

Assessment of Interpersonal Motivation in Transcripts (AIMIT): An Inter- and Intra-rater Reliability Study of a New Method of Detection of Interpersonal Motivational Systems in Psychotherapy

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Assessing Interpersonal Motivations in Transcripts (AIMIT) is a coding system aiming to systematically detect the activity of interpersonal motivational systems (IMS) in the therapeutic dialogue. An inter- and intra-rater reliability study has been conducted. Sixteen video-recorded psychotherapy sessions were selected and transcribed according to the AIMIT criteria. Sessions relate to 16 patients with an Axis II diagnosis, with a mean Global Assessment of Functioning of 51. For the *intra-rater reliability* evaluation, five sessions have been selected and assigned to five independent coders who were asked to make a first evaluation, and then a second independent one 14 days later. For the inter-rater reliability study, the sessions coded by the therapist-coder were jointly revised with another coder and finally classified as *gold standard*. The 16 *standard* sessions were sent to other evaluators for the independent coding. The agreement (κ) was estimated according to the following parameters for each coding unit: evaluation units supported by the 'codable' activation of one or more IMS; motivational interaction with reference to the ongoing relation between patient and therapist; an interaction between the patient and another person reported/narrated by the patient; detection of specific IMS: attachment (At), caregiving (CG), rank (Ra), sexuality (Se), peer cooperation (PC); and transitions from one IMS to another were also scored. The intra-rater agreement was evaluated through the parameters 'cod', 'At', 'CG', 'Ra', 'Se' and 'PC' described above. A total of 2443 coding units were analysed. For the nine parameters on which the agreement was calculated, eight ['coded (Cod)', 'ongoing relation (Rel)', 'narrated relation (Nar)', 'At', 'CG', 'Ra', 'Se' and 'PC'] have κ values comprised between 0.62 (CG) and 0.81 (Cod) and were therefore satisfactory. The scoring of 'transitions' showed agreement values slightly below desired cut-off (0.56). Intra-rater reliability was very good (κ values for Cod = 0.90; κ for all IMS = 0.78). Data seem to support the validity of the AIMIT method in terms of reliability, and encourage to further implementation of the AIMIT approach. Copyright © 2011 John Wiley & Sons, Ltd.

Key Practitioner Message:

- Systematic assessment of transcripts in psychotherapy.
- Multimotivational interpersonal theory.
- Reliability study.

Keywords: Attachment, Interpersonal Motivation, Reliability, Assessment

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INTRODUCTION

Psychotherapists are faced in their daily work with their patients' different interpersonal motivations, which quite often shift during the clinical dialogues: motivations to seek help and comfort, to assert themselves or to strive for dominance in the relationship, to seduce, to share experience or to cooperate in exploring the possible meanings of it.

While there are both psychoanalytic (Lichtenberg, 1989; Lichtenberg, Lachmann, & Fosshage, 1992) and cognitive-ethological (Gilbert, 1989) guidelines for orienting in the mutable motivational landscape that discloses during the psychotherapeutic dialogues, there is as far as we know no method for a systematic assessment of the conscious or unconscious interpersonal motivations that underpin patients' narratives and intersubjective behaviour in the therapeutic relationship. Such a method could provide the ground for an empirical study of the motivational processes that characterize the clinical encounter and unfold during the psychotherapy process. Other attempts in this area such as the investigation of metacognition in therapeutic narratives (Dimaggio et al., 2009; Semerari et al., 2003) and the role of mentalization and reflective function (Fonagy & Target, 2001) may be considered to illustrate the link between basic emotional and motivational systems and the psychotherapeutic narrative as the object of investigation. The Assessing Interpersonal Motivations in Transcripts (AIMIT) approach could be compared with this method, in particular with metacognition assessment scale (MAS) (Semerari et al., 2003), in order to better investigate the therapeutic process. The study of the determinants of change in psychotherapy, as well as of ruptures and reconstructions of therapeutic relationship, are at the moment the main focus of the AIMIT approach, in the single case study as well as in different diagnostic categories (Fassone et al., 2010a, 2010b; Santomassimo et al., 2010).

In this paper we describe our beginning exploration of such a method, and the results of a first study of its reliability.

A THEORY OF INTERPERSONAL MOTIVATION

The first step in developing our method for the study of basic interpersonal motivations in the clinical dialogues and in the therapeutic process has been to select a suitable theory of the multiple motivational systems that characterize any significant human encounter. We decided to resort mainly to Gilbert's theory (Gilbert, 1989) because it is grounded in evolutionary thinking and ethological across species comparison. Such a foundation provides concepts for the study of motivation as free as possible from biases linked to the history of any specific theory of

psychotherapy, and as close as possible to those inspiring basic research in evolutionary neuroscience (Panksepp, 1998).

The evolutionary-ethological approach to the study of human motivation suggests that there are at least seven basic motivational systems that we share with our primate ancestors and that can therefore be regarded as foundational of the different goals we pursue in social interactions.

The goal of the first system is care seeking. Attachment theory and research provide abundant evidence of its importance across the whole lifespan of every human being (Bowlby, 1982, 1988; Cassidy & Shaver, 2008). The attachment or care-seeking motivational system becomes active every time we are distressed because of pain, loneliness and fear. Emotions of fear (separation anxiety), anger (protest) and sadness (perceived loss) accompany the unsuccessful operations of the attachment system, while emotions and feelings of relief, felt security and joy characterize the achieving of the system's goal (protective proximity to a caring person).

The goal of the second system is caregiving (nurturing system in Panksepp's terminology: Panksepp, 1998). The basic affects that characterize the caregiving system are anxious solicitude, protective tenderness (warmth) and guilt (when one fails to respond to a close person's request for help).

The goal of the third system is the definition of the ranks of dominance or submission through competitive behaviour (ritualized aggression). The basic emotions of the ranking system are competitive anger, fear of judgement and inferiority, pride (when one wins in the competition), shame (when one loses) and the typical sadness that follows defeat.

The goal of the fourth system, pursued through specific sequences of emotions, behaviours and affects, is sexual bonding.

While these four systems underpin and organize the social life of all mammals, three other motivational systems are at work in those species that are endowed with a particularly rich and elaborate social life: they underpin, respectively, affiliation to a social group, social play and cooperation on equal grounds. According to Tomasello (1999, 2008), a cooperative system—i.e., the greatly increased ability to share deliberately an object of attention, to perceive self and others as *similar in intentions* (rather than focusing on differences in rank, ability to provide comfort or gender) and to pursue a goal through joint efforts—might have been the single Darwinian adaptation responsible for the appearance of language and cultural evolution in our species.

Human beings become aware of each other's intentions in a relationship from two sources of information. The first, shared by all primate species, is grounded on the operations of the mirror neuron system (Gallese, 2003;

Iacoboni, Molnar-Szakas, & Gallese, 2005), and comprises behaviours and emotions (both those expressed by the other and those felt). The second, specifically human, is represented by utterances, where a pivotal role is played by words indicating the typical emotions and affects of each motivational system, and/or by words that explicitly state specific interpersonal intentions. Consciousness and language make human beings able to internalize and direct also towards oneself the operations of the social motivational systems that can only be directed to interacting others in all other living species. We exploit the evolved social motivational systems not only to deal with others, but also, in the inner dialogue between I and Me, to comment on our own experiences. Paul Gilbert (2000, 2005) calls 'social mentalities' the patterns of *cognition*, affect and behaviour generated by the basic social motivational systems we share with our primate ancestors, and explores the very different outcomes of commenting on our own painful experiences with a caring or a competitive-aggressive (ranking) mentality.

THE DEVELOPMENT OF A METHOD FOR ASSESSING INTERPERSONAL MOTIVATIONS IN THE TRANSCRIPTS OF PSYCHOTHERAPY SESSIONS

The second step in the development of our method has been to look systematically in the transcripts of individual adult psychotherapies, for those verbal utterances in the participants' speech that could be indicative of the activation of a given interpersonal motivational system. We decided to focus on verbal indicators of motivations alone, in order to develop a reliable method that could be applied by different observers to the same transcript. A group of 17 experienced psychotherapists, all engaged from at least 8 years in the application of the above-summarized motivational theory to their daily practice, set at work examining carefully the transcripts of their own and other participants' psychotherapy sessions in order to identify and classify the verbal indicators of the activity of each motivational system. Two members of this research group (*Italian Group for the Study of Interpersonal Motivation*) came to use the cognitive-ethological theory of interpersonal motivation from a previous psychodynamic professional background, two from a systemic-relational approach, one from a transactional analysis and 12 from a post-graduate or post-medical specialization cognitive-behavioural therapy training.

An Italian thesaurus of words related to volition and affect was used as a shared tool for agreeing upon the terms hinting at motivational issues, to be selected for further analysis of the utterances within which they appeared. For instance, words and phrases used to describe painful feelings and need for help betray

care seeking (attachment), while utterances that assert one's superiority or inferiority in the comparison between self and others betray competitive (ranking) motivations. Once these key words and phrases were identified in the transcripts, a further analysis of the general meaning of the sentence where they appeared allowed for the identification of a set of verbal indicators of the activity of a given motivational system (either in the ongoing interaction with the other member of the therapeutic dyad or in the memory of a reported episode). This developmental phase, with peer revisions and early evaluations took 18 months. From the initial rough set of indicators, the final result of these proceedings has been the collection of 64 criteria for the detection of indicators of motivational themes, as showed in Table 1.

This collection, organized as a manual for coding the underpinning activity of each motivational system in the verbal exchanges between patient and therapist, has been published, under the joint authorship of the 17 participants to the research programme, as part of a book (in Italian) edited by Liotti and Monticelli (2008). The name given to the coding manual is AIMIT.

The first question that deserves an empirical test is whether or not there is a major loss of information, with respect to the information available to the clinician during the live sessions (i.e., not only verbal, but also emotional information both felt in the therapist's consciousness and witnessed in the patient's non-verbal expressions), when the assessment of motivational dynamics is performed only based on verbal indicators. The rest of the paper reports a research study that addresses this question. Before discussing the method and the results of the research study, a few notes on the AIMIT coding strategy are necessary.

The AIMIT Manual suggests to try to attribute a specific 'motivational' code to each unit of communication between patient and therapist. A communication or coding unit is defined as any utterance comprised within two utterances of the interlocutor. Thus, a number of communication units in the transcript receive either the code 'At' (care seeking), or any of the other possible codes (CG for caregiving, Ra for ranking, Se for sexual mating, PC for peer cooperation, Af for affiliation, SP for social Play). When no indicator of any interpersonal motivational system can be assessed in the communicational unit, no code is assigned to the unit. The AIMIT Manual allows for a distinction between interpersonal motivations straightforwardly directed by the patient towards the therapist (or vice versa), and those that are contained only inside the patients' narrative of their interactions with other people. The code Rel is assigned to the former, and the code Nar is assigned to the latter, so that each communication unit receives at least two codes, one for the motivation and one for its appearance either in a narrative

Table 1. Synopsis of the Assessment of Interpersonal Motivation in Transcripts detection criteria for each interpersonal motivational system

1. Attachment system (At)
 - 1.a. Non-verbal indicators
 - 1) 1.a.a. Crying (either faint or full sobbing)
 - 2) 1.a.b. Laughing while describing painful experiences
 - 3) 1.a.c. Abrupt changes in the tone of voice (screaming)
 - 4) 1.a.d. Detachment from the dialogue (silence lasting more than 30 seconds)
 - 1.b. Verbal indicators
 - 5) 1.b.a. Long descriptions of painful emotions or events that caused (or are causing) the speaker any kind of suffering, clearly indicated as such
 - 6) 1.b.b. Phrases containing explicit demands for guidance, help and comfort
 - 7) 1.b.c. Descriptions of episodes, fantasies or dreams concerning times when the patient sought and received help, soothing or protection
 - 8) 1.b.d. Descriptions of episodes, fantasies, expectations or dreams in which others have refused, are refusing or will refuse to provide expected or demanded help, protection and soothing
 - 9) 1.b.e. Descriptions of partial inattention of the interlocutor to demands for help and comfort
 - 10) 1.b.f. Descriptions of such carelessness of potential caregivers as to suggest the impossibility even of asking, expecting or hoping for help, protection and soothing in moments of pain
 - 11) 1.b.g. Statements of self-sufficiency
 - 12) 1.b.h. Statements of dependence
 - 13) 1.b.i. Descriptions of mourning over losses, even if only imagined and expected
 - 14) 1.b.l. Descriptions of situations where an affectively important person threatens to abandon the speaker
 - 15) 1.b.m. Descriptions of experiences of long-lasting loneliness
 - 16) 1.b.n. Descriptions of traumatic interactions, in which the potential caregiver is described as hostile and malevolent
2. Caregiving system (CG)
 - 2.a. Non-verbal indicators

No non-verbal indicators of the caregiving system are listed.
 - 2.b. Verbal indicators
 - 17) 2.b.a. Expressions of sympathy, concern or protective tenderness towards the other's needs
 - 18) 2.b.b. Expressions of fear caused by actual or imaginary risks run by others
 - 19) 2.b.c. Statements of regret or guilt for not having met the other's needs for help/soothing
 - 20) 2.b.d. Statements of freedom from feelings of guilt for hidden and secret actions, lies or deceptions aimed at avoiding to provide help
 - 21) 2.b.e. Explicit statements of belief that the other can 'make it alone'
 - 22) 2.b.f. Descriptions of the other as vulnerable, frail, suffering and in need for help, soothing or protection
 - 23) 2.b.g. Statements of feeling helpless in meeting the other's needs for help/soothing
3. Rank system (Ra)
 - 3.a. Non-verbal indicators
 - 24) 3.a.a. Raising of the tone of voice, even shouting, when not accompanied by crying
 - 25) 3.a.b. Lowering of the tone of voice, when not accompanied by crying
 - 26) 3.a.c. Sneering laugh
 - 3.b. Verbal indicators
 - 27) 3.b.a. Comparison in terms of superiority-inferiority (even moral and ethical) between the speaker and the other
 - 28) 3.b.b. Verbal attitudes of criticism towards oneself or the other
 - 29) 3.b.c. Orders, instructions or prescriptions of conducts that the other is expected to follow
 - 30) 3.b.d. Punishments and threat of punishments
 - 31) 3.b.e. Statements signifying that the speaker sees himself or another as the one assigning merits and recognitions or sanctions and demerits by which the other should feel rewarded or humiliated
 - 32) 3.b.f. Statements concerning the speaker's priority in accessing any resource, or to be entitled to the other's obedience to his/hers decisions whenever there is a common choice to make
 - 33) 3.b.g. Statements of freedom from the other's orders, injunctions or expectations
 - 34) 3.b.h. Statements concerning the speaker's or the other's unworthiness
 - 35) 3.b.i. Description of episodes of mockery, derision, sarcasm, violence and other behaviours causing a feeling of humiliation (slaps, spits, other types of inflicted or suffered humiliating physical aggression)
 - 36) 3.b.l. Statements of disgust or contempt towards a person (included the speaker himself/herself)
 - 37) 3.b.m. Statements of envy
 - 38) 3.b.n. Explicit statements of triumph or success in a conflict; statements, even expressed in slang, of self-congratulation
 - 39) 3.b.o. Explicit statements of humiliation or defeat in a conflict; statements, even expressed in slang, of self-contempt or self-depreciation
 - 40) 3.b.p. Statements of fear of a negative judgement and performance anxiety leading to behaviours intended to avoid negative judgement

Table 1. (Continued)

	41)	3.b.q. Statements of being entitled to receive respect or invitations to another to claim for respect.
	42)	3.b.r. Statements of humiliation or shame, felt or attributed to another person (which is criticized and judged negatively), including critical remarks concerning blushing.
	43)	3.b.s. Statements of having suffered, suggesting 'self-pity' aimed at inducing shame rather than guilt in others
4.		Sexual system (Sex)
4.a.		Non-verbal indicators
	44)	4.a.a. Acts of explicit seduction or evident sexual excitement
4.b.		Verbal indicators
	45)	4.b.a. Statements of sexual attraction, felt or exerted
	46)	4.b.b. Descriptions of sexual acts, dreams or fantasies
	47)	4.b.c. Descriptions of problems in sex life
	48)	4.b.d. Descriptions of attitudes or ways of dressing regarded by the speaker as explicitly seductive
	49)	4.b.e. Statements of jealousy towards an actual or fancied sexual partner
	50)	4.b.f. Descriptions of suffered, exerted or attempted sexual violence
	51)	4.b.g. Descriptions of perverse sexual acts
5.		Peer cooperation system (PC)
5.a.		Non-verbal indicators
	52)	5.a.a. Simultaneity of both interlocutors' expressions, independently from their verbal content, as when therapist and patient say a phrase or a word in unison
	53)	5.a.b. Moving from a chair initially placed in front of the interlocutor, to go next to him and examine an object together
5.b.		Verbal indicators
	54)	5.b.a. Explicit statements of perceiving oneself as peer to the other, in situation that do not involve conflicts.
	55)	5.b.b. Invitations to share the attention.
	56)	5.b.c. Use of the pronoun 'we' in phrases that express sharing of experience and/or intentions during any exchange between the speaker and another person.
	57)	5.b.d. Description of activities directed to achieve shared goals in a diadic relationship.
	58)	5.b.e. Description of shared experiences or episodes characterized by attunement of intentions, feelings and attention towards the same topic.
	59)	5.b.f. Explicit expressions of agreement
	60)	5.b.g. Sentences that, besides implying agreement, further develop a statement, remark or comment made by the interlocutor
	61)	5.b.h. Expressions of empathy
	62)	5.b.i. Joint investigation of topics of shared interest
	63)	5.b.l. References to a pact, or to a previously agreed upon 'therapeutic contract'
	64)	5.b.m. Expressions of regret for the betrayal of a pact or agreement

or in sentences straightforwardly commenting the therapeutic relationship (sentences that simultaneously refer to the interlocutor in the therapeutic dyad and to other people in the patient's life can receive the double code Nar-Rel). When codes of different motivational systems can be attributed to the same unit, the AIMIT Manual prescribes to assign a third code to the unit, 'transition' (TR), indicating that a shift from one system to another occurred during that utterance.

The following excerpts from the transcripts of three different patients' psychotherapy sessions illustrate the AIMIT coding strategy.

Therapist (T): *What are you experiencing right now?*
[no code]

Patient (P): *I guess that's why therapy is so important to me. I really need someone to help me find my way. It feels good for me to be able to tell someone about these things* [At Rel]

T: *You seem hopeless when you describe to me your experience with people around you who seem they don't care . . . Do you think I care?* [CG Rel]

P: *People say: "If you wish to change, you've got to do this and that, you've got to throw away this bad habit or that . . .". They are only able to criticize and give orders and force me to relinquish parts of myself, like my teacher of philosophy who wanted to turn me into an agnostic* [Ra Nar-Rel]

T: *I think it would be useful for our mutual understanding to try to share what we feel is happening between us, even if we may be sort of disagreeing* [PC Rel]

P: *Well, how will that help me? I do not believe any comfort would come to me from it* [At Rel].

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P: *You are the boss here, you are the Doctor, but I am not going to follow this prescription. Why do you wish*

to make me feel . . . mmm . . . humiliated? It makes me feel weak, . . . vulnerable [Ra Rel, At Rel TR]

didactic purposes, 6–24 months before the beginning of the study. Therapists were excluded from the rating of their own sessions and from subsequent analysis.

MATERIAL AND METHOD

Sample

The study of the *inter-rater reliability* evaluation was based on the following procedure. From the available files, 16 video-recorded psychotherapy sessions were selected and transcribed according to the criteria in the AIMIT Manual. The sessions relate to 16 patients with an Axis II diagnosis at different levels of severity, psychosocial adjustment and functioning (see Table 2). The sessions, led by three different therapists, were selected on the basis of the audio–video quality. We excluded all the sessions with the following characteristics: first interview, evaluation sessions preceding the beginning of psychotherapy, the first three psychotherapy sessions, final sessions, consultations about psycho-pharmacological treatments. The selected sessions were substantially led within cognitive–behavioural framework, with an upgrade to dialectical behavioural therapy (Prunetti et al., 2008) and cognitive-evolutionary therapy for the treatment of severe outpatients with comorbid disorders and/or personality disorders (Ivaldi, Fassone, Rocchi, & Mantione, 2007). For the *intra-rater reliability* evaluation, five sessions have been selected and assigned to five raters who were asked to make a first evaluation, and then a second independent one 14 days later. The three therapists, as part of the research group, were selected because they were expert therapists as well as they had a pool of video-recorded sessions. It is worthwhile to say that all selected sessions were video-recorded well before and independently from the aims of the present study. In fact, sessions were previously recorded for different clinical, research and

Procedures

The first step in our study of the reliability of the AIMIT coding system has been the creation of a gold standard. The video-recorded sessions were transcribed. The coding units (any utterance comprised between two utterances of the interlocutor) have been numbered consecutively, from the beginning to the end of each session transcript. The transcripts of these calibration sessions were then coded by an independent evaluator. The codes attributed by the first independent evaluator were thereafter jointly reviewed with a second independent coder.

All the calibration sessions, once they were jointly coded by the first and the second evaluator, were reviewed by a panel of two investigators. This work had a double objective: to standardize the format of the material and detect gross mistakes in the procedure application (oversights, omissions, missing data etc.), and—more delicate—to identify possible coding biases, systematic errors in the manual application, problems of interpretation or gaps in the coding procedures indicated in the manual itself. This revision has required the modification (by consensus) of the rough unprocessed data in 60 out of 4886 evaluation units, but has also allowed a systematic data quality control and the identification of potential weak points of the coding procedure.

During both the first coding and the revision of it through a joint analysis of the codes, the video recordings were carefully examined any time it was necessary to clear up any doubt about the meaning of ambiguous phrases and words in the transcript. The exclusively visual information (gestures and non-verbal language),

Table 2. Sample characteristics

Subjects	<i>n</i> = 16
Sex	
Male	7
Female	9
Age (mean)	37 years (range ± 8)
DSM-IV diagnoses (Axis II):	
Borderline personality disorder	8
Narcissistic personality disorder	3
NOS personality disorder	5
Setting	
Outpatients	14
Inpatients	2
Global Assessment of Functioning (mean, range)	51 (±9)
Months of therapy (mean)	18 months (±6)

NOS = Not otherwise specified.

by definition absent in the sessions' transcript, were not considered.

These procedures allowed us to display a set of 16 'calibration' sessions, coded and revised by two independent evaluators. Remaining disagreements in the units of these sessions were grouped and discussed by a panel of seven evaluators, and resolutions on each unit were accepted when majority of judges (at least five out of seven) agreed upon.

These calibration sessions were finally classified as *gold standard*, that was the reference for all the following evaluation and coding.

Then, the 16 sessions were sent to other four independent evaluators, who were members of the working group, which contributed to the draft and the development of the manual, and were therefore well acquainted with its procedures and coding rules. Each of them scored four sessions. None of them had information of any type concerning patients, diagnoses or treatments.

AGREEMENT EVALUATION

We used the Cohen's κ Test to evaluate the inter- and intra-rater reliability. Any agreement equal or above 0.60 is conventionally considered satisfactory, while an agreement above 0.70 is regarded as good or very good (>0.80).

The agreement among raters was estimated for each paired coding unit according to the following parameters: (1) coding of presence/absence within each coding unit of a locution supported by the 'codable' activation of one or more IMS (parameter labelled 'Cod'); (2) a motivational interaction with reference to the ongoing relation between patient and therapist (coded as 'Rel'); (3) an interaction between the patient and another person reported/narrated by the patient (coded as 'Nar'), and reported as such by the patient during the session (e.g., the patient speaking about his relation with his mother); and (4) interactions supported by the activation of specific IMS, in particular: attachment (At), caregiving (CG), rank (Ra), sexuality (Se), peer cooperation (PC) and transitions (TR) from an IMS to another within the same unit, for a total of nine coding parameters (Cod, Rel, Nar, At, Cg, Ra, Se, PC and Tr). The coding of the IMS of social play and affiliation were not considered, due to the rarity of detection of these systems in this experimental sample.

First, the agreement was calculated separately with regard to all the mentioned variables for each coding unit and each session and then on the whole sample. In fact, we could not rule out a different distribution of the agreement values as regards to the type of patient and both the gold standard evaluation and the other coders involved in the study.

The resulting data were inserted in a database and processed with the Statistical Package for Social Sciences, Chicago, Illinois, USA (SPSS) program.

The intra-rater agreement was evaluated through the parameters 'Cod', 'At', 'CG', 'Ra', 'Se' and 'PC' described above.

Figure 1 gives an example of the material and scoring procedure.

RESULTS

To analyse the inter-rater reliability, we processed the data concerning the 16 sessions, for a total of 2443 paired coding units. Each unit was examined twice (as the '*gold standard*' and by the *independent* evaluator) for a total of 4886 evaluation units and the agreement was calculated, for each coding, in relation to all the considered parameters (9), for a total of 21,987 paired coding units. To analyse the intra-rater reliability, the first five sessions were examined for a total of 511 paired units. Table 2 shows a description of the sample of cases, relatively to both the patients and the therapy.

Figure 2 compares, instead, the frequency distribution of the positive coding effected in the gold standard sessions and by the independent evaluators on the 2443 examined units.

It is interesting to notice that the two profiles (namely, the overall shape assumed by the histograms in the two evaluations) are very alike. Although this does not represent in any way a measure of the accordance, it provides graphic information useful both to compare the two coding procedures as a whole and to outline some specific aspects. For example, it is worth noting the marked preponderance of units in which the activation of the individuated IMS refer more to the ongoing relation 'Rel' rather than to the IMS active in narrated episodes 'Nar'. It also emerges that the peer cooperation system 'PC' is the most frequently detected one in both gold and independent evaluations.

The following Tables (3–5) summarize the results in terms of absolute distribution of the codes attributed by both the *gold* and the *independent* coders, and the respective κ values for each of the parameters.

Table 5 refers to the intra-rater reliability. Given that κ values for intra-raters reliability in the first five sessions evaluated was fairly good, we thought it was satisfactory as a result and we did not proceed with further analysis.

DISCUSSION

Major Findings

As evidenced by the tables reporting our data on the inter-rater reliability, eight out of the nine parameters on which the agreement (κ) was calculated, ('Cod', 'Rel', 'Nar', 'At', 'Ra', 'Se', 'PC') have κ values comprised between 0.62

Unit	T: so, how did you feel while you were waiting for me last week?	Coding (none)
56	P: I was very worried... I thought you could have forgotten our appointment... <u>it is not a good period for me and I need lots of help...</u>	AT-REL
57	T: <u>...I really can understand this, ... I am quite aware that you are in difficulty in this period...</u>	CG-REL
789	T: ... and then, what happened?	(none)
790	P: <u>I felt like an idiot with your colleague, a real idiot!...</u> just as it happens with you <u>when you ask me about my homework</u> and I didn't it ...	RA-NAR RA-REL
909	T: ... I am not sure I understood what you said...	(none)
910	P: I told you I thought about you last days... <u>because I like you, as if I would like to make sex with you...</u>	SE-REL
1223	T: so, <u>we could think to define some goals for your therapy, ... we can work together...</u>	PC-REL
1224	P: <u>yes, I think that now we are ready to do it...</u> it was not easy... <u>but we did it</u> ... <u>we needed quite a long time...</u>	PC-REL

Figure 1. Some examples of coding procedures, from four different therapy sessions (units 55–57; 789–790; 909–910; 1223–1224)

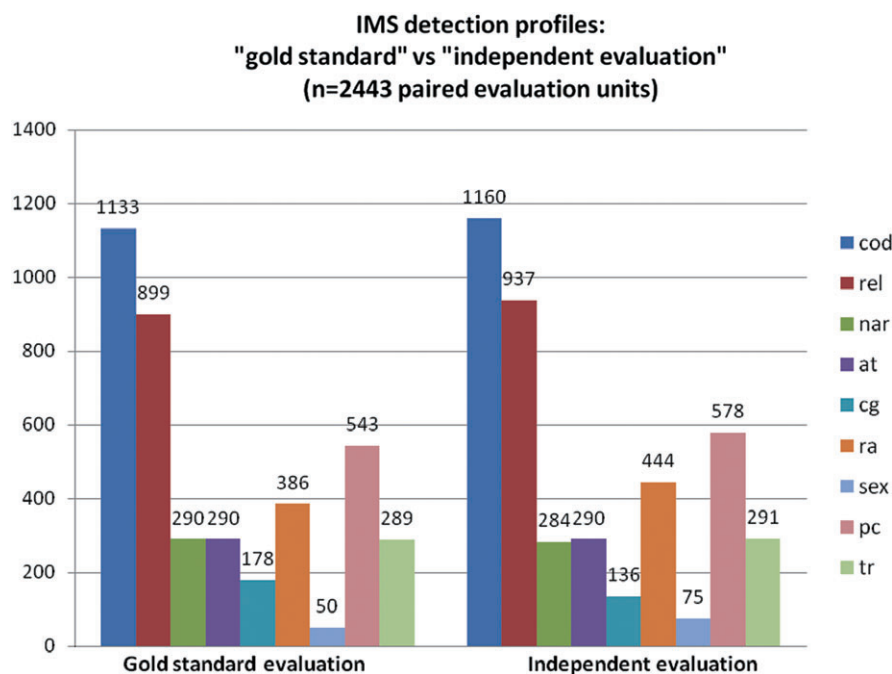


Figure 2. Interpersonal motivational systems detection profiles: comparison between gold standard evaluation and independent evaluation on the whole sample of evaluation units

Table 3. Crosstabs and κ values within each coding unit of a locution supported by a 'detectable' activation of one or more interpersonal motivational systems (labelled as 'Cod'), of a motivational interaction with reference to the ongoing relation between patient and therapist ('Rel'), or of an interaction between the patient and another person reported/narrated by the patient, and reported as such by the patient during the session (i.e., *the patient speaking about his relation with his mother*) ('Nar')

'Cod'	Gold standard	($\kappa = 0.83$)
Independent rater	0 1	
0	1193 90	
1	117 1043	
'Ongoing relation' (Rel)	Gold standard	($\kappa = 0.75$)
Independent rater	0 1	
0	1382 124	
1	162 775	
'Narrated relation' (Nar)	Gold standard	($\kappa = 0.71$)
Independent rater	0 1	
0	2081 78	
1	72 212	

Table 4. Crosstabs and κ values on presence/absence of interactions supported by the activation of specific interpersonal motivational systems

'Attachment' (At)	Gold standard	($\kappa = 0.69$)
Independent rater	0 1	
0	2073 80	
1	80 210	
'Caregiving' (CG)	Gold standard	($\kappa = 0.62$)
Independent rater	0 1	
0	2261 45	
1	52 85	
'Rank' (Ra)	Gold standard	($\kappa = 0.67$)
Independent rater	0 1	
0	1914 85	
1	143 301	
'Sexuality' (Sex)	Gold standard	($\kappa = 0.70$)
Independent rater	0 1	
0	2363 6	
1	31 44	
'Peer cooperation' (PC)	Gold standard	($\kappa = 0.75$)
Independent rater	0 1	
0	1773 92	
1	127 451	
Transitions' (TR)	Gold standard	($\kappa = 0.56$)
Independent rater	0 1	
0	2043 107	
1	119 174	

(CG) and 0.83 (Cod), and are therefore more than satisfactory. The parameter concerning the codability of the active IMS ('Cod') in the single units is not explicitly described in the manual and obviously does not refer to any specific IMS. It is nonetheless a crucial check parameter on which,

Table 5. Crosstabs and κ values for intra-rater reliability

Intra-rater reliability 'Cod'	test	($\kappa = 0.93$)
Retest	0 1	
0	268 10	
1	7 226	
Intra-rater 'all IMS'	test	($\kappa = 0.78$)
Retest	0 1	
0	264 44	

IMS = interpersonal motivational systems.

by definition, all the other codings depend. The agreement on this parameter, which basically specifies dichotomously if a unit contains enough markers to highlight the activation of one or more IMS within the locution, is essential to the validity of the AIMIT method in general. It is in fact easy to understand that an unsatisfactory agreement on the general unit-coding criteria would seriously compromise the validation of the instrument. The same can be said, with a few distinctions, about the parameters 'Rel' and 'Nar', respectively referring to the activation of an IMS during the ongoing relation between patient and therapist or one of them and a third person (narrated episode).

It is important, for future research, to make sure that the distinction between 'Rel' and 'Nar' is clear and unanimously accepted, since this parameter could provide, for example, significant qualitative information about the type of the interaction, the session and the whole treatment.

The coding concerning the transitions ('Tr') IMS shows unsatisfactory levels of agreement (respectively 0.50 and 0.53). The coding of transitions poses different problems to be solved in a forthcoming new edition of the AIMIT Manual. The agreement on the presence of a transition is only slightly unsatisfactory ($\kappa = 0.56$). It mainly depends on ability and reliability to correctly detect every single IMS, so that we are reasonably confident that further improvement of agreement in the coding of caregiving system, as well as for the other IMS, will determine an improvement of the correct detection of this complex and intriguing aspect of interpersonal communication.

COMMENTS

The use of transcripts in psychotherapy research focusing on motivational issues deserves a few comments.

First, all information deriving from non-verbal communication is lost when the inquiry is based only on transcripts as required by the AIMIT Manual. The hiatus between the live session and its *verbatim* transcription has been the topic of careful analysis, suggesting that such a loss of information is acceptable in the first phase of psychotherapy research (Lingiardi & Dazzi, 2006).

A second aspect concerns the influence of recording equipments on the course of the session and on the whole therapy process. The presence of such devices, even with the patient's consent, will somehow affect the session and its evaluation. However, any recording process, immediate or not, has an influence on what happens during the therapy as regards both the patient and the therapist: audio- and video-recordings are not likely to distort in a particularly significant way the motivational dynamics of the clinical dialogue.

Another consideration regards the considerable attention we paid to be specific rather than sensible in the evaluation of each unit. In the analysis of an AIMIT session, should the insight and the clinical sensitiveness of the raters prevail over their strict adherence to the coding rules prescribed by the manual, they could be able to assess more motivational interactions than other, less clinically sensitive raters. The end result would be a deficit in inter-rater reliability. We chose, therefore, to lose potentially meaningful information in favour of the reasonable accuracy to be expected by the average evaluator. Thus, we defined narrow and specific scoring criteria, which allowed us to be reasonably sure that every evaluator would correctly detect what the AIMIT Manual indicates as activation of a specific interpersonal motivational system.

Another comment concerns the patient and the session samples used in this study. Although the AIMIT does not take into account the aspects connected to the diagnosis or the therapy, the fact of using and evaluating therapy sessions with severe patients suffering from a personality disorder and a low global functioning score, obviously involves a greater complexity of the transcribed material. Transcripts from such a clinical sample involve a greater intricacy of the procedures leading to the coding of the units and the sessions as a whole. Our next task will therefore be to test the AIMIT reliability also on transcripts of sessions with 'easier' patients, like the ones with Axis I disorders, such as anxiety or depressive disorders. In these cases, we might expect a higher agreement than what was observed in the sample with serious personality disorder.

CONCLUDING REMARKS

Much was done in order to assess the reliability of the AIMIT Manual, but there is still much more to do. The data obtained during this first experimental study are encouraging, and corroborate the hypothesis that the method can detect, in a reliable and reproducible way, consecutive IMS activations in the clinical dialogue.

Furthermore, there are steps that need to be taken to validate its application more independently and robustly. These steps necessarily will regard further validation of

the AIMIT method, which concerns content validity of IMS criteria, concurrent validity and construct validity. We know that these validation studies will not be easy to carry out, but nevertheless we also know that they are necessary before AIMIT could be reliably and widely used in different therapy settings with different kind of patients and therapists.

Possible applications of the AIMIT method may involve the following areas of interest:

1. Studies on the psychotherapy process (it should be remarked that the AIMIT allows to detect the activation of each motivational system, independently from the theoretical or technical approach to the treatment);
2. Studies on therapeutic relationship in terms of interpersonal motivation involved (the AIMIT method allows for descriptive analysis—as showed in Figure 2—and comparative studies of single or multiple sessions);
3. Studies of the interpersonal style both of patients and of therapists (for instance, inquiries on sessions where therapist and patient are highly involved in the ongoing relationship—as it is when high rates of 'Rel' codings are detected—from therapies where the therapist–patient relation is barely mentioned—i.e., when high percentages of units are coded as Nar);
4. Detecting determinants of rupture and repair of therapeutic alliance (e.g., ruptures of the alliance are suggested by prolonged interactions where the ranking system is active);
5. Studies on the interactions of two slightly different constructs, 'therapeutic alliance' and 'cooperation' in psychotherapy, by comparing scales assessing the therapeutic alliance—such as the *Collaborative Interaction Scale* (CIS; Colli & Lingiardi, 2009)—with the AIMIT coding of the cooperative system;
6. The modification of metacognitive and mentalization functions along with sequential or simultaneous activation of one or more IMS in the clinical dialogue;
7. Finally, AIMIT could be a valid instrument in the supervision of single sessions or single cases with transcribed sessions for clinical as well as for didactic purposes.

Well aware of the complexity of the task and of the effort that it demands, we hope the AIMIT method may yield a meaningful empirical contribution to the comprehension and the application of the interpersonal motivational systems theory to the clinical practice of psychotherapy.

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