Clinical Psychology and Psychotherapy
Clin. Psychol. Psychother. (2015)
Published online in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/cpp.1960

Assessment

A Content Validity Study of AIMIT (Assessing Interpersonal Motivation in Transcripts)

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Multi-motivational theories of human relatedness state that different motivational systems with an evolutionary basis modulate interpersonal relationships. The reliable assessment of their dynamics may usefully inform the understanding of the therapeutic relationship. The coding system of the Assessing Interpersonal Motivation in Transcripts (AIMIT) allows to identify in the clinical the activity of five main interpersonal motivational systems (IMSs): attachment (care-seeking), caregiving, ranking, sexuality and peer cooperation. To assess whether the criteria currently used to score the AIMIT are consistently correlated with the conceptual formulation of the interpersonal multi-motivational theory, two different studies were designed. Study 1: Content validity as assessed by highly qualified independent raters. Study 2: Content validity as assessed by unqualified raters. Results of study 1 show that out of the total 60 AIMIT verbal criteria, 52 (86.7%) met the required minimum degree of correspondence. The average semantic correspondence scores between these items and the related IMSs were quite good (overall mean: 3.74, standard deviation: 0.61). In study 2, a group of 20 naïve raters had to identify each prevalent motivation (IMS) in a random sequence of 1000 utterances drawn from therapy sessions. Cohen's Kappa coefficient was calculated for each rater with reference to each IMS and then calculated the average Kappa for all raters for each IMS. All average Kappa values were satisfactory (>0.60) and ranged between 0.63 (ranking system) and 0.83 (sexuality system). Data confirmed the overall soundness of AIMIT's theoretical–applicative approach. Results are discussed, corroborating the hypothesis that the AIMIT possesses the required criteria for content validity. Copyright © 2015 John Wiley & Sons, Ltd.

Key Practitioner Message:

- Assessing Interpersonal Motivations in psychotherapy transcripts as a useful tool to better understand links between motivational systems and intersubjectivity.
- A step forward in the knowledge of evolutionary cognitivism and a contribution to the bio-psycho-social model of human relatedness and interpersonal neurobiology.

Keywords: Multi-motivational Interpersonal Theory, Therapeutic Relationship, Intersubjectivity, Attachment, Content Validity, Systematic Assessment of Transcript in Psychotherapy

INTRODUCTION

Motivational and multi-motivational theories of human relatedness (Bowlby, 1982, 1988; Gilbert, 1989; Gilbert, 2000; Lichtenberg, 1989; Lichtenberg, Lachmann, & Fosshage, 1992; Liotti, 1994; Liotti & Monticelli, 2008; Stern, 2004) state that different motivational systems with an evolutionary basis support and modulate interpersonal relationships. These systems alternate in any human interaction. Therefore, the reliable assessment of their dynamics may usefully inform the understanding of the therapeutic relationship.

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Clinical Psychology & Psychotherapy

In its present formulation, the interpersonal motivational system (IMS) theory derives from evolutionary cognitivism; in that, it considers IMSs as products of evolution, biologically selected in the course of phylogenesis and ensuring greater adaptive abilities in the external environment and in the relevant intra-specific context. Each IMS chases a biosocial goal, which is essential, both for individual and species survival. Thus, the multi-motivational theory of inter-subjectivity can be rightfully inscribed within the broader bio-psycho-social theoretical model of human relatedness, or—borrowing Siegel's felicitous expression (Siegel, 2012)—'interpersonal neurobiology'. This approach implies the acceptance of one of the founding principles of modern research in neuroscience: the idea that the brain–mind–body relation functioning rests upon a careful and sensitive holistic, and inherently dynamic, view of the mutual relations between those entities, rather than upon an axiomatic theoretical model of the psyche. This is a modern and creative cultural approach in that it considers the main research findings acquired in the past three decades in the fields of developmental psychology, neurosciences, neurophysiology and psychopathology. In this regard, multi-motivational theory of human relatedness may be considered as a meta-theory, that is as a model of functioning that can be applied in different clinical settings and psychotherapeutic approaches. We believe that in clinic and in psychotherapy, as well as in the teaching and training of mental health professionals, there is a great need for a meta-theory with sound scientific basis. This means, for instance, that such a meta-theory can integrate the latest research inputs to the point that they could refute it, thus being a scientific theory according to Popper's definition (Popper, 2009).

The Assessing Interpersonal Motivations In Transcripts (AIMIT) (Liotti & Monticelli, 2008) is a method for assessing the activation of each of these systems through a careful analysis of the transcripts of psychotherapy sessions. An inter-rater and intra-rater reliability study has already been published (Fassone *et al.*, 2012) along with a theoretical and operational introduction to the instrument. It is important to underline that the AIMIT method may be applied to any kind of psychotherapy session, irrespective of the theoretical approach. Actually, AIMIT can be applied to any kind of human verbal interaction. In our opinion, the relevance of the AIMIT relies on the possibility to systematically and operationally provide a ground for the study of the motivational processes that characterize the clinical dialogue and the psychotherapy process. Other studies in this area, such as the investigation of metacognition in therapeutic narratives (Semerari *et al.*, 2003; Dimaggio *et al.*, 2009) and the role of mentalization and reflective function (Fonagy & Target, 2001), may be taken into account to emphasize the link between basic emotions and IMSs on the one hand and the psychotherapeutic narrative as the object of investigation on the other.

The coding system of the AIMIT makes it possible to identify, in the verbal utterances of patients and therapists during a therapy session, the activity of five main IMSs: attachment (care-seeking), caregiving (CG), ranking (competition for dominance/access to resources), sexuality and peer cooperation (PC) (i.e., joint efforts to achieve a shared goal). These systems are defined on the basis of an ethological–evolutionary approach to the study of human interpersonal motivation (Gilbert, 1989; Gilbert, 2000; Liotti, 1994). Intersubjectivity may be regarded as an emerging property of the human mind, stemming from the increasingly complex interplay of the five basic motivational systems mentioned in the preceding texts. Recent studies on the neurobiology of intersubjectivity, focusing in particular on the mirror neuron system and on the neurobiological basis of empathy and of mentalizing, provided further evidence of the deep and complex functional and neuroanatomical connections existing among CNS structures and pathways, verbal (and nonverbal) functions, behaviour and the 'genesis' of intersubjectivity and relatedness (Panksepp, 1998; Gilbert, 2000; Rizzolatti, Fogassi & Gallese, 2001; Porges, 2011; Keysers, 2014; Siegel, 2012; Schore, 1999; Tomasello, 1999, 2008).

Although AIMIT method is still on its way to achieve complete validation, it is currently in use (1) for the study of therapeutic relationship (early determinants of therapeutic relationship in personality disorders), (2) in determining profiles and complexity of IMS activation in different personality disorders and in patients with early trauma experiences with or without dissociative symptoms and (3) in the study of therapeutic process in comorbid patients with different levels of severity and resilience.

OBJECTIVE

The development of the AIMIT as an instrument to assess interpersonal motivation in transcripts has opened up new opportunities in the analysis of aspects connected to the quality of therapeutic relations. However, we believe that new opportunities should be subjected to independent scrutiny of the soundness of their theoretical bases and empirical use.

Establishing content validity is a key task in the construction of any measurement instrument (Haynes *et al.*, 1995). Therefore, subjecting the AIMIT method to an assessment of its content validity seems of paramount importance.

This paper represents a step forward in the validation of the AIMIT instrument. By selecting two different groups of raters, we made a specific choice with regard to the aim of our study. The rationale for the two different approaches was—so to say—'top-down' and 'bottom-up'. The 'top-down' one included highly qualified raters (with a higher language and lexicon knowledge) evaluating semantic congruence between IMS operational definition

of each IMS and the AIMIT items that refers to them. The 'bottom-up' approach involved unqualified raters with common language skills, tested in terms of agreement (Cohen's K) with a gold standard rating of a set of utterances where one active IMS was to be detected.

METHODS

The AIMIT strategy for assessing the alternating of different IMSs during the clinical dialogue stems from the premise that all human language abounds in terms that refer to motivations and emotions linked to specific biosocial goals. For instance, words and phrases used to describe painful feelings and need for help indicate the activation of the attachment system, while utterances that assert one's superiority or inferiority to others suggest the activation of the ranking system. The AIMIT manual collects and organizes systematically all the main verbal indicators that can reliably suggest the activity of each IMS, so that if any indicator is present, a specific 'motivational' code can be attributed to each unit of communication between patient and therapist. A communication or encoding unit (of one interlocutor) is defined as any utterance comprised between two utterances (of the other speaker).

Moreover, the AIMIT Manual allows for a distinction between interpersonal motivations straightforwardly directed by the patient toward the therapist (or vice versa), and those contained only in the patients' narrative of their interactions with others. The focus is always on the one who is speaking, when he/she refers to his/her feelings, emotions, thoughts, mental states and behaviours when interacting with the therapist or when reporting on something that happened elsewhere with other persons. The 'Rel' code is assigned to the former, and the 'Nar' code to the latter, so that each communication unit receives at least two codes.

When codes of different IMSs can be attributed to the same unit, the AIMIT Manual prescribes to assign a third code, 'Transition', to the unit, to indicate that a shift from one system to another occurred during that utterance. Transitions are very important, because their characteristics may be regarded as relevant indicators of a dimensional continuum of presence/absence of interpersonal integration, coherence, harmony and balance in the interpersonal dialogue.

Procedures

To assess whether the criteria currently used to score the AIMIT are consistently correlated with the conceptual formulation of the interpersonal multi-motivational theory that generated them, we designed two different studies, with different raters and different assessment methodologies.

(Study 1) 'Top-Down' Study: Content Validity as Assessed by Highly Qualified Independent Raters

This study aimed at independently assessing whether there is a 'semantic' connection between the 60 verbal criteria adopted in the AIMIT manual and the definitions of motivational systems they refer to (refer to Table 1).

In other words, it aimed at assessing the degree of 'semantic' (or content) correspondence between the operational definition of the five main IMSs and the 60 AIMIT criteria currently in use. To this purpose—the top-down approach as we stated before—we involved raters who were highly qualified in terms of language and lexical skills, but who were not practitioners of psychology or any related areas of interest. Thus, 12 independent raters (PhD holders or researchers all attached to Humanities and/or Philosophy University Departments), excluding individuals working with institutes or departments of psychological sciences were selected.

Operational definitions of the five IMSs were formulated (refer to Table 2).

An alphabetical list of the 60 AIMIT verbal criteria currently used was also generated. The study's presentation and the directions to researchers were sent by e-mail. Raters were only provided with the description of procedures and materials, and they were informed that no theoretical and bibliographic references were being submitted that might enable them to identify the general theoretical framework.

The rationale of the study was presented as follows: '…The goal of this study is to examine the validity of some constructs concerning intersubjective relations and motivations… The aim is to assess whether there is a correspondence between some general constructs—identified by five different colours—and a random series of 60 criteria that may be associated to a greater or lesser degree with the five general constructs. Our attention is focused on the transcript of the person who speaks about him/herself and what he/she thinks and feels about his/her interlocutor, or about events in the interaction with other people. Raters are required to assess, on a six-point Likert scale (from 0 to 5), the degree of correspondence of each criterion to each of the five general constructs. Six different scores will thus be obtained, each expressing the degree of correspondence between a given criterion and one of the constructs, with scores ranging between 0 (no correspondence) and 5 (full correspondence)…'

(STUDY 1) RESULTS

A descriptive analysis of the scores assigned to each item by each rater was performed. As the scores ranged between 0 and 5, the minimum average score suggesting a satisfactory degree of correspondence between each

Table 1. Synopsis of the AIMIT verbal items (detection criteria) for each interpersonal motivational system

1. Attachment system (At)
   1) Long descriptions of painful emotions or events that caused (or are causing) the speaker any kind of suffering, clearly indicated as such
   2) Phrases containing explicit demands for guidance, help and comfort
   3) Descriptions of episodes, fantasies or dreams concerning times when the patient sought and received help, soothing, or protection
   4) 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
   5) Descriptions of partial inattention of the interlocutor to demands for help and comfort
   6) 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
   7) Statements of self-sufficiency
   8) Statements of dependence
   9) Descriptions of mourning over losses, even if only imagined and expected
   10) Descriptions of situations where an affectively important person threatens to abandon the speaker
   11) Descriptions of experiences of long-lasting loneliness
   12) Descriptions of traumatic interactions, in which the potential caregiver is described as hostile and malevolent

2. Caregiving (CG) system
   13) Expressions of sympathy, concern or protective tenderness toward the other's needs
   14) Expressions of fear caused by actual or imaginary risks run by others
   15) Statements of regret or guilt for not having met the other's needs for help/soothing
   16) Statements of freedom from feelings of guilt for hidden and secret actions, lies or deceits aimed at avoiding to provide help
   17) Explicit statements of belief that the other can 'make it alone'
   18) Descriptions of the other as vulnerable, frail, suffering and in need for help, soothing or protection
   19) Statements of feeling helpless in meeting the other's needs for help/soothing

3. Ranking system (Ra)
   20) Comparison in terms of superiority–inferiority (even moral and ethical) between the speaker and the other
   21) Verbal attitudes of criticism toward oneself or the other
   22) Orders, instructions or prescriptions of conducts that the other is expected to follow
   23) Punishments and threat of punishments
   24) 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
   25) 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
   26) Statements of freedom from the other's orders, injunctions or expectations
   27 Statements concerning the speaker's or the other's unworthiness

(Continues)

Table 1. (Continued)

   28) Description of episodes of mockery, derision, sarcasm, violence and other behaviours causing a feeling of humiliation (slaps, spits and other types of inflicted or suffered humiliating physical aggression)
   29) Statements of disgust or contempt toward a person (included the speaker him/herself)
   30) Statements of envy
   31) Explicit statements of triumph or success in a conflict; statements, even expressed in slang, of self-congratulation
   32) Explicit statements of humiliation or defeat in a conflict; statements, even expressed in slang, of self-contempt or self-depreciation
   33) Statements of fear of a negative judgement and performance anxiety leading to behaviours intended to avoid negative judgement
   34) Statements of being entitled to receive respect or invitations to another to claim for respect
   35) Statements of humiliation or shame, felt or attributed to another person (which is criticized and judged negatively), including critical remarks concerning blushing
   36) Statements of having suffered, suggesting 'self-pity' aimed at inducing shame rather than guilt in others
   37) Expressions of rage with devaluation toward interlocutor or others
   38) Provoking expressions such as 'Let me see how smart are you' or 'I do not quite see if you are good enough or not'
   39) Statements where the speaker insults the interlocutor
   40) Statements where the speaker put himself in an upward position such as 'Now I tell you how things works'

4. Sexual system (Sex)
   41) Statements of sexual attraction, felt or exerted
   42) Descriptions of dreams or fantasies with a sexual content
   43) Descriptions of mating and/or sexual acts
   44) Descriptions of problems in sex life
   45) Descriptions of attitudes or ways of dressing regarded by the speaker as explicitly seductive
   46) Statements of jealousy toward an actual or fancied sexual partner
   47) Descriptions of suffered, exerted or attempted sexual violence
   48) Descriptions of perverse sexual acts

5. Peer cooperation (PC) system
   49) Explicit statements of perceiving oneself as peer to the other, in situation that do not involve conflicts
   50) Invitations to share the attention
   51) Use of the pronoun 'we' in phrases that express sharing of experience and/or intentions during any exchange between the speaker and another person
   52) Description of activities directed to achieve shared goals in a dyadic relationship
   53) Description of shared experiences or episodes characterized by attunement of intentions, feelings and attention toward the same topic
   54) Explicit expressions of agreement
   55) Sentences that, besides implying agreement, further develop a statement, remark or comment made by the interlocutor
   56) Expressions of empathy
   57) Joint investigation of topics of shared interest
   58) References to a pact, or to a previously agreed upon 'therapeutic contract'
59) Explicit expressions or experiences of sharing with somebody
60) Expressions of regret for the betrayal of a pact or agreement

Table 2. Operational definition of the five IMSs (attachment system, caregiving system, ranking system, sexual system and peer-cooperation system, named by colours: yellow, green, blue, purple and red, respectively)

YELLOW Relational situations in which the subject experiences and/or manifests feelings and emotions of fatigue, pain, discomfort, malaise, fear, vulnerability and loneliness. Relational situations in which the person seeks, desires or requests the maintenance of proximity to a figure perceived as capable of giving care and, if necessary, protection. Contexts in which the subject expresses thoughts and feelings connected to some state of suffering because of which he/she needs help, closeness and/or comfort from another subject capable of giving protection, security, guidance and support. This includes explicit requests by the subject of care, comfort and protection and active maintenance of proximity; states of separation, loss, protest over loss, over pain and grief.
GREEN Relational situations in which the subject experiences and/or manifests feelings, emotions and/or thoughts of compassion, care, concern over another subject who is in a state of suffering and need or vulnerability. The subject shows and/or expresses a specific intention to provide care, protection, relief and comfort to another subject. Relational situations in which the subject expresses guilt or regret for failing to care, protection, relief and comfort to another subject who was requesting them or who would have expected to receive them because of their relationship. Situations in which the subject expresses feelings of empathic care over someone else who, due to his/her position, affinity, bond and proximity, is in a state of suffering and/or vulnerability.
BLUE Relational situations in which the subject is involved in the following situations: 1) establishment of rank or hierarchy by means of signals of defiance addressed to, or received from, another subject; 2) contest/competition for access to a resource deemed important for one's physical, psychological, social, professional etc. survival; 3) being or feeling subjected to judgment, assessment, criticism by another subject or conversely, being or feeling in the position of someone who judges, assesses and criticized the interlocutor. In such circumstances, the subject experiences and/or manifests feelings, emotions, thoughts and behaviours of surrender/subordination or supremacy/dominance or ongoing dispute with the interlocutor.
PURPLE The subject experiences and/or manifests feelings, emotions, thoughts and/or behaviours related to the following relational situations: 1) sexual attraction to another subject; 2) activation of sexual desire; 3) signals of seduction by the subject to a real or potential partner.
RED The subject experiences and/or manifests feelings, emotions, thoughts and/or behaviours related to a situation of peer cooperation/sharing with another subject with a view to achieving a common goal. The subject expresses feelings of sharing of attention, emotions, feelings or intention with another subject with whom he/she is in relation. Relational situations in which the subject feels and/or refers to him/herself and to his/her interlocutor as 'us', that is speaks in the first person plural, thus implicitly reaffirming his/her state of sharing and equality in view of the possibility of pursuing, achieving or maintaining a goal, a project, a plan, an intention, a shared and common emotional state.

item and the related IMS was set at 2.5. Moreover, in order to be considered valid, each item should not have obtained any other average scores ≥2.5 on any other IMS. Out of the total 60 AIMIT verbal criteria, 52 (86.7%) met the required minimum degree of correspondence. The average semantic correspondence scores between these items and the related IMSs were quite good (mean: 3.74, standard deviation: 0.61) (refer to Table 3).

Of the eight items that could not be deemed valid, three are related to the Peer Cooperation IMS: (n.56) (expressions of empathy); (n.58) (reminders of a previous agreement or covenant or agreed therapeutic contract); (n.60) (expressions of regret for the betrayal of a pact or agreement); two are related to Care-giving: (n.16) (statements of freedom from guilty feelings achieved by means of hidden and secret actions, lies and deceptions); (n.17) (explicit statements that the other 'can make it by him/herself'); two are related to attachment: (n.7) (statements of self-sufficiency); (n.12) (descriptions of traumatic interactions in which the partner with whom the subject is in a relationship is described in terms indicating particular hostility and/or malice); and one is related to Ranking: (n.36) (descriptions of suffering or having suffered, suggesting 'self pity' aimed at inducing shame rather than guilt in others).

(Study 2) 'Bottom-Up' Study: Content Validity as Assessed by Unqualified Raters.

This second study—the bottom-up approach to validity—aimed at determining whether a group of 'naive' or non-specialist raters was able to identify the prevalent

Table 3. Items distribution with regard to each IMS and validity (average scores ≥2.5, measured as semantic 'content' correspondence' by 12 raters on the 60 AIMIT items

60 AIMIT verbal items	Valid items (overall): 52/60 (86.7%)	Mean scores (SD) for semantic (content) correspondence (valid average scores: ≥2.5): 3.74 (.61)
12 items referred to Attachment system	10/12 (83.3% within group)	3.55 (0.68)
7 items to caregiving system	5/7 (71.4% within group)	3.61 (0.80)
12 items to peer cooperation system	10/12 (83.3 % within group)	4.07 (0.51)
21 items to ranking system	20/21(95.2 % within group)	3.77 (0.43)
8 items to sexuality system	8/8 (100% within group)	3.82 (.62)

'motivation' or the active IMS, in each sentence, as resulted from a gold standard evaluation made by qualified AIMIT raters.

Then the task was to read a random sequence of utterances drawn from therapy sessions and selected on the basis of the presence of one active IMS and to subsequently rate/attribute the presence of one of the AIMIT criteria (refer to the succeeding texts). We selected 20 raters (1st- or 2nd-year university students, excluding departments of Psychology), who agreed to perform the assessment within 1 week from the delivery of materials. As in study 1, no theoretical references were provided to the raters. We expected good agreement values for all IMSs (K values conventionally >0.60).

One thousand encoding units drawn from therapy sessions, and including indicators of the activation of only one IMS, were identified and adapted. For statistical reasons, the 1000 units were divided into five groups of 200 each, with each group referring to one IMS. The units were then ordered alphabetically, thus randomly arranging them from no. 1 to no. 1000.

From the 60 criteria currently listed in the AIMIT, we generated 60 simplified, operational and impersonal meaning categories—12 for each of the five IMS considered—that could be used by raters to identify and attribute interpersonal motivation (refer to Table 4).

The instructions were provided in written form. One of the 20 raters was tasked with delivering materials, explaining the procedures verbally, then finally collecting materials, checking their completeness and returning them to us.

(STUDY 2) RESULTS

Out of a total 20 000 assessments (1000 by 20 raters), we counted only 16 typographical errors or omissions. Thus, the quality of the data was quite satisfactory.

We calculated Cohen's Kappa coefficient for each rater with reference to each IMS, then calculated the average Kappa for all raters for each IMS.

Table 5 reports the Kappa values observed for each rater, as well as the overall average values for each IMS. All average Kappa values were satisfactory (>0.60) and ranged between 0.63 (ranking system) and 0.83 (sexuality system) (refer to Table 5).

DISCUSSION

Content validity is an essential methodological consideration in developing any assessment instrument. Without validity, a scientific comparison with different methods of encoding of therapy session transcripts (i.e., Collaborative Interactions Scale) (Colli & Lingiardi, 2009; Fassone *et al.*, 2014) as well as with other approaches in the study of therapeutic relationship (Boston Change Process Study Group (BCPSG) 2010), would be quite hazardous.

In our two studies, the 'top-down' and the 'bottom-up', we made efforts to perform an independent, theory-unbiased assessment of the content validity of the AIMIT procedure. To this purpose, we did not provide raters with any theoretical reference and of course, we did not mention the acronym 'AIMIT' or any of the IMSs being assessed. In doing this, we took the risk of making the goal of this work obscure to raters and consequently of reducing the quality of the assessment in both studies. The quality of the data was quite good, which suggests that the materials, procedures and raters were adequate to the studies' aims.

All the agreement values obtained were satisfactory, and the data confirmed the overall soundness of AIMIT's theoretical–applicative approach. The fact that two groups of raters with different characteristics, tasked with procedurally different and challenging assessments (4080 individual assessments conducted in the first study and 20000 in the second), have provided ratings that were consistent with theoretical expectations corroborated the view that the AIMIT possesses the required criteria for content validity.

After an accurate item analysis and a review of the comments by individual raters, we recommend to remove only three verbal items that did not met the required

Table 4. List of the 60 operational and simplified meaning categories used in Study 2 to detect active IMS in the enconding units.

YELLOW	GREEN	BLUE	PURPLE	RED
1. to be afraid or scared	13. to comfort/reassure	25. to admire or despise	37. to have sexually exhibitionistic attitudes or expressions	49. to share topics that emerge in the dialogue
2. to ask/get/have denied aid, protection or comfort	14. to provide care, protection, support or help	26. to command or obey	38. having an orgasm	50. to share harmony of intent with someone
3. to be dependent	15. to be worried about someone	27. to compete	39. to desire someone	51. to collaborate
4. to be in mourning	16. to encourage	28. to criticize and/or judge themselves or others	40. to desire/implement transgressive sexual behaviour	52. to be conceiving/ experiencing reciprocity in a relationship
5. to be vulnerable	17. to feel tenderness	29. to be arrogant/cocky	41. to have sex with someone	53. to share
6. to feel pain/distress	18. to think about the good of somebody	30. to cheat or be cheated	42. to have sexual fantasies or dreams	54. to empathize
7. to feel loneliness/sadness	19. to feel compassion	31. to feel shame or embarrassment	43. to feel attraction/passion for someone	55. to join exploration of shared interests
8. to feel abandoned	20. to feel remorse for not giving care or protection support, help	32. to punish or reward	44. to feel sexual arousal	56. expressions of equality/complicity/ cooperation
9. to feel self-sufficient	21. to feel solicitude	33. to feel unable / unworthy	45. to seduce/be seduced	57. to commit to reach agreement
10. to suffer	22. to feel powerless in giving care	34. to feel superior/inferior to somebody	46. to feel masculine/feminine	58. to regret for the failure to meet a common commitment or a pact
11. to feel neglected	23. not to recognize the need for help of somebody	35. to humiliate/feel humiliated	47. to feel sexually powerful/ powerless	59. to draw the attention of shared salient themes
12. to feel hated	24. to be/feel uninterested	36. to win or lose	48. to feel jealousy	60. to betray an agreement or a pact

Table 5. Kappa values as resulted from 20 evaluators, 1000 utterances from therapy sessions and 200 utterance for each IMS

IMSs	*N* evaluators	*N* observations for each IMS (1000 overall)	K values	SE	SD
Attachment system	20	200	0.69	0.015	0.07
Caregiving system	20	200	0.75	0.011	0.05
Ranking system	20	200	0.63	0.015	0.07
Sexuality system	20	200	0.83	0.017	0.08
Peer cooperation system	20	200	0.77	0.014	0.06

degree of correspondence (14, 54 and 59). The other five items could easily be changed and made clearer. We suggest that item 9 (reminders of a previous agreement or covenant or agreed therapeutic contract), attributed to the cooperative system, could be better clarified as follows: 'calls to share the attention concerning the existence of a previous agreement or covenant or agreed therapeutic contract.' Item 60 (expressions of regret for failing to live by a covenant or agreement), also attributed to the PC system, could be changed as follows: 'expressions in which the speaker expresses his/her regret for failing to live by a covenant or agreement.' Item 30 (explicit statements that the other 'can make it by him/herself') (CG system), and item 50 (statements of self-sufficiency) (attachment system) should be better specified and brought together in the same criterion as follows: 'statements of self-sufficiency or of 'making it by oneself,' referred to oneself or to the other, that can mean (1) denying the need for proximity, closeness, support by others (denied/deactivated caring, thus to be encoded with CG system) or (2) denying one's own need for proximity, closeness and support by others (denied/deactivated attachment, thus to be encoded with Attachment system).' Item 6 (expressions of empathy) (PC system) was considered as not valid even though its semantic correspondence to PC system was rated as 3.67. In fact, the same item was rated as 4.08 to CG system, which is not surprising. We believe that this item rather then being excluded, it should be better specified by using examples indicating the Peer cooperation activation; in fact, empathy is in itself the complex manifestation of an emotional and behavioural in-tune-ness, often expressed in implicit non-verbal fashion (gestures or facial expressions, or 'empathic' variations in the tone of voice) consequent to the activation of the PC and/or CG system. For the sake of clarity, this item could be reformulated as follows: 'explicit expressions of empathy such as 'I see what you mean', 'I realize you may have felt bad', 'I feel very close to you', and 'I understand what you must have gone through'. In the absence of any explicit expressions, it is impossible to encode reliably due to the high risk of confusion with caring system. If the current form were to be retained, we would suggest to encode it with both of them (PC and CG systems), although such a double encoding may be open to criticism.

Limitations

Although the data obtained in both studies are interesting and encouraging, it should be recognized that in its practical application, the AIMIT is used on a material, such as therapy session transcripts, which is by nature diverse, complex, not organized or outright chaotic. Processes that regulate the clinical dialogue often need a continuous effort to struggle, negotiate, fail and repair in order to drive the therapeutic relationship to a condition of balance and bilateral integration (BCPSG, 2010; Safran & Segal, 1996). Furthermore, with some patients—such as those with personality disorders or complex psychological trauma disorders —this issue might be considered the alpha and the omega of therapy (Liotti & Monticelli, 2014).

Given how the procedure of encoding and the subdivision of materials (encoding units coincide with utterance units) are currently defined, these difficulties are bound to continue, as they do in all studies based upon an analysis of transcripts. Currently, the AIMIT group is developing synthesis indicators that might provide a valid and reliable mode of overall and contextual assessment of the whole session or parts of it and might help to assess the level of organization, integration, harmony of the subjective and intersubjective expression of IMSs in the clinical dialogue (AIMIT Study Group, work in progress 2014).

Furthermore, in this study, we had to exclude two IMSs that are present in dyadic interactions but more rarely in utterances in therapy. The relatively low frequency of utterances where the IMS Affiliation or Social Play can be observed makes it impossible, for the time being, to obtain a statistically reliable assessment of those two important IMSs. It is conceivable that Affiliation, as well as Social Play, can be better studied in group therapy sessions. Clinical observations from single-case reports also suggest that Social Play can be an interpersonal motivation that, although rare, can be regarded as a useful and significant marker of the 'good health' of the therapeutic relationship (Fassone *et al.*, 2010a; 2010b; Santomassimo *et al.*, 2010).

In general, our findings seem to corroborate the hypothesis that multi-motivational theory of intersubjectivity lay on a solid base of empirical confirmations. The implications might be several. These results might be interesting when compared with other findings such as those from

Hennighausen & Lyos-Ruth (2005) and Lyons-Ruth & Jacobvitz (2008) on the role of controlling strategies in the 'organization' of disorganized attachment in patients with trauma history (Liotti & Monticelli, 2014). The study of therapeutic relationship and the construction of therapeutic alliance might be another major focus of interest for further use of the AMIT method, alone or in association of other instruments able to detect significant topics in the therapeutic process. For instance, it might be of interest to test the ability of the AIMIT to predict or to explain the appearance/presence of ruptures and/or repairs in therapeutic alliance, as well as other 'now moments' as defined by Stern and the Boston Change Process Study Group (Stern, 2004; BCPSG, 2010). The study of therapeutic relationship with AIMIT might be helpful in the comprehension and treatment of complex patients such as subjects with comorbidity axis I/II, patients with personality disorders in association with dissociative symptoms and subjects with history of traumatic attachment. In these cases, AIMIT might be used as a descriptive instrument of the relational style and of the prevalent interpersonal motivational pattern (i.e., subjects with controlling strategies and the so-to-say 'I will save you', 'I will humiliate you' or 'I will seduce you' interpersonal style).

CONCLUSIONS

In light of the obtained evidence, the goal of this paper—carrying out a content validity study of the AIMIT—seems to be achieved. The results are consistent, coherent with regard to the expectations and support the hypothesis that the AIMIT method adequately detects the activation of the IMSs in the clinical dialogue. As far as we know, there are not many assessment tools for psychotherapy transcripts for which it was carried out an inter-rater and intra-rater reliability study (Fassone *et al.*, 2012) as well as a content validity study. Certainly, this work has allowed us to refine the AIMIT method, to make it more efficient and reliable, in order to use it in different contexts such as research on the therapeutic process and relationship, as well as during training or teaching or clinical supervision. In our opinion, what is still to be done is to assess the rating reliability of two more IMS, such as the Social Play and Affiliation. Furthermore, it is important to implement reliable procedures for the encoding of complex expressions (the so-called 'Transitions'), in which more than one IMS are activated. Finally, considering that some verbal interaction of a single therapy session may appear more significant than others in determining the course of that single session and/or of the psychotherapy, it seems important to identify and standardize a system to accurately detect and 'weight' these moments in terms of relevance and significance in the therapeutic process.

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