*
- ***ROP*** = *Repetitive **O**n **P**erson*
- ***RIS*** = *Repetitive **I**n **S**pace*

Phasic:
- ***PWB*** = *Phasic **W**ithin **B**ody*
- ***POB*** = *Phasic **O**n **B**ody*
- ***POA*** = *Phasic **O**n **A**ttached Object*
- ***POS*** = *Phasic **O**n **S**eparate Object*
- ***POP*** = *Phasic **O**n **P**erson*
- ***PIS*** = *Phasic **I**n **S**pace*

Hand positions:
- ***II*** = *open* (hands without touch; uncrossed)
- ***V*** = *closed* (hands in touch; uncrossed)
- ***X*** = *crossed* (hands crossed; in touch or without
- **→** = *shift* (change of position)

modified according to Lausberg & Kreyenbrink 2018
in: http://verlag-gespraechsforschung.de/2018/ pdf/kommunikative-kompetenz.pdf

For more information see: https://neuroges.neuroges-bast.info/

	Cologne Manual & Evaluation of Medical Communication					C-M+EMC
	OSCE Checklist for Medical Interviewing					[1]1998
	© Department of Psychosomatics and Psychotherapy at the University of Cologne					[6]2022
No.	Course	Interviewer	Date	Patient (SP)	Rater	Sum:
						☐☐ 50

1 Building a relationship	☐4	4 Exploring details	☐☐ 12
1 Framing • Enable confidentiality • Avoid disturbances		1 Inquire about complaint dimensions • Localisation and radiation • Quality, intensity *(scale 0-10)* • Dysfunction/disability • Accompanying symptoms • Time (beginning, course, duration) • Condition "I what situation ...?"	❶❷❸❹
2 Greeting • Make eye contact • Verbal greetings, shaking hands • Address by name	❶	2 Exploring subjective ideas • Concepts *"What do you imagine?"* • Explanations *"Do you see causes?"*	❶❷❸❹
3 Introduction • Introduce yourself by name • Communicate function ("ward doctor")	❶	3 Complete anamnesis • Systems ("From head to toe") • General health, sleep, etc. • Previous illness, pre-treatment • Family risk factors • Family, friends, job, finances, etc. • Addressing gaps (sensitive issues)	❶❷❸❹
4 Situating • Speak sitting down (chair to bed) • Ensure convenience • Coordinate proximity/distance	❶		
5 Orientation • Structure conversation • Goals, time frame	❶		
2 Listening to concerns	**☐☐ 10**	**5 Negotiating procedures**	**☐☐ 12**
1 Start the conversation openly • Offer "What can I do for you?" • Occasion *"What brings you to me?"*	❶	1 Plan an evidence-based approach • What is secured? • Do diagnostics have consequences?	
2 Encouraging storytelling - feedback • Listener signals *hm, yes,* nod, look • Avoid interruptions • Allow breaks, free choice of topics	❶❷❸❹	2 Clarify expectations • Ideas, wishes, hopes *"What did you have in mind?"* • Control beliefs *"What could you change yourself?"*	❶❷❸❹
3 Active listening - verbal support • Encourage speaking up • Repeating statements verbatim • Paraphrase statements • Openly ask further: *"How did that come about?"*	❶❷❸❹	3 Explaining previous findings • Communicate diagnosis • Communicate problems	❶❷❸❹
4 Ensure understanding • Ask "Do I understand correctly ...?" • Summarise	❶	4 Examination or therapy plan • Explore decision model (SDM) • Discuss proposals and risks • Consider reactions • Strive for consensus	❶❷❸❹
3 Eliciting emotions	**☐8**	**6 Drawing conclusions**	**☐4**
1 Pay attention to emotions • Verbal (e.g. metaphors) • Non-verbal (e.g. gestures, facial expressions)		1 Summarise the conversation • Reason for consultation, complaints, • Diagnosis, therapy agreement	❶
2 Empathise with patient's situation		2 Offer clarification of outstanding issues • Information *"Do you still have questions?"* • Satisfaction "Can you handle it? "	❶
3 Respond empathically • Offer appropriate help and comfort • Acknowledge burdens, coping	❶❷❸❹	3 Arrange follow-up appointments • Examination appointments • Set a meeting date	❶
4 Promote emotional openness • Addressing *"I perceive that ...?"* • Naming *"You are sad then?"* • Clarify *"What do you feel then?"* • Interpret *"Your fear may come from..."*	❶❷❸❹	4 Say goodbye to the patient	❶
		5 Complete documentation • Coding & conversation impressions • Topics for follow-up talks	

❶ [❶ = not met;❶ = met] ❶❷❸❹ [❶ = not met ...❹ = fully met]

Cologne Manual & Evaluation of Medical Communication (C-M+EMC)