

Group Treatment in Acquired Brain Injury Rehabilitation

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The current article describes critical issues in adapting traditional group-treatment methods for working with individuals with reduced cognitive capacity secondary to acquired brain injury. Using the classification system based on functional ability developed at the NYU Rusk Institute of Rehabilitation Medicine (RIRM), we delineate the cognitive and interpersonal capabilities that differentiate group-participation capacity. An overview of the RIRM interventional process, including strategies of change (cognitive remediation versus psychosocial groups), is provided. Empirical support for the RIRM method of group assignment and treatment outcomes for our model is also referenced.

Keywords: *brain injury; group; rehabilitation*

Group treatment can both intensify and extend benefits obtained from individual treatment for people with cognitive deficits due to acquired brain injuries (ABI), such as traumatic brain injury (TBI), stroke, brain tumor, and other cerebrally affecting conditions. Group treatment provides an opportunity for peer support and feedback, sharing of effective ideas and compensatory strategies, a sense of feeling helpful, easing of isolation, and comparisons of one's abilities and limitations with those of others with similar diagnoses (Langenbahn, Sherr, Simon, & Hanig, 1999). Within medical rehabilitation settings,

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group treatments for individuals with ABI due to a variety of etiologies have substantial support in the literature (Flanagan, Cantor, & Ashman, 2008; Rath, Simon, Langenbahn, Sherr, & Diller, 2003; Silver, McAllister, & Arciniegas, 2009).

Psychological interventions to reduce brain-injury-related cognitive and emotional symptoms are needed across a variety of health care settings. According to the Centers for Disease Control, 1.7 million Americans sustain TBI each year (Faul, Xu, Wald, & Coronado, 2010). Millions live with residual symptoms severe enough to interfere with basic activities of daily living (National Institute on Disability and Rehabilitation Research, 1994). Direct and indirect costs of TBI, including lost productivity and wages, have been estimated at \$60 billion annually in the United States alone (Finkelstein, Corso, & Miller, 2006). These figures are likely to increase as a result of Operations Enduring Freedom and Iraqi Freedom, as TBI has been described as the “signature wound” of these armed conflicts (Hayward, 2008). Of course, the societal impact of ABI is even greater when other cerebrally affecting diseases and disorders are considered in addition to TBI. Although many individuals with severe ABI may lose their ability to function independently, others with more mild and moderate conditions are able to function in the community, but with compromised capacity that is not always observable to others. As such, ABI frequently is referred to as the “invisible injury.”

Regardless of etiology, ABI can cause deficits in attention/concentration, memory, and the higher-level executive functions involved in reasoning, planning/organizing, problem-solving, and judgment (Tsaousides & Gordon, 2009), which can compromise the individual’s capacity to re-assume pre-injury work and social roles (National Institutes of Health Consensus Development Panel on Rehabilitation of Persons with TBI, 1999). These difficulties are caused by damage to area(s) of the brain that have been affected by the injury or illness. In individuals who suffer from ABI with no physical limitations or problems with vision or language, these cognitive difficulties may become observable only when attempting to complete tasks of daily living that require cognitive skill. In addition, emotional symptoms such as depression and anxiety frequently are observed in these individuals (Silver et al., 2009). These emotional factors cause distress independently of cognitive symptoms, but also may compound cognitive reductions to make daily function that much more difficult.

Over the past several decades, NYU Langone Medical Center’s Rusk Institute of Rehabilitation Medicine (RIRM) Outpatient Psychology Department has developed a cost-effective group treatment model for addressing cognitive and emotional implications of ABI within the context of a large, interdisciplinary outpatient service

(see Sherr & Langenbahn, 1992). To better address the diverse cognitive and emotional effects of ABI, group treatments are divided into two separate but related domains, “cognitive remediation” and “psychosocial,” addressing cognitive and interpersonal issues, respectively. A classification system has been developed to assign patients to treatment level, according to their functional abilities and treatment goals within each domain. Degree of structure within the group varies by treatment level to match patients’ needs. Data supporting the cost-effectiveness of group treatments within similar rehabilitation programs have been described by Cicerone (2011).

In the current article, we will discuss critical issues in adapting traditional group-treatment methods for working with individuals with reduced cognitive capacity secondary to ABI. Using a classification system based on functional ability, we will delineate the cognitive and interpersonal capabilities that differentiate group participation capacity. An overview of the interventional process, including strategies of change (cognitive remediation versus psychosocial groups) will be described. Empirical support for the RIRM method of group assignment and treatment outcomes for our model also will be referenced.

TREATMENT-LEVEL CLASSIFICATION SYSTEM

In order to classify large numbers of outpatients with diverse ABI diagnoses and demographics into homogenous groups for optimal cognitive and psychosocial treatment purposes, a “levels of residual competence” model was developed at RIRM. As aptly noted by Sherr and Langenbahn (1992), “In general, differences in ethnic background, age, and diagnosis are not as salient as are differences in level of impairment, life experience, and symptom pattern” (p. 421), when assigning outpatients with ABI to groups. RIRM outpatients, who generally present within the first several years after a diagnosis of any kind of brain injury or neurological condition that affects daily function, typically begin treatment with comprehensive neuropsychological assessments that sample cognitive and emotional functioning for the purposes of appropriate treatment-level assignments. These evaluations are approximately 4 to 6 hr in length and include a clinical interview, in which adjustment to injury is explored, as well standardized indices of cognitive functioning such as the Wechsler Intelligence and Memory Scales (Wechsler, 2008, 2009), and measures of mood and adjustment. A clinical algorithm, which includes indicators of premorbid functioning, performance on tests of attention, memory, and executive function, and various demographic factors, is utilized to determine assignment to appropriate levels of cognitive remediation and/or psychosocial groups.

The group model comprises a tiered functional leveling system, in which patients with higher performance on cognitive measures and psychosocial factors are placed in groups that require less support and structure. Although the structure of the leveling system is comparable for both cognitive and psychosocial groups, individuals are referred to either one or both interventions based on clinical need, and may be appropriate for comparable or differing group levels across domains, depending on their clinical presentations. If an individual demonstrates significantly reduced cognitive function on measures of

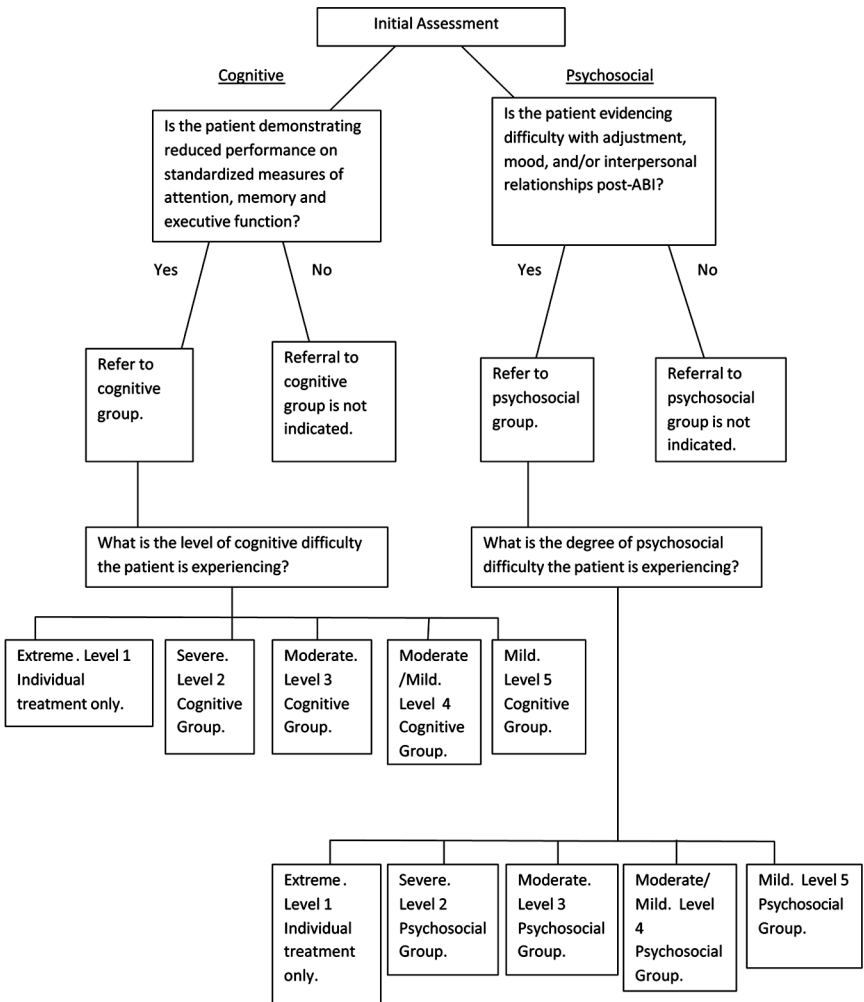


Figure 1 Decision process for group assignments.

attention, memory, and/or executive function, for instance, but only mild to moderate difficulties with psychosocial adjustment post-injury, that person may be referred to a “lower” level cognitive group (i.e., Levels 2 or 3) and a “higher” level psychosocial group (i.e., Levels 4 or 5). Individuals also may be referred to only one of the two types of group treatments (cognitive versus psychosocial) if there are only minimal indications of clinically relevant disruption within the other domain. Individuals determined to be at “Level 1” are considered to be too impaired to benefit from group treatment, but may be ready to join groups following a course of preparatory individual treatment. It is also possible to “graduate” to higher group levels as progress in treatment is made. Figure 1 provides a diagram of the decision process for making appropriate group assignments. A more complete description of the algorithm for assignment, differences between group levels on specific measures, and empirical evidence to support the use of this method in distinguishing group level assignments is reported elsewhere (Bertisch, Rath, Langenbahn, Sherr, & Diller, 2011).

INTERVENTION PROCESS

Yalom and Leszcz (2005) defined twelve curative factors that occur within the context of group treatment: (a) universality, (b) altruism, (c) instillation of hope, (d) imparting of information, (e) corrective recapitulation of primary family group, (f) development of socializing techniques, (g) imitative behavior, (h) cohesiveness, (i) existential factors, (j) catharsis, (k) interpersonal learning and (l) self-understanding, that are described further in the 5th edition of their text. Although many of these variables are amenable to group treatment with ABI patients, the format and structure of both cognitive and psychosocial group sessions must first be altered to allow cognitively impaired individuals to benefit maximally from group modalities. Both types of groups incorporate cohesiveness and self-understanding as primary curative factors, and a more complete description of additional curative factors specific to each domain is provided below.

Brain injury frequently disrupts the integrated sense of “self” (Gracey & Ownsworth, 2008), as many aspects of cognitive and psychosocial identity can be affected. While patients may describe an overall sense of feeling “incomplete” post-ABI, they may evidence greater difficulties identifying the key cognitive and psychosocial factors that have declined. As such, all group interventions must be adapted to first encourage increased awareness and self-understanding regarding these cognitive and behavioral changes. Although gaining insight is an integral component of most psychological interventions, patients with

ABI frequently have organic disruptions that impact awareness beyond personality factors that limit insight (Prigatano & Schacter, 1991).

Next, group treatments allow an opportunity to practice strategies designed to restore or compensate for ABI-related difficulties in a supportive and cohesive environment with consistent feedback, and then to develop the confidence to generalize these skills beyond the therapeutic environment. Approaches to this process must allow for both cognitive and psychosocial changes post-ABI, and may incorporate key adaptations such as (a) repetition to be sure the participants are following and consolidating information, (b) checking the patient's comprehension of what is being said, and (c) considering cognitive explanations of behaviors traditionally interpreted as interpersonal or dynamic. For instance, limitations in awareness of difficulties with behavior, attention, memory, organization, and/or interpersonal skill may be due to organic, instead of or in addition to, psychological factors such as denial.

The goal of neurorehabilitation is to support patients with the restoration of, or compensation for, reduced function post ABI, and both cognitive and psychosocial groups that address each respective domain are integral components of this process. The two modalities offer separate types of treatment, but when implemented together, can complement each other with the shared goal of functional improvement. Although group leaders work with individual therapists to incorporate patients' individual goals into group treatments, they select cognitive exercises and/or initiate discussions on topics relevant to the entire group within each session. Strategies to address difficulties encountered during these within-session exercises are reviewed at the end of each session, and generalizations of these concrete strategies to real-world activities are an integral part of the therapeutic process and the primary element of change. Homework to practice these strategies in daily life also may be assigned.

Each group is led by at least one doctoral-level psychologist who is in regular contact with both individual and other group therapists treating the same patients, usually in a team-meeting format, in an effort to integrate treatment goals. Leaders in the Levels 2 and 3 groups in either domain generally provide more guidance through each session as compared to those in the Levels 4 and 5 groups, where participants have stronger organizational and abstraction skills, and subsequent independence. Groups generally have six to ten members and meet for one or two hr-long sessions per week (Levels 2 and 3 meet more frequently). All group membership is "open," and start and end dates are decided with the participant and his/her group and individual treatment providers based on his/her unique treatment goals. Clinical observation suggests that patients frequently participate for 2 to 6

months before noticeable improvements can be observed. It has also been observed that simultaneous treatment in multiple modalities (individual and group) facilitates the rehabilitation process and reduces the time and long-term cost of achieving functional goals.

Due to the nature of working with individuals with reduced cognitive function, the most common challenge for leaders across groups is attendance, as participants frequently forget or mis-schedule appointments. This issue is typically addressed via an attendance contract with the individual participant. The details of the group processes within each domain are described below, with an emphasis on goals, intervention, and relationship to Yalom's curative factors.

Cognitive Remediation Groups

Cognitive remediation is a widely used treatment approach designed to assist with the restoration of and/or compensation for neuropsychological deficits secondary to ABI (Cicerone et al., 2005; Flanagan et al., 2008; Mazmanian, Kretzler, Devany, & Martin, 1993; Silver et al., 2009). For assignment to treatment at RIRM, outpatients are grouped systematically according to patterns of residual cognitive strengths and limitations post-injury, akin to the manner in which students may be grouped according to level of ability in educational settings. As described above, regardless of diagnosis, those in the Levels 2 and 3 cognitive groups generally evidence greater difficulties with attention, memory, and abstraction on standardized tests as compared to those in the Levels 4 and 5 cognitive groups. Each group level is formatted with a degree of structure tailored to patient needs, with relevant cognitive rehabilitation exercises and generalization strategies designed to target the appropriate level of common "basic skills" deficits observed across types of ABI. These "basic skills" include (a) awareness, (b) attention/concentration, (c) note-taking/memory/organization, (d) ability to give and receive feedback, and (e) interpersonal skills (Cicerone et al., 2005; Langenbahn et al., 1999; Sherr & Langenbahn, 1992).

The goal of all cognitive groups is to support improvement in these basic skill domains by implementing concrete restorative or compensatory strategies that translate to improved real-world function on comparable cognitive tasks. For instance, reduced performance on standardized measures of attention may translate to difficulties focusing on the discussion during group sessions, and generalize toward problems with concentration on daily conversations at home or other social situations. Training with strategies to improve this skill during group sessions is then expected to carry over to other environments where the ability to focus on conversations is essential to restoring interpersonal and vocational status post-injury.

In many ways, the intervention process within the cognitive remediation groups resembles that of a classroom environment. Note-taking in memory books and visual aides are utilized across group levels to maximize memory and concretize information exchanged in groups (Langenbahn et al., 1999). As such, all groups within the RIRM model employ note-taking formats at appropriate levels of structure that include attendance, group-related announcements, discussion of the purpose of the exercise of the day, and strategies for generalization outside of the group. As reflected in their real-world abilities, individuals in Levels 2 and 3 groups require highly structured pre-formatted sheets to facilitate organized note-taking, while participants in Levels 4 and 5 groups are more able to implement their own note-taking structures independently. Figure 2 provides an example of a standard note-taking template, typically used in the Levels 2 and 3 groups.

A review of the previous meeting based on the notes is incorporated into the beginning of each session to facilitate carry over from session to session, note-taking strategies, and other skills necessary to aid recall. The practice of systematically taking and referring to notes serves as a compensatory strategy for attention, memory, and organizational difficulties frequently experienced by individuals post-ABI. A goal of all groups is therefore to generalize this strategy of note-taking toward real-world environments where it also is necessary to recall information in a systematic way; for instance, in managing one's schedule independently. Each session, one individual is selected to present the review of the previous meeting, and peers provide feedback on his/her note-taking accuracy, completeness, and organization during this process, often with parallels to real-world examples where such skills are necessary.

Following group reviews, leaders introduce structured cognitive exercises to address areas of difficulty that are shared by group members within the basic-skill domains described above. The approach to the exercise again is similar to that found in educational settings, where the group leader provides the relevant amount of guidance and support, as indicated, during this skill re-training process. Exploration of strategies to enhance these skills on the exercises is facilitated, with a special emphasis on application to real-world situations. One example of a frequently utilized cognitive exercise that can be adapted to each treatment level is "Trivia Memory," in which group members record rote "trivia" facts as the leader reads them aloud. Strategies to enhance recall of the facts, such as repetition, use of mnemonics, and visualization are explored in a semi-structured group discussion, and applications to real-world functional tasks that require rote memory, such as recall of a "to-do" or a shopping list are discussed as an integral part of the process. Greater structure generally is required in the Levels 2 and 3 groups to facilitate understanding of the daily-life applications of these

COGNITIVE GROUP
Wednesday 10:00 AM, Room RR220
Dr. Hilary Bertisch: 212-263-2282

Today's Date: _____

1. ANNOUNCEMENTS:

Who is here? _____

Who is out? _____

Group-related News: _____

2. REVIEW of LAST WEEK:

Name of person doing review: _____

Skill person will practice _____

Feedback by: _____

<input type="checkbox"/> Relaxed	<input type="checkbox"/> Interested	<input type="checkbox"/> Eye Contact
<input type="checkbox"/> Length	<input type="checkbox"/> Pace	<input type="checkbox"/> Volume
<input type="checkbox"/> Clear	<input type="checkbox"/> In Order	<input type="checkbox"/> Complete

Suggestions from the Group: _____

3. COGNITIVE EXERCISE:

4. STRATEGIES THAT HELPED ME: _____

5. REAL-WORLD USE OF THESE STRATEGIES: _____

Figure 2 Group note-taking template.

strategies, as compared to the Levels 4 and 5 groups. Table 1 provides examples of other group activities designed to address specific cognitive reductions most common to individuals with ABI. All can be implemented across group levels with the relevant degree of structure.

Table 1 Examples of Cognitive Group Activities

<i>Cognitive Skill</i>	<i>Activity</i>	<i>Description</i>
Attention	Word searches	Scanning and attention for words with distracters
	Map searches	Requires visual attention to detail
Memory	Trivia memory	Rote memory for factual information
	Current events	Encourages strategies needed to recall and report daily events
Executive Function	Sorting tasks	Sorting information in different ways requires flexibility and set-shifting
	Mazes	Requires efficient planning and organizational skill
	Analogies	Encourages abstract reasoning
	Logic problems	Requires skills involved in real-world problem solving

The culmination of each cognitive group session is a discussion about the day's cognitive exercise. This discussion represents the least structured component of the treatment hour where the interpersonal process is most salient and awareness and insight are most developed. As with any group model, individuals experiencing cognitive reductions secondary to ABI are often better able to identify, describe, and correct their own difficulties by observing similar patterns in others. The skill of providing and receiving peer feedback again is facilitated at this time with parallels to real-world function; for instance, giving or receiving feedback in a social relationship or vocational setting. Through this open discussion, Yalom's factors also can be most readily observed. Installation of hope, for instance, frequently is apparent usually within the first few sessions of treatment when the patient recognizes that others are able to improve their cognitive difficulties through strategy use, and lead productive lives with similar neurological conditions. Imparting of information, particularly with regard to cognitive strategy use and resources for ABI, is a regular component of the group process. Imitative behavior and interpersonal learning also are key components as individuals use peer feedback to facilitate cognitive strategy use, especially in real-world settings.

Psychosocial Groups

Independent of, but related to, the cognitive implications of ABI, patients frequently suffer from an exacerbation of emotional symptoms, difficulties with social interaction, and adjustment issues related to quality of life changes post-injury. The degree of psychosocial disruption an individual experiences varies according to a variety of factors, including severity of injury, premorbid social and emotional status, and availability of caregiver support in the community. Emotional

issues also can interfere with cognitive and functionally based activities. As such, RIRM psychosocial groups have been developed to address these difficulties, and also are structured according to a tiered functional leveling system. Each level is defined according to degree of emotional and interpersonal disturbance based on initial assessment data, psychosocial history, and clinical impressions.

The psychosocial groups are separate from the cognitive remediation groups, and patients are referred to this intervention based on clinical need. Like the cognitive remediation groups, however, psychosocial groups were developed to enhance the “basic skills” training described above (Langenbahn et al., 1999), but with a greater emphasis on correcting complex social behaviors post-ABI.

Like the cognitive groups, each psychosocial group level integrates note-taking with appropriate amounts of structure in order to increase the use of this compensatory strategy for memory. The note-taking format similarly includes attendance, group-related announcements, and a review of the previous session to facilitate carry-over of key ideas. The primary difference between the cognitive and psychosocial groups occurs during the second part of each session in which the psychosocial group leaders facilitate semi-structured discussions on topics related to emotional or interpersonal factors that interfere with optimal real-world function post-ABI. Common themes that arise during these discussions include changes in mood or expression of mood secondary to ABI, changes in relationships due to alterations in lifestyle post-injury, and coping with the difficulty of significant others in recognizing and relating to the individual’s traumatic, and often “invisible” experience.

Especially in the Levels 2 and 3 psychosocial groups, leaders work closely with individual therapists to streamline efforts toward progress with concrete psychosocial therapy goals, including “maintaining eye contact,” “staying on topic,” or “increasing voice prosody,” that may be impacted by declines in basic skills, particularly awareness, attention, and overall interpersonal skill. Each week, patients may be asked to report specific examples of their efforts to reach their individual goals, and to record their progress in their notebooks. As individuals in the Levels 4 and 5 psychosocial groups generally have a greater capacity for abstraction, discussion may be less structured and reflect more sophisticated behaviors, such as responses to their losses and negotiating changes in relationships post-injury.

Peer feedback is an integral component of the psychosocial treatment process and a crucial element of change across group levels. Again, the leader guides the feedback process to reflect appropriate methods of giving and receiving feedback in the real world. Individuals who have shared the experience of neurological trauma are often able to provide perspectives and support each other in a manner beyond that which can

be offered in individual treatment. Especially in the Levels 2 and 3 psychosocial groups, feedback may be integrated first by labeling concrete behaviors and using repetition of these labels across sessions, a process which gradually translates into observable behavioral change.

Like the cognitive remediation groups, psychosocial groups offer the opportunity for instillation of hope, imparting of information, and imitative behavior, but with an emphasis on psychosocial behavior (Yalom & Leszcz, 2005). In contrast to cognitive remediation groups, however, psychosocial groups highlight the retraining of socialization techniques through interpersonal learning and correction of maladaptive social behaviors secondary to both neurological and personality variables via both therapist and peer feedback. As the psychosocial groups place a greater emphasis on emotional factors, there may be more opportunity for altruism as members support each other, and for catharsis and universality as members are encouraged to express their shared experience of functional loss.

EMPIRICAL SUPPORT

Clinical observation over several decades has supported the effectiveness of this dual-domain (cognitive and psychosocial) tiered (Levels 2–5) group model in facilitating real-world functional outcome in the “basic skill” areas post-ABI. In addition, empirical support for the efficacy of the RIRM group treatments model with ABI can be found in data from an earlier published study, in which a sample of patients with ABI participated in a randomized controlled trial of both our standard cognitive remediation and psychosocial group treatments (Rath et al., 2003). To summarize, following participation in 24 weeks of both cognitive and psychosocial group interventions, a sample of 19 outpatients with heterogeneous ABI diagnoses improved on objective measures of attention, memory, and reasoning. They also endorsed less severe “dependency” symptoms (e.g., lack of initiative, needing supervision in daily tasks,) and their significant others observed less severe cognitive, emotional dyscontrol, and dependency symptoms. Improvements approached significance for levels of self-esteem following participation in the group-treatment program. Details of the sample, analyses, and outcome are described elsewhere (Rath et al., 2003).

SUMMARY

ABI is a critical public health issue that encompasses both cognitive and psychosocial deficits that impact daily function. These areas are

amenable to group interventions based on therapeutic factors identified by Yalom and Leszcz (2005), but formats must be adapted to incorporate the disruption in the sense of “self” as well as the cognitive and emotional disturbances common to ABI, in order to maximize treatment benefits. RIRM has developed a successful cost-effective group treatment model in which large numbers of individuals with ABI are assigned to treatment according to a functional-level classification system in both cognitive and psychosocial domains, based on clinical need, using data collected at initial assessment. The skills addressed across group treatment sessions target five “basic skill” deficits (awareness, attention/concentration, note-taking/memory/organization, giving/receiving feedback, and interpersonal skills) from cognitive and psychosocial perspectives, respectively, that are common to individuals with ABI and impact real-world functioning. Across either treatment domain, different group levels offer the appropriate amount of support and structure necessary to maximize these skills. Common denominators across both types of groups include the implementation of strategies such as note-taking, reviews of the previous session, peer feedback, and generalization of session content to real-world activity. Cognitive groups employ cognitively based exercises to strengthen attention, memory, and executive function through use of strategies in the service of improving real-world “basic skill” deficits. Psychosocial groups utilize discussion on progress toward interpersonal goals to maximize social function. Like traditional group models, curative factors including cohesiveness, self-understanding, installation of hope, imparting of information, development of socializing techniques, imitative behavior, and interpersonal learning are the underlying elements of change in both types of groups.

There is clinical and empirical support for both the RIRM method of group assignment and outcomes of treatment. Taken together, these clinical and statistical findings have important implications for the mechanisms of successful group treatments designed to address cognitive and psychosocial sequelae of ABI. Our theoretical model and supportive empirical evidence are particularly meaningful as ABI becomes more common in medical settings, in light of advanced medical technologies that allow for an increased survival for those at risk. These include the aging population as well as military personnel involved in armed conflicts such as Operations Enduring Freedom and Iraqi Freedom.

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