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Tracking change in group interventions: a further adaptation of the innovative moments coding system for groups

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ABSTRACT

In group psychotherapy research, there are few reliable measures for tracking members' change. This study proposes a further adaptation of the Innovative Moment Coding System for Groups (IMCS-G), a reliable method previously developed in one format of group intervention for detecting innovative moments (IMs). IMs are exceptions to the clients' problematic narratives, organized in different levels of complexity in terms of meaning elaboration (Level 1, 2, and 3). IMCS-G consists of 7 categories (Self-Directed, Other-Directed, Explicit Mirroring, Prompting change, Reinforcing change, Collective, Voice of Group) organized in two macro-categories: Individual (*e.g.*, change was narrated by a single participant) and Group IMs (*e.g.*, change was co-constructed by more than one participant). Two reliable coders applied the IMCS-G to analyse the transcripts of nine sessions of a counselling group addressed to underachieving university students (N=10) and eight sessions of a brief group psychotherapy targeted to substance abusers (N=8). Agreement and reliability for IMCS-G categories and their Levels were calculated. Consistently with previous studies, a strong agreement and reliability for IMCS-G categories and Levels were found in both group interventions. Furthermore, despite some differences in the frequency of IMCS-G categories and Levels, in both interventions, there was a higher frequency of Self-Directed IMs, a lower frequency of the Explicit Mirroring IMs, and a higher frequency of Level 3 Group IMs in comparision with Level 3 Individual IMs. This study confirmed the reliability of IMCS-G in different group interventions, but it also suggested rooms of improvement for some IMCS-G categories.

Key words: Group process research; innovative moments; group counselling; group psychotherapy; adaptation study.

Introduction

In psychotherapy research, assessing process change is a challenging act of balance between the necessity for methodological rigor, which can lead to oversimplification, and the need to comprehend the complexity of clinical exchanges (Dazzi, Lingiardi & Colli, 2006). In the

field of group process research, due to the inherent complexity of the therapeutic group, researchers have inevitably confronted numerous methodological challenges in designing research methods capable of accounting for all the variables under consideration and their operationalization (Vasta, Gullo, & Girelli, 2019). Indeed, group process research poses several problems about the interdependence of data obtained in groups (Gullo *et al*., 2010): on the one hand, this relates to the group's transformative potential; on the other hand, it creates many difficulties from both a methodological and data analysis level (Burlingame, Whitcomb & Woodland, 2014). Furthermore, some research (*e.g*., Sierra Hernandez *et al*., 2015) has found that a positive outcome is linked not only to group members' engagement in constructing their own narrative experience, but also to their investment and commitment in co-constructing the narrative experience of other group members or the group as a whole. In fact, to understand mechanisms underlying change, it is important to detect and analyse different levels of group therapeutic experience (individual, interpersonal, and group) and how they relate to the interventions' outcome (Beck & Lewis, 2000; Burlingame, Fuhriman & Johnson, 2004).

Moreover, while several validated coding systems were developed in individual psychotherapy to identify narrative markers of change, which are predictors of therapeutic effectiveness (Angus *et al*., 2012; Stiles, 2002), the situation in group psychotherapy research is rather different. Most group process assessment measures are quick and easy to use questionnaires, but coding-based measures, despite they provide solid results about group process and change, are less frequent (Orfanos *et al*., 2020). Specifically, process measures that enable the identification of change in group interventions should be developed, and the level of interaction among group members needs also to be considered as a vital aspect in the unfolding of group change.

In a previous study (Esposito *et al.*, 2022), to address the need for reliable process measures that can detect change at different levels (*i.e*., individual, interpersonal, and group), we developed the Innovative Moments Coding System for Groups (IMCS-G), a reliable coding system that allows to track narrative markers of change, their complexity in terms of meaning elaboration, and their interactive gradient, namely the level at which the markers of change are produced (*e.g.* individual, interpersonal, and group).

IMCS-G. The IMCS-G is an adaptation to the group of the Innovative Moments Coding System (IMCS; Gonçalves *et al*., 2011), which stems from a narrative framework according to which therapy provides an opportunity for individuals to achieve a new sense of coherence by changing their dominant meaning system and moving toward the construction of novelties (White & Epston, 1990). To capture this experience of change in the clients' narratives, Gonçalves and colleagues (2011) developed the IMCS, a transtheoretical valid and reliable coding system capable of identifying narrative markers of change, *i.e*., innovative moments (IMs), related to novel actions and reflections that are exceptions to the problems (*i.e*., the dominant problematic narrative). An IM emerges whenever the dominant problematic narrative or pattern (*e.g*., 'always protect the self from others' criticism, avoiding all forms of social exposure' as in social anxiety) is questioned by the clients and new thoughts, feelings or actions appear in their verbalizations. The problematic narrative or pattern is very similar to the notion of schema from cognitive therapy (Beck, 1979), or other similar constructs (*e.g*., maladaptive patterns; Strupp & Binder, 1984) that suggest that a pathogenic pattern responsible for the suffering of patients is present and needs to be transformed. The IMCS proposes three Levels of narrative change: Level 1 refers to the emergence of new thoughts and actions centred on dealing with the problem; Level 2 is oriented to the elaboration of new meaning and usually emerges in two distinct narrative forms, namely a contrast between a maladaptive aspect of the past self and a more adjusted one, or a description of a process of change; Level 3 is characterized by an integration of the components of Level 2 IMs in an articulated form (that is, a contrast and process). Previous studies (*e.g*., Gonçalves, Batista & Freitas, 2017) have shown that Level 1 IMs occur both in recovered and unchanged cases, while Level 2 and 3 IMs being more typical of recovered cases (for more details about the IMCS, see Gonçalves *et al*., 2011). Although the IMCS has proven to be a reliable and valid method for studying change in different models of psychotherapy with diverse objectives, target and method of intervention, it allows the detection of IMs only in individual psychotherapy (Batista *et al*., 2020).

Stemming from IMCS, some Authors Esposito *et al.*, 2017; Garcia-Martinez *et al*., 2020) attempted to adapt it to the group setting. Both these studies represented the starting point for our proposal. Indeed, the IMCS-G integrates the IMs categories developed in the adaptation studies, and it also introduces new IMs categories. Moreover, the IMCS-G shares with previous adaptation studies the same theoretical framework, *e.g*., the Dialogical Self theory for groups (Hermans, 2016) and the Sullivan's group constructs (1953). According to the first model, the self is viewed as a social mind populated with internal and external positions that are dialogically related to one another. The external positions become internalized, and the internal positions interact with them and vice versa. Transferring this dynamic to the group, members play the role of external positions of the self and the construction of meaning occurs through intersubjectivity. In this perspective, group members can be conceived as external positions who act as facilitators of change in the reorganization of the self (Frank & Frank, 1993). Thus, examining the relationships of group members is critical to comprehend how the self is reorganized during the ther-

apeutic process (Dimaggio, 2012; Hermans, 2003; Hermans & Hermans-Konopka, 2010). Moreover, according to Sullivan (1953), individuals function in 'I-you configurations', and consensual validation is a communicative process in which participants confirm whether they share the same meaning. In this way, the point of view of the other becomes a source of support for the individual's perspective and each participant facilitates change processes that result in new positions for others, the strengthening of previous weaker voices, or the generation of new ones (Esposito *et al.*, 2022). The IMCS-G comprises seven categories of IMs organized in two macro-categories: *Individual* and *Group IMs*. *Individual IMs* refer to the IMs produced by a single participant. They comprise the following categories: Self-Directed IMs, Other-Directed IMs, and Explicit Mirroring IMs. *Group IMs* refer to the IMs produced by at least two participants who create an intersubjective chain of markers of change. They comprise the following categories: Prompting change IMs, Reinforcing change IMs, Collective IMs, and Voice of Group IMs (Table 1).

The IMCS-G was initially developed by analysing the sessions' transcripts of the Narrative Mediation Path (NMP; Freda, Gonzalèz-Monteagudo & Esposito, 2016), a group counselling addressed to underachieving students (Esposito *et al.*, 2022). Then, the IMCS-G reliability, as well as its sensitivity in discriminating group interventions with different outcomes, were tested in other NMPs (Esposito *et al.*, 2022). Overall, these preliminary studies on IMCS-G have proved that it is a highly reliable and sensitive coding system able to detect markers of change both related to the individual, interpersonal and group level, and of different complexity in terms of meaning elaboration (Level 1, 2 and 3). Furthermore, these studies have shown that the emergence of *Group IMs* is likely crucial to the group therapy's effectiveness, and, in some ways, they could also be an indicator of the group's level of involvement and cohesion (Esposito *et al.*, 2022). Nevertheless, both *Individual* and *Group IMs* were found to be pivotal for change since individual and group change are not independent and their effect is not disjoint, but rather synchronous.

However, despite the encouraging findings, one of the limitations of the previous studies was to have tested the IMCS-G only in one format of intervention, *e.g.*, group counselling. Thus, it is required to test IMCS-G reliability and verify if all the IMCS-G categories present enough frequencies to remain discrete in another format of group interventions too.

Objectives and hypothesis

This study aimed to further adapt and test reliability of the IMCS-G in two different group interventions, the Narrative Mediation Path (NMP) counselling group for underachieving university students, and a group psychotherapy for young substance abusers. The research questions are as follows: i) Is the IMCS-G able to detect and discriminate IMs macro-categories and categories in both group interventions? ii) Is the IMCS-G able to detect and discriminate IMs Levels in both group interventions?

Materials and methods

Research context

Both group interventions considered in this study aim at improving mentalization in group members and they are inspired by the Mentalization-Based Treatment for Groups (Karterud, 2015). According to this model, group members act as reflective mirrors for one another and offer a plurality of viewpoints on the same events. In other words, the group is conceived as a training arena for mentalization (Karterud, 2011, 2015) as it reproduces the intersubjective relationships and amplifies historical and evolutionary settings in which mentalization is generally acquired (Allen & Fonagy, 2006; Esposito, Karterud, & Freda, 2021; Karterud, 2011). Both groups were chosen because they presented a positive trend in mentalization improvements and other outcomes (see the *Results* section). This would have allowed us to track the IM categories with a greater probability, as the literature (*e.g.*, Gonçalves *et al.*, 2011; Esposito *et al.*, 2022) has shown that groups with positive outcomes presented both more IMs and more complex IMs in terms of meaning elaboration.

The NMP. The group counselling adopted a narrative method, the Narrative Mediation Path (NMP), which aims at fostering mentalization among group members in order to produce an improvement of their academic performance (Freda, Gonzalèz-Monteagudo & Esposito, 2016). The NMP consists of nine weekly sessions and a follow up session after one year from the end of the counselling; the NMP is a free of charge service offered to students by a university clinical centre embedded in the South of Italy. During the sessions, the clinician proposes to students different narrative inputs which are organized into five narrative modes: metaphorical, iconographic, writing, bodily and agency. The Metaphorical mode (sessions 1 and 2) involves using proverbs and mottos to help students reflect on their academic experience and to identify their own and others' mental states related to their university experience. The Iconographic mode (sessions 3 and 4) proposes six vignettes depicting key situations in academic life (enrolment at the university, attending courses, *etc*.); the vignettes are designed to improve the students' capacity to recognize mental states linked with common university scenarios. In the Writing mode (sessions 5 and 6), students are asked to write a narrative about a positive, negative, and turning point that occurred during their university experience. This mode tries to examine the relationship between students' mental states and previous behaviours in order to reverse the mind's direction (Bateman & Fonagy, 2012). In the Bodily mode (session 7), students are asked to assume the

Table 1. Examples of Innovative Moment Coding System for Group *(adapted by Esposito et al., 2022)*.

	IMs category	Definition	Examples of IMs	Examples of problematic narratives
				Individual problematic narratives (*i.e.*, feeling to be inferior; loss of passion for university tasks) **Group problematic narratives** (*i.e.*, feeling guilty for the university delay)
Individual IMs	Self-Directed	Produced by an individual member about their own change	*I noticed that until recently my inertia had a very negative influence on the study, in the sense that I only saw the negative side of things and I got angry. Thanks to all of you [the group members], I noticed that I could use this anger to work things out and be less passive and more reactive*	
	Other-Directed	Produced by an individual member but addressed to another group member about their change	*You should see yourself from the outside, you are much more sociable and willing to share your emotions with us, whereas before you were rigid and withdrawn. I'm glad that I've changed my opinion about you!*	
	Explicit mirroring	IMs produced when a participant explicitly stated that they felt changed as a product of being mirrored in one of the other participants	*I see myself a lot in your reaction, I would have done the same thing and I would tell him my motivations firmly!*	
Group IMs	Prompting change	A narrative sequence of IMs prompted by participant A and elaborated by participant B, so the change is related to participant B who ends up owning it (these IMs coincide with an IM chain constituted by Other-Directed + Self-Directed IMs)	*G: 'Perhaps, assuming one's responsibilities concerning the exam and recognizing that I did not pass it for having studied a little and not because the professor was nervous… perhaps… this can help to get up and do better the next time because you can study better'. – A: 'What you say makes me think about all the times that I have reproached myself for not having passed the exam because I am not worth anything, but the truth is that I did not study and only if I take responsibility for not having studied, I can fix it'.*	
	Reinforcing change	A narrative sequence of IMs introduced by participant A, but elaborated by participant B or by other participants; the sequence concerns the participant A who recognizes and accepts the elaboration reinforced by participant B explicitly closing the interaction (these IMs coincide with an IM chain constituted by Self-Directed + Other-Directed + Self-Directed)	*A: 'Laboratory life is basically fun, you put things together and you get other things, you feel like a scientist and you have a lot of fun!' – R: 'You can see it's your passion, you say it smiling!' – A: 'Yes, it's true, I found my passion'.*	
	Collective	A narrative sequence of IMs produced by two or more participants who reflect on their own change by activating an intersubjective chain (these IMs coincide with a chain of Self-Directed IMs)	*A: 'I no longer have any doubts about my abilities to date, because I have understood many things and I know they will help me get back on track.' – D: 'In fact, it is not a question of not being able, for example, I got lazy and bogged down because of anxiety but I know that if I want, I can take 30/30 at examination.' – A: 'I got stuck for fear of being judged negatively, but now I'm more serene because I was able to take the exam.'*	
	Voice of Group	A narrative sequence of IMs produced when several participants produced an IM expressing themselves on the behalf of the group and using the plural 'we'	*D: 'We should find a middle ground, that is, neither be too strong and too sure of ourselves as when we were in high school nor should we have self-esteem under the soles of our shoes, because in both cases we remain still. Instead, let's ask ourselves what we know how to do today!' – A: 'Also because we know how to do a lot of things!'*	

role of sculptors to represent their university future using their own body. This mode promotes both anticipatory mentalizing (Bateman & Fonagy, 2012), that is mentalizing future situations, and embodied mentalizing (Bateman & Fonagy, 2012), that is awareness of one's bodily sensations in order to connect them with relational, emotional, and cognitive experiences. Finally, the Agency mode (sessions 8 and 9) employs an action plan in which the students are required to set a goal and describe all the actions required to attain it. This mode allows participants to concentrate on the mental states that underpin these actions, assisting them in transforming their mentalizing ability into the capacity to adopt goal-oriented behaviours (Esposito, Marano & Freda, 2020).

The Moviola. The Moviola Group is a psychotherapeutic group addressed to young adults (from 20 to 30 years old) with polysubstance abuse (a mixture of alcohol and/or drug abuse, *e.g.*, cocaine, heroin or cannabis), criteria which characterize an increasingly wide range of users in modern societies. The treatment lasts about 8 months with weekly 2-hours sessions for a total of 28 sessions. This group intervention is held in an outpatient service at a Department for Addictions in a city in northern Italy. The objective of the Moviola Group is focused on thinking together, in the here and now, through the 'slow motion' of events and situations, as narrated by the members of the group. Indeed, the term slow motion (in Italian 'Moviola') refers to a movement that is recreated in the narration of events in an attempt to offer the possibility of collecting the different points of view of the group members. The primary task of the group is, therefore, to mentalize events and experiences allowing different interpretations while, at the same time, listening to the emotions of the protagonist in order to ground their own experiences. The activation of this 'slow motion' process also allows the therapist to work on the interactions between the group members during the session, and to use what happens in the here and now as an object of mentalization. Although there are not many empirical studies on this topic, mentalizing based interventions have provided encouraging results with drug addicted patients, both in terms of improving personality functioning and of decreasing substance use (Morken *et al*., 2017).

Participants

All NMP participants were underachieving students, *i.e*., students who acquired a lower number of the European Credits Transfers System (ECTS) in comparison with the ones they should have acquired based on their year of enrolment. The group was composed by 10 participants, 5 male and 5 females with an average age of 24.83 years. The group was held from November 2019 to January 2020 for a total of 9 weekly sessions and a follow up session after one year from the end of the intervention. The group was led by a psychotherapist, with 10 years of experience in conducting the NMPs.

The Moviola Group participants were seven patients (6 males and 1 female; average age=24) who had attended a group psychotherapy for about eight months at the outpatient clinic of an addiction department. All had a diagnosis of substance addiction, particularly to cocaine and cannabis, and some had a diagnosis of alcohol addiction. Almost all had experienced a period of at least one month of abstention from drugs, although some continued to have periodic relapses. The group therapy was held from January 2019 to July 2019, for a total of 28 sessions. The group was conducted by a psychotherapist with the presence, mostly silent, of a nurse.

Measures

Outcome measures

Specific outcome measures. The NMP group members filled in the Academic Performance Inventory (API; Esposito, Freda & Manzo, 2016) in the pre-, post-test and follow up phase. The API detects a series of indicators on the academic achievements of students (*e.g*., number of ECTS acquired, number of exams taken) in order to measure the group outcome related to the improvements in the academic performance. The information collected with the API allowed to calculate the Degree Completion Rate (DCR), an index that identifies the level of academic success of students by dividing the number of ECTS credits acquired at the time of compilation of the API with the number of ECTS credits that the student should have acquired based on the year of the course in which he was enrolled, according to the following formula:

$$\text{Degree Completion Rate} = \left(\frac{GAINED\ ECTS}{EXPECTED\ ECTS}\right) \times 100$$

Moviola participants underwent a urine test regularly to ensure their abstinence during and at the end of the group psychotherapy. The last urine test was considered as a measure of one of the group outcomes, namely the addicted behaviours reduction. After one year, the urine test was performed again and information about patients' intake status was collected (*e.g*., if patients were still followed by the addiction department or if they were discharged because they were considered recovered).

Group members of both interventions signed an informed consent according to the ethical principles of the Italian Association of Psychology, through which the participants agreed that the narrative material and audio recordings of the sessions would be used for training and research purposes. All data were collected in compliance with the Code of Ethics of the World Medical Association (Declaration of Helsinki, 2014) and the Italian Privacy and Data Protection Law 196/2003.

Common outcome measure. Participants of both interventions filled in the Reflective Functioning Question-

naire (RFQ; Fonagy *et al*., 2016) at the beginning and at the end of the interventions, in order to evaluate a second outcome, namely improvements in group members' reflective functioning (RF). The validated Italian version of the RFQ (Morandotti *et al*., 2018) consists of 8 items organized in two subscales, measuring the degrees of uncertainty (RFQ-U) and certainty (RFQ-C) about mental states. The RFQ-U subscale reflects the level of hypomentalizing, defined as the tendency to develop poor or simplistic models of the minds while the RFQ-C subscale reflects the level of hypermentalizing, *i.e*., the tendency to develop very complex and rigid models of the mind that have poor correspondence to appropriate evidence (Fonagy *et al*., 2016). Overall, individuals with an adequate RF can be expected to show some certainty about their own and others' mental states and at the same time to be aware of mental states' opaqueness. Badoud and colleagues (2015) proposed a simplification of the RFQ score that allows to obtain a single factor score, through the subtraction between the Certainty score and the Uncertainty score. If the single score has a positive value, we are in presence of a genuine mentalizing competence. A positive outcome in terms of RF for clinical interventions presents, from pre-test to post-test phase, an increase of the single factor scores which reach positive values. In this study, we relied on the Badoud et colleagues (2015) scoring procedure.

Process measures

Innovative Moment Coding System. The IMCS (Gonçalves *et al*., 2011) was used to assess the process of change during both group interventions, by coding the three IMs Levels (Level 1, 2 and 3). Previous studies on IMCS have proven it is a valid and reliable method with a strong agreement among the coders both regarding the IMs proportion (84-94%) and the IMs Levels (Cohen's Kappa between 0.80 and 0.97).

Innovative Moment Coding System for Group. The IMCS-G is a transtheoretical coding system applied to diverse type of group interventions. It detects IMs both considering if the IMs were produced at an individual, interpersonal and group level, and their complexity in terms of meaning elaboration (*i.e*., IM Level 1, 2 and 3). Previous studies (Esposito *et al.*, 2022) showed a high agreement among the coders both regarding the frequency of the IMCS-G macro-categories and categories (85-95%) and the Levels (84-97%).

Procedures

Nine NMP group counselling sessions and 28 group psychotherapy sessions were audio-recorded and transcribed *verbatim*. In order to analyse almost the same numbers of sessions to code in both group interventions, we decided to consider only eight Moviola's sessions (about one per month) that was chosen randomly.

Before the application of the IMCS and IMCS-G, a preliminary analysis was performed to evaluate the outcomes of the groups: for the NMP, DCR average values in pre, post-test and follow-up were calculated; for Moviola, an urine test was performed to ensure abstinence of participants during and at the end of the group psychotherapy and the percentage of positivity at the urine test (rational between number of positive tests and the total of tests performed) was calculated as an indicator of the addiction abstinence. After a year, information about patients' intake status was collected as an indicator of the status of recovery of each patient. Moreover, for both NMP and Moviola's participants, RFQ scores were calculated for the pre- and post-test phases.

Coding procedures

To evaluate the process of change during counselling, the IMCS-G was used to code the NMP and the Moviola sessions transcripts. First, two reliable coders (the first and second author), who had completed extensive training in the IMCS, identified separately and then defined consensually both the individual and the group problematic narratives. The latter were introduced by Esposito *et al*. (2017) to indicate those problems that were explicitly narrated and shared by all the group members at the beginning of the group intervention. Secondly, the two macro-categories of *Individual* and *Group IMs* were identified; then, the seven categories of IMs which constituted the macro-categories were coded. It is important to note that *Group IMs* comprise *Individual IMs.* For example, Collective IMs are chains of Self-Directed IMs; Prompting change is a chain composed by Other-Directed + Self-Directed IMs; Reinforcing change is a chain composed by Self-Directed + Other-Directed + Self-Directed IMs. Based on these rules of coding, when the coders identified two or more Self-Directed IMs, they recoded them as a unique Collective IM. At the same time, if the coders identified a Self-Directed IM followed by an Other-Directed IM and a final Self-Directed IM, they recoded them as a single Reinforcing change IM (Table 1).

Therefore, reliability and agreement among coders were assessed. The inter-rater agreement was calculated as twice the agreed number of IMs divided by the sum of the IMs identified. Regarding the reliability of both IMs Levels and IMs macro-categories, Cohen's Kappa was calculated. Finally, the coders counted the absolute frequency and percentage of all IMs categories. In Figure 1 the IMCS-G coding steps are reported.

Results

First, we will present outcome results of both group interventions, then IMCS-G reliability, finally, the frequencies of the IMCS-G macro-categories, categories, and Levels.

Outcome

Specific outcomes. Results showed that the NMP group presented an increase in DCR between pre and post-test phase (Pre-test=38.23%; Post-test=40.88%). After one year from the end of the counselling, DCR still increased to 56.47%. In Moviola group, urine tests showed that most group members (67%) were abstinent when the therapy ended. After one year, 56% of group members were discharged from the addiction department service because they were considered recovered.

Common outcomes. RFQ scores increased for both NMP and Moviola groups (NMP: Pre-test= –0.05, Post-test=0.17; MOVIOLA: Pre-test= –0.97, Post-test= –0.21); furthermore, in NMP group we found a shift from negative to positive values (Figure 2). Nevertheless, despite RFQ scores in Moviola did not reach positive values, participants increased a lot in their reflective functioning and, in comparison with NMP group members, they started the intervention with a lower RF.

Reliability of the IMCS-G

Regarding the IMCS-G agreement between coders, it was very high, both regarding the *Individual* (NMP=97%; Moviola=96.5%) and the *Group IMs* macro-categories (NMP=94.6%; Moviola=94.5). Regarding the IMCS-G reliability, the Cohen's kappa was also very high for both *Individual* (NMP=0.99; Moviola=0.88) and *Group IMs* macro-categories (NMP=0.97; Moviola=0.86). Regarding the IMCS-G Levels, the agreement was very high too (NMP=0.99; Moviola=0.97). Therefore, in both groups, the IMCS-G system proved to be reliable in detecting and differentiating the categories and Levels of *Individual* and *Group IMs*.

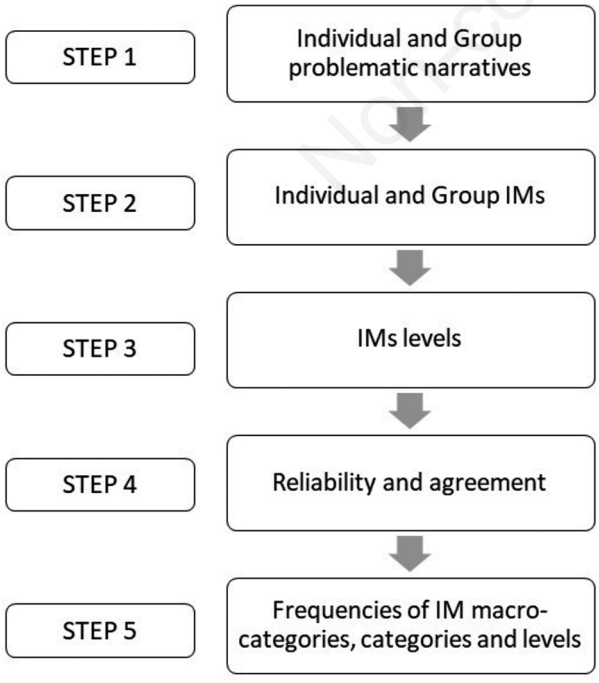

Figure 1. Steps of IMCS-G coding procedure.

Frequency of the IMCS-G categories

In Table 2, the frequencies of the IMCS-G macro-categories and categories are presented for both NMP and Moviola groups. Specifically, in both interventions, *Individual IMs* occurred with a higher frequency than *Group IMs*. When looking at the detailed distribution of each IMCS-G categories, all the categories are represented, and Self-Directed IMs and Explicit Mirroring IMs were respectively the most and the least frequent category in both interventions.

Frequency of the IMCS-G Levels

When analysing IMs Levels, we found that, overall, Level 3 IMs presented the lowest frequency in both interventions (Table 3). Nevertheless, if we observe how the IMs Levels distributed among the macro-categories, we found that, while for Levels 1 and 2 *Individual IMs* were more frequent than *Group IMs,* for Level 3 there was the opposite trend, with *Group IMs* more frequent than *Individual IMs*. With regard to each category distribution, we found that, in both interventions, Levels distributed similarly for all the IMCS-G categories. In fact, Explicit Mirroring IMs was the only category that appeared only at Level 1 in both interventions. However, there were some exceptions: Other-Directed IMs did not present any frequency at Level 3 in the NMP group, while Voice of Group presented no frequency at Level 3 in the Moviola group.

Discussion

In this study we aimed to test and verify the IMCS-G's reliability in two different interventions: the NMP group counselling for underachieving students, which was the group of the initial development and testing of the system, and the Moviola group, a group psychotherapy for young substance abusers. Results confirmed the high re-

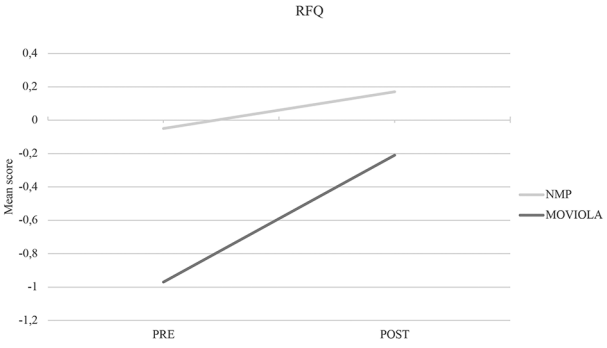

Figure 2. Improvements of RFQ scores from pre- to post-test in the NMP and the Moviola groups.

liability of the IMCS-G in NMP and showed similar findings also in Moviola. Specifically, we found that the IMCS-G macro-categories (*Individual* and *Group IMs)* and categories (Self-Directed IMs, Prompting change, *etc*.) presented an analogous distribution of frequency in the two different groups. In fact, in both groups *Individual IMs* was the most frequent macro-category, coherently with the findings obtained in previous studies on IMCS-G (Esposito *et al.*, 2022). With regard to IMCS-G categories, we observed that all the categories were represented with a discrete frequency comparable to findings obtained in previous studies (Esposito *et al.*, 2022). Specifically, regarding *Individual IMs* categories, we could observe that Self-Directed IMs were the most frequent category. This finding may be linked both to the short term of the interventions and to the fact that the participants were in their first experience of group intervention. Probably, they were in a phase of self-disclosure in the group, their narratives tended to prevail over themselves, and their position towards the problem seemed to seek an initial way of expression. Furthermore, this finding is also in line with previous research and seems to confirm the role of 'building block' of *Individual IMs* for generating a more complex change that will gradually involve all the members (Esposito *et al.* 2022). Moreover, Explicit Mirroring IMs showed some weaknesses as they represented the least frequent category in both interventions. This is an innovative finding and, despite further research is required to understand the reasons of such weakness, we may hypothesize that Explicit Mirroring IMs represent a very complex *Individual IMs* category. Indeed, Explicit Mirroring requires that participants not only recognize their individual change, but they are also capable to acknowledge their transformation in other's words and experiences and, thus, to relate explicitly their change to the mirroring process. Indeed, mirroring is a psychic event that occurs in more advanced stages of the group and with patients who are able to understand the separateness between self and the other. Initially in groups it is easier for patients to experience 'fusional and/or symbiotic' mental states and to be more likely to implement imitative mechanisms in defining their thinking, but without a real capacity for mirroring (Neri, 2021).

We also analysed the Levels of IMCS-G macro-categories and categories. Firstly, in line with previous findings (Esposito *et al.* 2022), this analysis highlighted that, overall, Level 1 and 2 were the most frequent IMs Levels in both interventions. This result seems to confirm that Level 3 IMs represent very complex markers of change and that they are more difficult to be produced in the therapeutic process. Nevertheless, by considering the distribution of the Levels among the

Table 2. Frequency of the IMCS-G categories for NMP and Moviola groups.

	IMCS-G categories	NMP group	Moviola group
Individual IMs	Self-Directed	210	138
	Other-Directed	13	100
	Explicit mirroring	3	4
		226	242
Group IMs	Prompting change	15	53
	Reinforcing change	14	29
	Collective	20	14
	Voice of group	20	15
		69	111

Table 3. Frequency of the IMCS-G Levels for NMP and Moviola groups.

		NMP group			Moviola group		
	IMCS-G categories	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Individual IMs	Self-Directed	163	38	9	102	33	3
	Other-Directed	11	2	0	81	17	2
	Explicit mirroring	3	0	0	4	0	0
		177	40	9	187	50	5
Group IMs	Prompting change	8	4	3	36	14	3
	Reinforcing change	7	5	2	11	14	4
	Collective	12	4	4	7	6	2
	Voice of group	11	7	2	10	4	0
		38	20	11	64	38	9

macro-categories and categories, findings showed that *Individual IMs* were more frequent than *Group IMs* for Levels 1 and 2, but not for Level 3. These results seem to suggest that in these two group interventions Level 3 IMs were more frequently produced on an interpersonal and group level than individually. A possible explanation of this finding may be related to the positive outcome of both group interventions which improved in terms of reflective functioning and showed a positive trend also regarding the DCR (in the NMP) and the abstinence from substances (in the Moviola). The follow up findings seem to confirm the positive outcome of both groups after one year from the end of the interventions. Secondly, we observed that all the IMs Levels were represented in our sample, with few exceptions. Specifically, in Moviola group, the Voice of Group category never reached Level 3 of complexity, while in NMP group, Other-Directed IMs category reached only Levels 1 and 2. A possible explanation that need to be supported in future studies, is related to the coding procedure. Indeed, we observed that in the NMP, Other-Directed IMs were frequently englobed by Prompting change or 2 that, instead, reached Level 3. Therefore, we may see the tendency of this group to recognize the other's change at higher level of complexity on an interpersonal rather than on an individual level and to relate it to one's own change. We may hypothesize that this ability was related to the reflective functioning of the NMP group members who presented, both at the beginning and at the end of the intervention, a higher RF in comparison with the Moviola's group members. This hypothesis may be also supported by the findings related to the absence of the Voice of Group IMs at Level 3 in Moviola. As shown, this is a very complex IM to be produced as the Voice of Group IMs are characterized by the use of 'we' instead of 'I', highlighting the realization of a group identity that passes through the dynamics of building bonds (Neri, 2021).

In conclusion, we propose a possible hierarchical organization among the IMCS-G categories based on their different complexity (Figure 3). More specifically, we believe that Self-Directed IMs could be the basis of the hierarchy of *Individual IMs*, while Explicit Mirroring IMs could be the most complex *Individual IMs* category, with Other-Directed IMs positioned in the middle. Regarding *Group IMs*, we may hypothesize that Voice of Group category could be considered the most complex one, as the Voice of Group IMs also represent an indirect marker of positive group dynamics, such as cohesion, involvement, self-disclosure and sense of belonging.

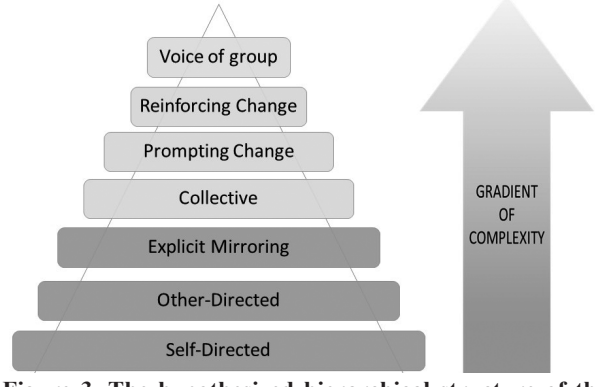

Figure 3. The hypothesized hierarchical structure of the IMCS-G categories.

Limits and future research

One of the limitations of this study is characterized by the size of the sample; it would be interesting to expand the number of groups to understand if similar results could be obtained in other group interventions. In this perspective, it would be interesting to better understand if some weaker categories (*e.g.*, Explicit Mirroring IMs) would present the same lower frequency in other samples. For example, it would be important to apply the IMCS-G in longer groups, such as slow open groups, with participants who have lived the group reality for much longer time and probably have experienced a so complex psychic event like mirroring that occurs in more advanced stages of the group.

In addition, the relationship between the categories of the IMCS-G and other process variables specific to the group setting, such as cohesion or group climate, could be explored. Finally, in future studies, it would be important to verify the trends of the IMCS-G macro-categories, categories and Levels along the sessions, and to study if distinct trends emerge in group interventions with different outcomes.

Conclusions

In the field of group process research, researchers have encountered many challenges in measuring group members change (Burlingame, Whitcomb & Woodland, 2014; Gullo *et al*., 2010) due to the inherent complexity of the group. The IMCS-G tries to respond to the need of transtheoretical and reliable group process measures of change. Indeed, this study showed that the IMCS-G is a reliable measure which can detect markers of change of different complexity in terms of meaning elaboration and produced by all the members in an intersubjective way in different format of intervention.

References

Allen, J.G., & Fonagy, P. (2006). *Handbook of mentalization-based treatment*. Chichester, UK: Wiley.

Angus, L., Lewin, J., Boritz, T., Bryntwick, E., Carpenter, N., Watson-Gaze, J., & Greenberg, L. (2012). Narrative processes coding system: A dialectical constructivist approach to assess-

ing client change processes in emotion-focused therapy of depression. *Research in Psychotherapy: Psychopathology, Process and Outcome*, *15*(2), 54-61. doi:10.4081/ripppo.2012.105.

Badoud, D., Luyten, P., Fonseca-Pedrero, E., Eliez, S., Fonagy, P., & Debbané, M. (2015). The French version of the Reflective Functioning Questionnaire: validity data for adolescents and adults and its association with non-suicidal self-injury. *PLoS One*, *10*(12):e0145892. doi:10.1371/journal.pone.0145892.

Bateman, A. W., & Fonagy, P. (2012). *Handbook of mentalizing in mental health practice*. American Psychiatric Publishing, Inc.

Batista, J., Silva, J., Magalhães, C., Ferreira, H., Fernández-Navarro, P., & Gonçalves, M. M. (2020). Studying psychotherapy change in narrative terms: The innovative moments method. *Counselling and Psychotherapy Research*, *20*(3), 442-448.

Beck, A. T. (Ed.). (1979). *Cognitive therapy of depression*. New York, NY: Guilford press.

Beck, A. P., & Lewis, C. M. (2000). *The process of group psychotherapy: Systems for analyzing change*. American Psychological Association. doi:10.1037/10378-000.

Burlingame, G.M., Fuhriman, A., & Johnson, J. (2004). Process and outcome in group counselling and group psychotherapy. In J.L., DeLucia-Waack, D.A., Gerrity, C.R. Kalodner, & M.T. Riva (Eds.), *Handbook of group counselling and psychotherapy* (pp. 49-61). Thousand Oaks, CA: Sage.

Burlingame, G., Whitcomb, K., & Woodland, S. (2014). Process and outcome in group psychotherapy. In J.L., DeLucia-Waack, D.A., Gerrity, C.R., Kalodner, M.T., Riva, (Eds.), *Handbook of group counselling and psychotherapy* (2nd ed., pp. 55-68). Thousand Oaks, CA: SAGE, 10(9781544308555), n5.

Dazzi, N., Lingiardi, V., & Colli, A. (2006). *La ricerca in psicoterapia. Modelli e strumenti*. [Research in psychotherapy. Models and tools.] Milano: Raffaello Cortina Editore.

Dimaggio, G. (2012). Dialogically oriented therapies and the role of poor metacognition in personality disorders. In H. J. M. Hermans (Ed.) *Handbook of dialogical self-theory* (pp. 356-373). Cambridge, MA: Cambridge University Press. doi:10.1177/1354067X13489321

Esposito, G., Cutolo, A. S., Passeggia, R., & Freda, M. F. (2022). The development and adaptation of the Innovative Moments Coding System for Groups (IMCS-G). *Journal of Constructivist Psychology*, [advance online publication].

Esposito, G., Freda, M. F., & Manzo, S. (2016). Reflexivity and improvements in academic performance. In: M. F. Freda, J. Gonzàlez-Monteagudo, & G. Esposito (Eds.), *Working with underachieving students in higher education: fostering inclusion through narration and reflexivity* (pp. 124-138). New York, NY: Routledge. doi:10.4324/9781315659121.

Esposito, G., Karterud, S., & Freda, M. F. (2021). Mentalizing underachievement in group counseling: analyzing the relationship between members' reflective functioning and counselors' interventions. *Psychological Services, 18*(1), 73-83. doi:10.1037/ser0000350.

Esposito, G., Marano, D., & Freda, M. F. (2020). Supportive and interpretative interventions in fostering mentalisation during counselling. *British Journal of Guidance & Counselling, 48*(3), 314-332. doi:10.1080/03069885.2018.1463429.

Esposito, G., Ribeiro, A. P., Gonçalves, M. M., & Freda, M. M. (2017). Mirroring in group counseling: analyzing narrative innovations. *Small Group Research, 48*(4), 391-419. doi:10.1177/1046496417697149.

Fonagy, P., Luyten, P., Moulton-Perkins, A., Lee, Y. W., Warren, F., Howard, S., Ghinai, R., Fearon, P. & Lowyck, B. (2016). Development and validation of a self-report measure of mentalizing: The Reflective Functioning Questionnaire. *PLoS One*, *11*(7). doi:10.1371/journal.pone.0158678.

Frank, J. D., & Frank, J. B. (1993). *Persuasion and healing: A comparative study of psychotherapy*. Baltimore: Johns Hopkins University Press.

Garcia-Martínez, J., Maestre-Castillo, D., Payán-Bravo, M. A., & Fernández-Navarro, P. (2020). Innovative moments in group therapy: analyzing voices of group change. *Journal of Constructivist Psychology*, 1-12. doi:10.1080/10720537.2020.1717143.

Gonçalves, M. M., & Angus, L. (2017). Narrative measures in psychotherapy research: Introducing the special section. *Psychotherapy Research*, *27*(3), 251-252. doi:10.1080/10503307.2016.1265687.

Gonçalves, M. M., Batista, J., & Freitas, S. (2017). Narrative and clinical change in cognitive-behavior therapy: A comparison of two recovered cases. *Journal of Constructivist Psychology*, *30*(2), 146-164. doi:10.1080/10720537.2 016.1183537.

Gonçalves, M. M., & Stiles, W. B. (2011). Introducing the special section on narrative and psychotherapy. *Psychotherapy Research,* 27(3), 1-3. doi:10.1080/10503307.2010.534510.

Gonçalves, M. M., Ribeiro, A. P., Mendes, I., Matos, M., & Santos, A. (2011). Tracking novelties in psychotherapy process research: The innovative moments coding system. *Psychotherapy Research, 21*(5), 497-509. doi:10.1080/10503307.2011.560207.

Gullo, S., Coco, G. L., Prestano, C., Giannone, F., & Verso, G. L. (2010). La ricerca in psicoterapia di gruppo: Alcuni risultati e future direzioni di ricerca. [Research in psychotherapy: some results and future research directions.] *Research in Psychotherapy. Psychopathology, Process and Outcome,* 78-96. doi:10.4081/ripppo.2010.15.

Hermans, H. J. (2003). The construction and reconstruction of a dialogical self. *Journal of Constructivist Psychology, 16*(2), 89-130. Doi: 10.1080/10720530390117902

Hermans, H. J. (Ed.). (2016). *Assessing and stimulating a dialogical self in groups, teams, cultures, and organizations.* New York, NY: Springer International Publishing.

Hermans, H. J., & Dimaggio, G. (2007). Self, identity, and globalization in times of uncertainty: A dialogical analysis. *Review of General Psychology*, *11*(1), 31-61. doi:10.1037/1089-2680.11.1.31.

Hermans, H. J., & Hermans-Konopka, A. (2010). *Dialogical self-theory: Positioning and counter-positioning in a globalizing society*. Cambridge: Cambridge University Press.

Karterud, S. (2011). Constructing and mentalizing the matrix. *Group Analysis*, *44*(4), 357-373. doi:10.1177/0533316411417941.

Karterud, S. (2015a). *Mentalization-Based Group Therapy (MBT-G). A theoretical, clinical and research manual.* London: Oxford University Press.

Morandotti, N., Brondino, N., Merelli, A., Boldrini, A., De Vidovich, G. Z., Ricciardo, S., Abbiati, V., Ambrosi, P., Caverzasi, E., Fonagy, P. & Luyten, P. (2018). The Italian version of the Reflective Functioning Questionnaire: Validity data for adults and its association with severity of borderline personality disorder. *PLoS One*, *13*(11). doi:10.1371/journal.pone.0206433.

Morken, K. T., Binder, P. E., Molde, H., Arefjord, N., and Karterud, S. (2017). Mentalization-based treatment for female patients with comorbid personality disorder and substance use disorder: A pilot study. *Scandinavian Psychologist*, *4*, e16. doi:10.15714/scandpsychol.4.e16.

Neri, C. (2021). *Il gruppo come cura [The Group as a Cure]*. Milan: Raffaello Cortina Editore.

Orfanos, S., Burn, E., Priebe, S., & Spector, A. (2020). A systematic review and quality assessment of therapeutic group process questionnaires. *International Journal of Group Psychotherapy*, *70*(3), 425-454. doi:10.1080/00207284.20201755292.

Sierra Hernandez, C. A., Piper, W. E., Ogrodniczuk, J. S., Joyce, A. S., & Weideman, R. (2015). Use of referential language in short-term group psychotherapy for complicated grief. *Group Dynamics, 20,* 1-15. doi:10.1037/gdn0000038.

Stiles, W. B. (2002). Assimilation of problematic experiences. *Psychotherapy: Theory, Research, Practice, Training*, *38*(4), 462. doi:10.1037/0033-3204.38.4.462.

Strupp, H. H., & Binder, J. L. (1984). *Psychotherapy in a new key: A guide to time-limited dynamic psychotherapy*. New York, NY: Basic Books.

Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York, NY: W. W. Norton.

Vasta, F.N., Gullo, S., & Girelli, R. (2019). *Psicoterapia psicodinamica di gruppo e ricerca empirica [Group psychodynamic psychotherapy and empirical research]*. Rome: Alpes.

White, M., & Epston, D. (1990). *Narrative means to therapeutic ends.* New York, NY: Norton.

World Medical Association (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA, 310*(20), 2191-2194. doi:10.1001/jama.2013.281053.