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PART II

GERIATRIC NEUROPSYCHOLOGICAL INTERVENTION

In contrast to the focus on assessment in the first part of this volume, Part II focuses on intervention, beginning with a model outlined in Chapter 10 to assist the process of evaluation, case conceptualization, and treatment planning. As with our assessment model, this intervention model is not presented as definitive or static, but rather as a dynamic beginning effort to redress the current gap of literature in this area. Section A outlines specific cognitive training interventions; Section B then presents approaches most appropriately classified as psychotherapeutic interventions.

We use the word *intervention*, in contrast to *rehabilitation*, because our elderly patients with significant cognitive compromise or dementia cannot be expected to make the magnitude and nature of gains seen with younger populations who experience a marked recovery of function after acute injury. The exception here is with elders suffering from recent stroke, who often do show remarkable gains. It is with elders who are well beyond acute recovery or who are in the early stages of a degenerative condition that intervention focuses upon compensation and coping in the manner that we address here. Indeed, there are also those who will not benefit from treatment, and ethical practice requires us to be forthcoming regarding these limits. However, we systematically consider each case, because successful identification of targets and treatments to reduce excess disability can often be found, even in the context of irreversible or progressive cognitive decline.

The chapters that follow clearly reveal that intervention can lead to improved management of memory deficits, functional status, and mood. As an extension of these gains, quality of life and health care outcomes may also improve. Indeed, over the past decade it has been exciting to watch as reports emerge detailing how treatment leads to less depression even among dementia patients, that systematic training can result in reliable calendar use among patients with Alzheimer's disease, that targeted training skills can lead to functional gains. Our own work has shown that training leads to better perceived memory functioning, with adequate insight. Some of these studies are reviewed in the chapters that follow.

The focus of Part II is unique to this text and is worth some emphasis in the introduction. We hope to underscore the important emerging truth: A neuropsychologist is not simply a diagnostician, as may have been true in the past. The neuropsychologist is also a therapist ideally trained to provide effective neurocognitive interventions to enhance individual patient outcomes through increased coping capacities in relation to losses. The intervention approach itself often involves systematic application of a specific technique, program, or therapy, as outlined in the chapters that follow. These interventions are informed by a clear understanding of the neurocognitive deficits present in each individual case, which allows delineation of target behaviors and facilitates the appropriate design of methodology with which to teach compensation. It is not the biological disease process that is the target of intervention. Indeed, test scores on our traditional measures often do not capture the gains. Additionally, the goal of intervention is rarely to fix or ameliorate a problem. Rather, it is the practical functional and emotional outcomes that are addressed through compensatory, training, and psychotherapeutic techniques.

It is our observation that many neuropsychologists do not feel that they have the skills necessary to do this kind of work. Perhaps others in related fields also underestimate their abilities in this arena. Some may attribute reluctance to practice in this area to lack of experience with intervention in this particular population—and indeed, those without adequate exposure will need to ensure appropriate training as they begin their work. However, our experience suggests that reluctance to practice is fueled by more basic concerns, such as a sense of inadequacy and powerlessness. This perspective often stems from lack of exposure to work that nets favorable outcomes, coupled with therapeutic nihilism—the belief that this particular population cannot benefit from intervention. With the promising outcomes that are reviewed in these sections, it becomes clear that the heretofore pervasive bias against treatment in this population was indeed premature and without merit. However, this evidence does little to empower the individual clinician with a sense of command and capacity. We would like to challenge this disempowerment and ask each clinician to carefully consider relevant skills he or she indeed possesses. What neuropsychologist is without training in behavioral principles and therapy? What clinician does not understand loss and grief? And we are inspired to challenge even further: Are not neuropsychologists in a uniquely qualified position to engage in this work, given that their expertise spans both the behavioral correlates to neuroanatomical compromise *and* the therapeutic arena? It is our belief, and perhaps bias, that many clinical neuropsychologists and related professionals are indeed qualified and quite skilled in intervention and that application of their intervention abilities awaits only their awareness and enthusiasm.

Section A

Cognitive Training and Compensatory Techniques

The chapters in Section A focus on specialized cognitive training and compensatory techniques.

Chapter 10 leads this section with a discussion of the intervention model. This model outlines the process of evaluation, case conceptualization, and treatment planning in a preliminary manner. Accordingly, cognitive training and compensatory techniques are considered as well as psychotherapeutic interventions, as discussed in Section B.

The remaining chapters in Section A focus on specialized cognitive training and compensatory techniques. As noted in this text, the primary targets of intervention tend to be either cognitive (e.g., memory, language) or functional in nature, but often involve a combination. As can be easily observed, many different techniques or combinations of techniques can address the same problem. Often, it is desirable to address behavior with a multimethod approach, because different patients have different strengths and preferences and are thus differentially able to use some techniques but not others. Indeed, patients should be informed about what is and is not known about each approach, and forewarned that multiple approaches may be needed to determine the best method for them. The reader is referred to the intervention model for consideration of factors that may affect intervention target and technique selection.

Chapter 11 describes a very specific program of cognitive and functional interventions. Importantly, this work emphasizes the need to target functional skills, which could improve qualify of life and possibly even delay disability. This chapter also presents follow-up data for what might be considered one of the most rigorous examples of intervention outcomes research.

Chapter 12 describes another approach: the increasingly applied and researched technique of spaced retrieval. This chapter outlines the strategy and provides examples of successful application of the method and efficacy data. There is also a discussion of issues relevant to the dissemination of the intervention, which applies to any effort to broadly deliver these relatively new approaches to the clinical care arena.

Chapter 13 provides a description of methods that employ multiple techniques. This multimethod approach is not only common in practice but is often clinically desirable.

Although this approach may lead to challenges in terms of researching effective components, it represents the first step in demonstrating clinical efficacy, and it is anticipated that additional study of program components will follow. The reader is encouraged to consider the many individual techniques that can be applied. Many are modified associative techniques that originated in traditional rehabilitation settings.

Chapter 14 addresses approaches for dealing with language deficits that are often applied with elders who have suffered stroke or have progressive aphasias. This work focuses on an area of functioning, language, that is often untreated in post-acute geriatric populations. Language impairments post obvious implications for social autonomy and function and are often quite distressing to patients when they occur. The neuropsychologist can assist by teaching strategies that compensate for acquired deficits; he or she is also in a position to provide comprehensive psychological care, incorporating targeted behavioral and adaptive coping strategies, a point highlighted later in the book.

Chapter 15 discusses the use of external auxiliary aids to facilitate function. The importance of establishing strong external methods of compensation for an impaired and possibly progressively declining cognitive function cannot be sufficiently underscored. The topics discussed here complement the other chapters dealing with specific psychological or behavioral compensatory strategies.

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An Integrated Model for Geriatric Neuropsychological Intervention

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The notion that dementia and other cognitive disorders is not treatable is a myth. The landscape of geriatric neuropsychological care services is unquestionably evolving, with treatment being a rapidly growing area of practice complementing traditional assessment. Reports demonstrating clinical efficacy of various intervention techniques are emerging and systematically dissolving previous biases against intervention with patients who have dementia. This promising work encourages the clinician to move beyond diagnosis in order to maximize functioning, coping, and quality of life, even in the context of debilitating dementia conditions (Koltai & Branch, 1998, 1999; Zarit & Zarit, 1998).

The neuropsychological interventions discussed in this text involve patient populations with progressive conditions or dementias that are stable, with any expected neuroanatomical recovery already complete. Therefore, it is not the underlying neuropathology that is targeted for modification, but rather coping, adjustment, and the use of compensatory strategies and residual abilities (Koltai & Branch, 1998, 1999; Sohlberg & Mateer, 1989c).

In the chapters that follow, common intervention techniques are presented along with the associated research and anecdotal evidence supporting their utility. It seems obvious that these clinical approaches are best applied within an informed framework. It is well known among those working in any rehabilitation or intervention capacity that maximal benefit is contingent upon the development and execution of a carefully considered treatment plan. This chapter outlines one model that can be used to facilitate such planning. It is an approach used to conceptualize geriatric neuropsychological intervention services, built upon the clinical and research efforts within this emerging field. In this model data acquired or reviewed during the intervention evaluation are utilized to formulate the treatment plan.

INTERVENTION PLANNING: IDENTIFICATION OF INTERVENTION TARGETS AND STRATEGY SELECTION

The initial intervention evaluation is the primary source of clinical data from which the treatment plan evolves, as variables relevant to the identification of treatment *targets* and *methods* are examined. Maximal benefit from neuropsychological intervention is achieved with careful, thorough planning. In this section variables relevant to the identification of treatment goals and methods, and the process of matching these in relation to the characteristics of each patient are described. The intervention evaluation is the context in which these variables are reviewed, which facilitates creation of the treatment plan. These variables include:

- Goals
- Motivation
- Neuropsychological evaluation
- Insight
- Affective status
- Unique patient and environmental factors
- Current compensatory methods and activities

These variables should be systematically reviewed and incorporated into the treatment plan. This step of the intervention process identifies the most feasible treatment targets and approaches by integrating neuropsychological data and identified intrapsychic or interpersonal concerns with a theoretical understanding of the neuroanatomical correlates of behavior and the appropriate psychotherapeutic approaches (Pramuka & McCue, 2000; Sohlberg & Mateer, 1989a).

Goals

Intervention planning begins with elucidation of the major complaints driving the need for treatment, because these give rise to treatment goals. Whereas some patients and families enter the treatment process with well-defined goals, others look to the provider for assistance in identifying targets. Regardless of the degree of goal identification that the patient and family bring to the initial meeting, the end point is to identify valued outcomes that are also amenable to treatment. The questions directly relevant to this factor include:

- What are the functional complaints of the patient? That is, what would he or she like to change?
- What are the patient's functional deficits from the perspective of the family? That is, what would they like to change?
- From the patient's perspective, what cognitive deficits are associated with the functional deficits?
- From the family's perspective, what cognitive deficits are associated with the patient's functional deficits?
- Does the patient report any affective distress?
- What is the patient's affective status from the perspective of the family?
- Is the affective distress in response to cognitive and functional failures (see below)?
- Is the affective distress of sufficient magnitude to contribute to the cognitive and functional deficits (see below)?

- Is there any discrepancy between patient and family reports of functional, cognitive, or affective status? If so, what accounts for the divergence?
- What cognitive and affective deficits are likely related to the functional complaints, given the neuropsychological data (see below)?
- Is there any discrepancy between patient and family reports? What would be expected, given the neuropsychological data (see below)? If there is a discrepancy, what accounts for it?

Typically, patients referred for intervention are beyond the acute stages of injury. In these instances few skill gains would be expected through natural history of recovery, and some patients may even be expected to decline over time. Therefore, goals should be structured within the context of an explicit understanding that cognitive deficits will be managed and compensated for rather than cured or "rehabilitated."

Although the patient and family will readily identify areas of functional disability, the clinician needs to understand the antecedents to such difficulties in order to best intervene. This understanding includes identifying sources of "functional dysfunction" from the perspective of both the patient and family members (Pramuka & McCue, 2000). For instance, is the patient not doing things listed on the "to-do list" because he or she forgets to check the list (memory disorder), does not follow the structure of the list (executive dysfunction), or lacks interest (apathetic depressive disorder)? Even if the target of intervention is the same, the strategy would vary considerably depending on the source of the problem.

To this end, the clinician should identify the presence of any cognitive dysfunction and affective distress that may be contributing to functional deficits. In addition, it is useful to know both patient and informant perspectives on the patient's cognitive and affective status. When patient and informant reports diverge, it is helpful to identify the source of discrepancy, because this information can also be helpful in planning (e.g., the patient may have anosognosia which can influence outcome or it may reflect caregiver burden). In addition, other sources of information, such as the neuropsychological evaluation, should be utilized to enhance the identification and quantification of cognitive and affective dysfunction.

Motivation

The patient's motivation to *actively* participate in the therapeutic process should be considered (Koltai & Branch, 1999). The state of being motivated involves feeling compelled, usually from a need or desire, to act. The questions directly relevant to this factor include:

- Is the patient sufficiently motivated to actively participate in treatment? Specifically, is he or she willing to attend sessions? Is he or she willing to participate in practice assignments that require effortful processing?
- If there is a lack of motivation, is it due to central nervous system dysfunction, resulting in poor initiation/apathy or emotional distress? Are personality factors operating, or is there another reason for poor motivation?

It is erroneous to assume that a patient will be inclined to expend the necessary effort to learn and practice new techniques or to use compensatory strategies just because he or she agrees that improving function is desirable. Similar to understanding the source of functional disability when establishing goals, it is useful to identify the source of diminished or absent motivation that may be a barrier to treatment. *Central nervous system*

(CNS) dysfunction, particularly that involving frontal systems, can result in apathy and impaired initiation of behavior that can be mistaken as a lack of motivation. *Depression* can also significantly impair interest and energy levels. Finally, *personality* factors may preclude adequate motivation to participate in treatment.

Because inadequate participation in the treatment process will likely preclude gains, less-than-optimal levels of motivation should be addressed prior to the initiation of the treatment plan. Of course, attention to personality and affective factors that influence motivation may result in a change that would allow for adequate participation. In contrast, CNS dysfunction that results in an inability to actively participate, despite the desire to do so, must be treated quite differently. In such instances the treatment plan would have to utilize approaches requiring minimal-to-no patient effort (e.g., spaced retrieval, behavioral conditioning). Thus lack of motivation does not completely preclude the possibility of benefit but, instead, significantly modifies the treatment approach.

Neuropsychological Evaluation

One of the most valuable sources of information for intervention planning is the neuropsychological evaluation, because it provides standardized, objective data to assist in both goal identification and strategy selection. The questions directly relevant to this factor include:

- What is the patient's general level of cognitive functioning?
- What diagnosis is supported by the data? What does this diagnosis suggest about the likely neuroanatomical structures and systems currently affected? What does it suggest about the likely cognitive deficits, behavioral changes, and emotional reactions of the patient? What does it suggest about likely progression and the neurobehavioral changes that will evolve over time?
- What type of and how severe a memory disorder is present? Is it characterized primarily by inadequate storage or poor retrieval?
- What types of executive deficits are present? Are the following processes affected: initiation, working memory, speed of processing, cognitive flexibility, sequential processing?
- Is there a processing advantage by modality (e.g., verbal over nonverbal)?
- Are expressive or receptive language skills affected? Visuospatial skills?
- What does the neuropsychological data suggest in terms of modification of technique? Are specific techniques unlikely to be acquired or utilized effectively? What modifications to techniques might prove beneficial, given the patients' cognitive presentation?
- Considering the data, are the identified goals realistic?
- Given the constellation of findings, which techniques might result in the greatest gains relevant to the identified goals?

General Level of Cognitive Functioning

General information about the stage of cognitive compromise—that is, mild, moderate, severe, profound—will set the tone for further exploration of the possibilities and limits of intervention. If an individual exhibits a moderate dementia, for instance, it is likely that both memory and executive deficits are present, whereas someone with a mild level of cognitive dysfunction may be suffering from an isolated memory deficit. Although hypotheses about intervention can be drawn from general stage information, more precise types of data should guide the inclusion or exclusion of specific types of techniques in the intervention plan.

Diagnosis

The importance of the diagnosis is two-fold. First, knowledge of the diagnosis allows for investigation of hypotheses related to the cognitive, emotional, and behavioral sequelae that typically attend various illnesses (Koltai & Branch, 1999). This appreciation of the neurobehavioral sequelae that characterize the presentation and course of neurological illnesses and syndromes guides the intervention process. For example, a patient in the early-to-middle stages of Alzheimer's disease (AD) will likely exhibit memory deficits (with constricted acquisition and rapid forgetting), executive compromises, and mild word-finding problems. A reactive depression and some mild changes in insight may also be present, because these deficits are common in early AD (Koltai & Welsh-Bohmer, 2000). In contrast, a patient with a history of a progressive language disorder (e.g., primary progressive aphasia) will likely demonstrate a moderate-to-severe aphasia syndrome, and depending on the stage of the illness, may demonstrate other cognitive deficits related to the compromise of frontal systems. Insight is likely to be spared in the early-to-middle stages of this illness. The intervention goals for these two patients would be very different, as would the patients' abilities to capitalize on strategies with varying levels of complexity.

Second, knowledge of the diagnosis allows the clinician to incorporate prognosis and likely patterns of future cognitive, affective, and behavioral changes into the intervention plan (Koltai & Branch, 1999). In both logical and ethical practice, strategies should be selected that would serve the patient well in the future.

Neuropsychological Profile

The clinician uses the obtained neuropsychological data to generate or revise hypotheses about cognitive strengths and weaknesses to further refine the treatment approach. The constellation of findings from testing allows for specific planning. Because the concerns of the patient and family often reflect the deficits observed on testing, these data allow for anticipation of the types of complaints and goals the patient and family may bring to the session. Ideally, the clinician is versed in how neuropsychological test performance relates to everyday functional capacities (e.g., driving, medication management, financial decision making; Pramuka & McCue, 2000). However, when complaints diverge significantly from test findings, the source of the discrepancy should be identified.

The neuropsychological profile not only contributes to appropriate goal selection but also includes and excludes the use of specific techniques. In the most obvious sense, strategies should be selected that allow the patient to use relative strengths to compensate for relative weaknesses. Beyond this principle, the potential influence of each compromised neurocognitive domain on each technique being considered should be reviewed. For instance, the clinician will want to determine the nature of the memory deficit: Is it characterized primarily by a storage or retrieval deficit? Obviously, techniques aimed at effortful processing, which increase the chance of storage, would be appropriate for the former (e.g., association techniques: story method, visual association methods), whereas search strategies would be most relevant for the latter. The clinician will also want to consider if there is a verbal over nonverbal processing advantage, or if there are any isolated but significant deficits that should be considered. If there is executive compromise, the clinician will want to understand in what way it may impact the initiation and implementation of various approaches. Feedback involving a review of results often benefits the patient and family and better prepares them for an intervention program that will be more relevant and feasible, given the data (see Green, Chapter 9, this volume).

Technique Modification

Specific cognitive deficits preclude the use of certain strategies. For instance, the method of loci, a mnemonic frequently used with normal elders that involves visually associating target items along a fixed visual route, has been found to be too complex for many cognitively impaired patients (Yesavage, Sheikh, Friedman, & Tanke, 1990; Hill, Yesavage, Sheikh, et al., 1989). Many times, however, specific approaches remain feasible, but only if they are adequately modified (Koltai & Branch, 1999). For instance, a very effective strategy to improve face–name pair learning and the length of retention duration with elders (Hill, Evankovich, Sheikh, & Yesavage, 1987; Wilson, 1987; Yesavage et al., 1990) is likely to have more benefit if modified when used with patients who have early dementia. The strategy typically involves first identifying a distinctive facial feature, then creating a visual association image with the name (e.g., *turtle* for the name "Tuttle"), and finally connecting the visual association image with a prominent facial feature. However, many dementia patients have difficulty executing the specific steps of this technique (Hill et al., 1987). An effective modification involves repetition of the name, creation of a visual association image based on the name, and visualization of the person with this image (e.g., a visualization of Mr. Tuttle interacting with the turtle).

In some instances only minor modifications will be necessary. For instance, the level of executive dysfunction may suggest that training in the use of a calendar is best approached in a series of simple, concrete steps, such as first mastering information extraction before the patient attempts to make systematic entries. Strategy modification may involve choosing one alternative over another based on ability, simplifying or eliminating more complex steps that are not essential to improve performance, or altering the timing of the introduction of strategy sections, as needed.

A critical element of intervention planning evolves during the intervention evaluation through consideration of goals in light of the neuropsychological data. Each goal should be considered in light of the test results. Specifically, the feasibility of targeting each goal should be considered and then, given the profile, the best strategy for targeting each should be identified.

Insight

Anosognosia, or the lack of awareness of deficits, is an indispensable patient variable to consider during the intervention evaluation. Although neuroanatomical theories have, for the most part, replaced motivational theories of "denial" in the dementia population (McGlynn & Schacter, 1989), motivated denial remains a potential psychodynamic construct that can influence intervention outcome and should be considered during the evaluation. More often than not, however, the patient with dementia suffers from an organically based inability to appraise accurately his or her skills. The questions directly relevant to this factor include:

- Is the patient aware of his or her cognitive deficits? Specifically, are both the presence and magnitude of deficit appreciated?
- Does the level of insight reflect other deficits in judgment or reasoning?
- Does the level of insight affect the patient's goals or motivation?

Among patients with dementia, severity of disease is more predictive of anosognosia than dementia duration or diagnosis (Anderson & Tranel, 1989; McDaniel, Edland, Heyman, & CERAD clinical investigators, 1995; Migliorelli et al., 1995b; Sevush & Leve, 1993; Starkstein et al., 1997). Neuroimaging studies implicate the integrity of frontal-lobe structures in anosognosia (Reed, Jagust, & Coulter, 1993; Starkstein et al., 1995). Clinical observations also associate frontal dysfunction with lack of insight into diminished abilities or inappropriate behavior (e.g., Neary, 1990; see McGlynn & Schacter, 1989; Stuss, 1991). The ability of densely amnesic patients to assess their abilities accurately also suggests that "poor memory for memory failures" does not account for anosognosia (McGlynn & Schacter, 1989). Interestingly, AD subjects with poor insight into their own abilities retain the ability to predict their relatives' performance accurately, suggesting a monitoring defect restricted to the self (McGlynn & Kaszniak, 1991; McGlynn & Schacter, 1989). Alternatively, patients may be impaired in updating knowledge about the self as well as others, but because the informants have not changed, predictions about them remain more accurate (McGlynn & Kaszniak, 1991).

Additional evidence for the potential modifying effect of anosognosia on treatment outcome became apparent to investigators at our center in a preliminary investigation of a memory and coping program implemented with patients who had mild-to-moderate dementia and who were experiencing difficulty adjusting to their cognitive losses (Koltai, Welsh-Bohmer, & Schmechel, 2001). All participants with insight reported less memory failures after treatment. In contrast, subjects without insight or in the control group reported changes in memory failures with similar frequency. The difference between gains among those with and without insight was statistically significant ($p = .029$), suggesting that insight may well be an important variable that moderates actual treatment gain and/or the perception of gain. In contrast, according to informants, there was a perceived benefit among the treatment group relative to controls, independent of insight status, which approached significance ($p = .065$). Clare, Wilson, Carter, Roth, and Hodges (2004) replicated these findings in a recent prospective study.

These investigations highlight the need for research to further delineate the influences of anosognosia and other potential outcome-modifying variables, such as baseline cognition and affective status. Further study to clarify the degree of *perceived* versus *actual* gain by insight status is needed and could have profound effects on selection of potential candidates for treatment. If anosognosia truly hinders treatment gain, as suggested by the perception of participants in this study, such services may be inappropriate for this subgroup. However, the greater gain perceived by treatment subject informants relative to control group informants, regardless of insight status, suggests that perhaps participants do benefit from treatment, although those with anosognosia may not be able to appreciate such gain, just as they do not appreciate the magnitude of deficits prior to treatment. Unawareness of deficit or its functional consequences logically does not promote the use of compensation (Crossen, 2000). If this is indeed the case, ethical practice would require a clear delineation of expected versus perceived gains within this context.

It is reasonable to hypothesize that the benefit of intervention among anosognostic patients may be hindered by decreased motivation resulting from a lack of appreciation for the need for effortful processing. There may also be a decreased ability to acquire intervention techniques due to the executive dysfunction frequently associated with this condition.

Because poor insight can significantly influence treatment outcome, the patient's degree of awareness should be considered carefully during the intervention evaluation. To the extent that is possible, the clinician should determine the degree of retained insight. An effort to differentiate between observations "echoed" by the patient from those that reflect a true appreciation of the presence and magnitude of deficits should be made.

Finally, this information can be considered in the context of the patient's ability to accurately judge and reason, and how these abilities (or their absence) may also affect motivation and goals.

Affective Status

No intervention evaluation is complete without a thorough assessment of the patient's affective status. Evaluation ideally involves structured interviews or questionnaires and observations of behavior. Patient interviews should be supplemented by informant reports, but with awareness of how caregivers' distress can affect their perceptions of their loved ones. Careful consideration of affective status is essential because it is both a target of treatment and a potential modifier of outcome. The questions directly relevant to this factor include:

- What is the patient's affective status from the perspective of the patient, family, and from the data?
- What is the magnitude of emotional distress?
- What characterizes the emotional distress (e.g., depressive symptoms, anxiety symptoms, irritability)?
- How does the emotional distress affect the patient's functioning?
- Does the patient have an affective disorder that warrants treatment?
- Is the emotional distress in response to cognitive demands and cognitive failures, or independent of them? Can the onset of emotional distress be tied to any clear event?
- Is there any history of an affective disorder?

Chapter 5 reviews cognitive dysfunction related to depression in detail. Because emotional distress can affect function and aggregate in a manner that undermines treatment progress, depression and its effects on behavior warrant some discussion here.

Depression and other emotional disorders can be considered sources of "excess disability," or *treatable* factors that can account for greater than warranted functional incapacity (Brody, Kleban, Lawton, & Silverman, 1971) and should be identified and targeted through intervention. Estimates of the prevalence of depression among elderly persons with dementia underscore the need for directed attention to this domain of functioning. One study of dementia patients found that 27% had minor depression and 25% had major depression (Ballard, Bannister, Solis, Oyebode, & Wilcock, 1996). Another study focusing on affective disorders among patients with AD revealed that 28% had dysthymia and another 23% met criteria for major depression (Migliorelli et al., 1995a). These prevalence figures far exceed those of depressed elderly patients without dementia (Myers, 1984). Not surprisingly, dysthymia typically starts after the onset of AD and is more prevalent in the early stages, whereas major depression typically has an earlier onset and similar prevalence across stages (Migliorelli et al., 1995a). Obviously some variance exists across typical affective symptoms encountered by disease severity and diagnosis. However, it is clear that emotional distress occurs frequently across dementia subtypes and at various times, and is thus a pivotal variable to consider during evaluation for intervention.

Another feature of depression beyond the obvious impact of emotional distress on quality of life is its potential to affect cognition. This cognitive effect can be observed in cases of "pseudodementia," the dementia syndrome of depression (Alexopoulos, Meyers, Young, Mattis, & Kakuma, 1993, Barry & Muskowitz, 1988; Clarfield, 1988; Emery & Oxman, 1992; Nussbaum, 1994) in which cognitive sequelae are related to depression rather than a comorbid dementia. Also, some studies suggest additionally compromised cognition in cases of dementia when depression is comorbidly present. Further, although controversy exists as to the degree of discernible additional influence on cognition or functional status, some studies have found depression to contribute unique variance to cognitive performance among normal elders, patients with Parkinson's disease, and patients with AD (e.g., Lichtenberg, Ross, Millis, & Manning, 1995; Rovner, Broadhead, Spencer, Carson, & Folstein, 1989; Troster et al., 1995). Even among patients without marked affective disorders, reports of less efficient processing skills during periods of emotional distress are common.

Importantly, depression can also impair functional skills, both alone and in conjunction with cognitive impairment. Among behavior problems of patients with dementia in special care units, those related to emotional distress have been shown to be second only to problems related to memory impairment (Wagner, Teri, Orr-Rainey, 1995). Fitz and Teri (1994) remark that while both depression and cognitive status have been related to performance of basic activities of daily living (ADLS) and instrumental activities of daily living (IADLs) in patients with AD, the influence of depression on IADL performance may be contingent on the severity of cognitive dysfunction. In addition, the influence of depression on utilization of health care services has been well documented, even in the absence of dementia. Elderly depressed outpatients (1) are more likely to rate their health as fair or poor, (2) have more emergency room and outpatient visits, and (3) higher outpatient charges than nondepressed patients (Callahan, Hui, Nienaber, Musick, & Tierney, 1994). Koenig, Shelp, Goli, Cohen, and Blazer (1989) found significant health care utilization differences between older medically ill patients with and without major depression, with depressed patients having longer index inpatient stays, higher in-hospital mortality, and excess resource utilization after discharge.

Whereas the relationship between the domains of affect, cognition, and function awaits further clarification, it is evident that successful treatment of depression, even in the context of a neurodegenerative illness, may reduce cognitive and functional compromises and, in turn, affect health care utilization. The use of residual capacities and the need for formal care may also be impacted, given these interactive, multicausal domains (Koltai & Branch, 1998, 1999).

Finally, intervention efforts that targeting cognitive variables may be unsuccessful if attempted in the context of emotional distress. As noted above, emotional distress frequently leads to excess cognitive disability; many symptoms of affective disorders (e.g., apathy, anhedonia, irritability) tend to work against participation in cognitive techniques that require motivation and effort. Therefore, it is important to gain a thorough understanding of the emotional factors operating within the patient by differentiating emotional and personality changes that are a result of disease-based neurological changes from those that are reactive or premorbid, because treatment approaches differ as well (Crossen, 2000; Pramuka & McCue, 2000). Although there are rare exceptions, affective distress should always be targeted first in order to maximize the likelihood of benefit from other intervention efforts. Doing so will minimize or eliminate inefficiency introduced by the emotional distress and increase the patient's resources, which then can be applied during any cognitive-based intervention. In my experience, the only exception to this general approach occurs when patients refuse treatment of psychological distress and insist on focusing only on memory and processing skills. In such cases, the patient's refusal to consent to treatment of affective distress is, of course, honored, but with clear delineation of the limit to treatment progress in all areas, including the preferred treatment target. By honoring this decision, tension is minimized and an effective rapport is built that eventually allows for this area of functioning to be formally addressed.

In summary, it is apparent that appreciation of the patient's affective status is essential to consider both as a target of treatment and a potential modifier of outcome. Therefore, a thorough assessment of affective functioning should be incorporated into the intervention evaluation. In addition, it is important to understand not only the patient's overall affective status but also the antecedents and consequences of emotional distress for the patient. Finally, an understanding of the patient's history of depression can be useful in conceptualizing his or her current affective functioning, and may also provide historical data useful to the selection of treatment alternatives.

Unique Patient and Environmental Factors

One must be vigilant for factors unique to the patient or his or her situation that could influence the outcome of intervention. The questions directly relevant to this factor include:

- Are there unique factors about this patient that should be considered in the selection of treatment goals or methods?
- Who are the members of the household? How willing are they to be involved in treatment?
- Is the structure of the physical environment conducive to functioning? Is it conducive to the application of intervention techniques?

Although hard to anticipate at times, these factors are critical to identify and consider. For instance, if it becomes apparent that a patient has significant obsessive–compulsive tendencies, then caution must be exercised when teaching detailed structured techniques that risk being overused.

Likewise, there may be social or environmental factors operating that are likely to influence outcome. For instance, if the primary caregiver will not participate in treatment, the strategies will be limited to those that the patient can execute independently. Thus the patient's support and care system should be clearly identified, including the willingness of caregivers to be directly or indirectly involved in intervention efforts, and the patient's physical/environmental surroundings (Pramuka & McCue, 2000; Zarit & Zarit, 1998).

Current Compensatory Methods and Activities

The evaluation should consider what the patient is already doing to address cognitive and emotional dysfunction. Often, patients and families have initiated compensatory routines, many of which are quite effective (Pramuka & McCue, 2000). The questions directly relevant to this factor include:

- How does the patient and family presently keep track of important information? To what extent is this system working?
- Are there any other routine changes that have been made in an effort to compensate for the patient's cognitive losses?

- How does the patient spend his or her time? Is the patient sufficiently active?
- Do routines involve participation in rewarding and meaningful activities?

It is critical for the clinician to be aware of current efforts in order to avoid dismantling systems that are working or interfering with these by introducing competing routines. Sometimes only slight modifications to an established system will yield a markedly different outcome. For instance, the patient may require training in *when* to check an external aid such as an appointment calendar, because use is inconsistent but well enough established that abandonment of the aid would be illogical. Therefore, before the clinician dismantles current efforts, he or she should carefully consider each feature of the current compensatory scheme. Furthermore, careful review of such systems often provides insight into the capabilities of the patient to construct, initiate, and maintain compensatory strategies, either independently or with assistance.

Likewise, the clinician should be aware of the patient's activity level in order to make an informed assessment of whether alterations need to be made in this area. *Inactivity breeds depression.* Participation in rewarding, meaningful activities promotes emotional well-being.

CREATION OF THE TREATMENT PLAN

The information gathered during the intervention evaluation outlined above provides the essentials that contribute to the treatment plan. From this data a treatment plan evolves. Once the plan is established, it should be considered with the patient and family. The plan should specify the following:

- Targets of treatment, with rationale clarified, if needed
- Methods of treatment
- Estimated length of treatment
- Methods of outcome evaluation
- Ultimate goals of treatment

Once treatment goals have been formulated, any discrepancies between the patient/his or her family and therapist perspectives should be directly reconciled. Such goal discrepancies arise frequently, both while treatment is planned and once it is initiated. Realism and education ideally guide discussion of goals and goal discrepancies. Treatment can proceed when the patient has provided consent, as appropriate.

Various models for intervention in geriatric dementia and neuropsychology have been described (e.g., Camp et al., 1993; Camp, 2001; Gross & Schutz, 1986; Lynch, personal communication, 2005; Zarit & Zarit, 1998). Whereas some of these focus on specific populations or techniques, others emphasize the identification of appropriate intervention approaches, given the patient's presentation. Examples of technique modifications for the geriatric dementia population can also be found, though sparingly. The following guide to using the information gathered during the intervention evaluation is not meant to be definitive, but rather to provide a general outline of how a clinician might proceed. Each clinician will capitalize on his or her background and expertise in creating a tailored approach to planning.

The information gathered during the evaluation provides the fundamental elements of the treatment plan, which will then be refined. One model for conducting this phase of the process is outlined in Figures 10.1 and 10.2. First, the clinician ascertains whether or not there is affective distress present that will interfere with cognitive management efforts. If so, the most effective means of treatment for this emotional distress should be identified. Guidelines for planning psychotherapeutic interventions are outlined in Figure 10.1. If no affective distress is present, planning can proceed to cognitive management, as outlined in Figure 10.2. Although intervention often encompasses treatment of cognitive, affective, and functional elements, we have found it useful to consider these domains independently during the planning phase.

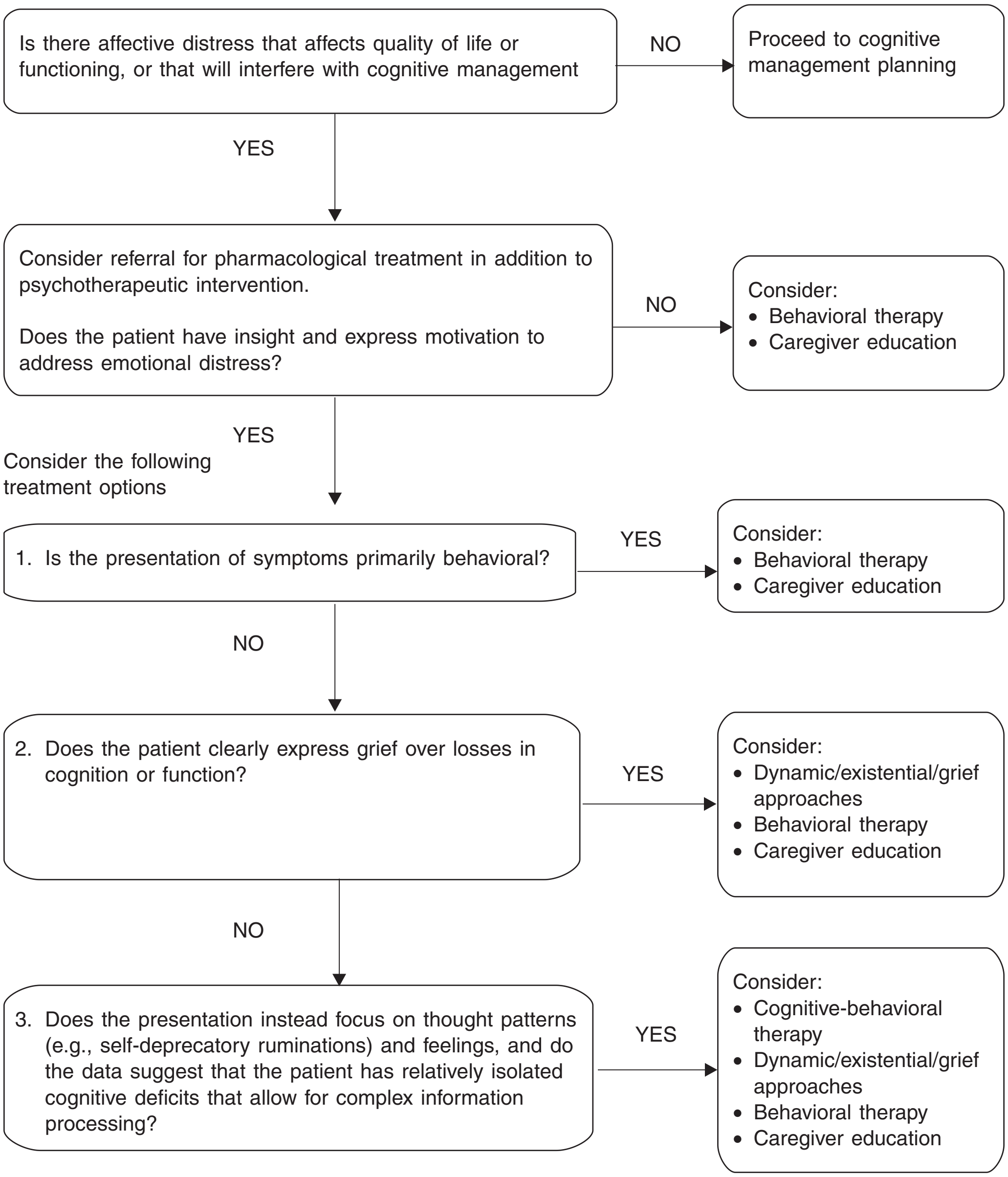

FIGURE 10.1. Psychotherapeutic interventions.

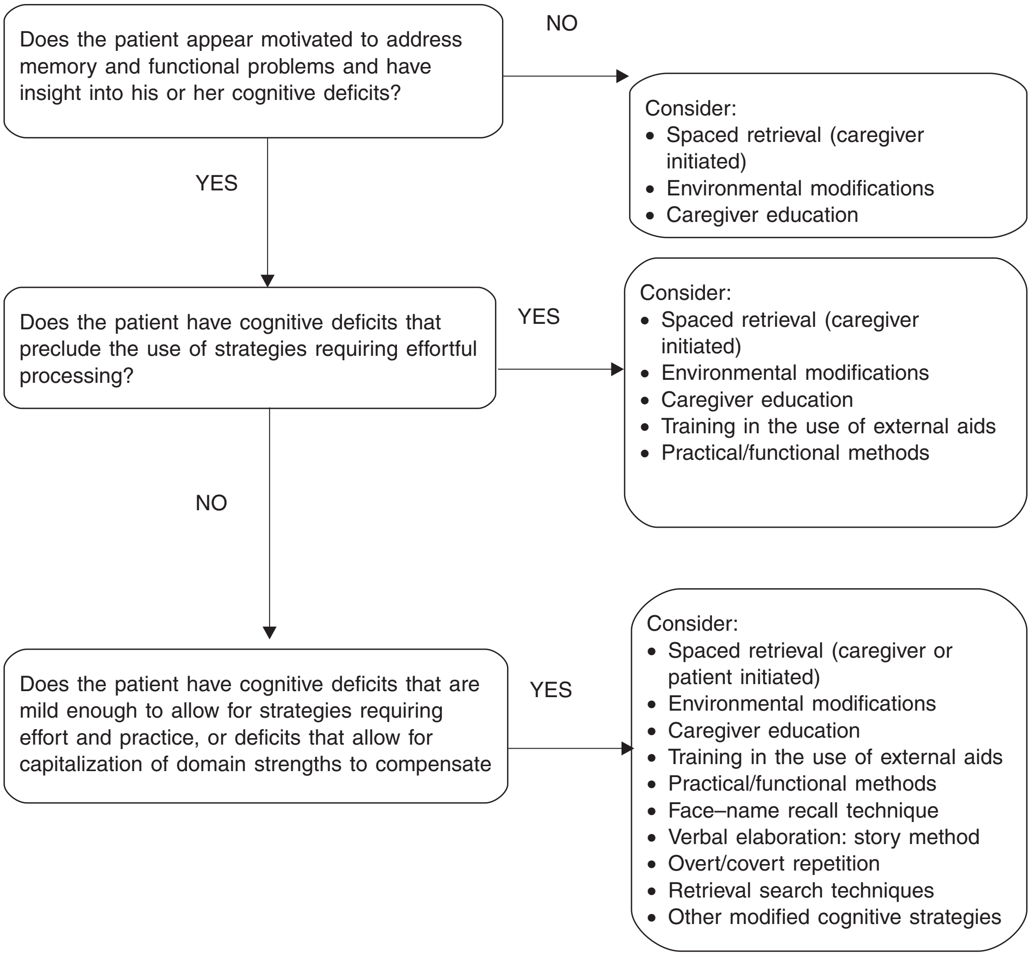

FIGURE 10.2. Cognitive management.

The chapters that follow outline many of these techniques, allowing for a more detailed appreciation of these methods. The examples of intervention approaches discussed here have all been shown to be effective in specific samples. It is such evidence-based efforts that will carry the intervention field forward to allow for beneficial, cost-effective, ethical services.

Once a carefully designed intervention plan has been initiated, the clinician will need to monitor treatment progress and should be prepared to make modifications to maintain optimal gains. The clinician should be cautioned not to rely solely or extensively on traditional objective tests of cognition, because many of these preclude the use of the techniques taught in intervention (Sohlberg & Mateer, 1989b). Neuropsychological measures should thus be supplemented with ratings of perceived gains that capture patient and family perceptions of treatment benefits and limitations. These are often well captured by measures of subjective well-being in the targeted area (e.g., everyday memory functioning) and measures of quality of life. In addition, it is ideal to include performance-based tasks that capture the targeted behavior and allow for strategy implementation, but these require psychometric validation to yield optimal data.

In the next section brief case examples outline the presentation and treatment plan of three patients. Patients with similar goals, levels of functioning, or diagnoses may require significantly different intervention approaches to maximize benefit while promoting an appropriate level of independence and autonomy. These examples are meant to be illustrative only.

CASE EXAMPLES

Case 1. Mrs. H, Mild Cognitive Impairment/Possible Early AD

Mrs. H was in her mid-60s when she was referred for intervention to develop compensatory and information-processing strategies to facilitate memory functioning and coping patterns.

Goals and Motivation

The patient was highly motivated to learn ways to minimize the impact of her memory disorder on her everyday functioning. Although she acknowledged mild anxiety and decreased self-confidence, she expressed a clear desire initially to focus on memory skills. She understood that intervention would not correct the memory disorder but that it could help her to manage the ensuing changes.

Neuropsychological Profile and Insight

Comprehensive neuropsychological evaluation revealed a marked verbal and nonverbal memory disorder, characterized by constricted learning and impaired recall. Performance improved on recognition memory testing, suggesting primarily a retrieval memory deficit at that time. In addition, the patient was mildly inefficient, although not impaired, on nonverbal timed sequencing tasks. The course of the illness was described as progressive, and no explanatory structural abnormality (e.g., vascular lesion) was revealed. The patient's presentation was consistent with the descriptive diagnosis of mild cognitive impairment, and longitudinal follow-up was anticipated to rule out the presence of a neurodegenerative illness. The patient was aware of her cognitive status and demonstrated insight into both the presence and magnitude of deficits.

Affective Status

As noted, mild emotional distress, characterized by anxiety and diminished confidence, was apparent during the initial evaluation. However, the patient expressed a desire to focus on the management of her memory difficulties and thus attention to these affective factors was initially deferred.

Unique Factors and Current Compensatory Methods and Activities

No consistent methods of addressing cognitive and functional deficits were being used, although the patient did keep inconsistent notes.

Intervention

The primary initial targets of intervention involved the patient's memory dysfunction. As treatment continued, her awareness of how cognitive and affective arenas influence one another increased, and she was more receptive to addressing her mood and coping style. Intervention thus evolved to address those aspects of functioning that the patient was able, willing, and motivated to address. Intervention focused on the following:

1. *Education.* Because the patient was high functioning and interested in understanding the nature of her memory disorder, intervention included an educational component addressing models of normal and abnormal memory functioning, as well as how passive versus active processing affects outcome.
2. *Learning and memory.* Although the patient's memory deficit was significant, her cognitive deficits did not impair her ability to initiate and practice complex techniques. Many different management and processing techniques were introduced, including spaced retrieval, the regular use of external aids, retrieval methods, verbal elaboration, repetition to facilitate concentration, conscious review of conversations, and a face–name recall technique.
3. *Affective functioning.* As the patient worked on various memory techniques, improving rapport and awareness of the influence of emotional factors on her processing led to a willingness to address this domain. Because the patient had minimal executive deficits and clearly articulated deprecatory thoughts, a cognitive-behavioral approach was chosen to address the patient's distress. Although not typically used in the geriatric dementia population, the cognitive-behavioral seemed suited to this patient, who spontaneously articulated judgments and perceptions. Little additional effort was needed to link her automatic thoughts with their negative emotional outcomes. The patient responded favorably to these efforts.

Case 2. Mr. C, Vasculitis

Mr. C was in his mid-50s and suffered marked neuropsychological deficits after having vasculitis, an inflammatory vascular disorder. He was referred for intervention approximately 1 year after the acute phase of the illness. Despite improvements, he had marked residual cognitive deficits.

Goals and Motivation

The patient was no longer able to work in his previous farming occupation, nor could he drive or participate in complex independent activities. However, in general, he was able to participate in basic ADLs, maintain religious and social activities, and play an active role in his family. He was motivated to improve his functioning, and his initial goals of addressing memory, confidence, and independence in specific skills were reasonable.

Neuropsychological Profile and Insight

The patient's functional deficits were driven by a dense amnesia, milder complex processing deficits, and mildly decreased awareness of both his deficits and his environment. Neuropsychological evaluation corroborated a profound memory deficit and milder executive compromises. Insight was clinically judged to be mildly compromised. Specifically, although the patient was aware of diminished skill levels, he did not always appreciate how these impairments manifested in everyday functioning, because he underestimated the magnitude of deficits and the frequency of memory failures.

Affective Status

Mr. C was concerned about his performance in many areas and exhibited diminished confidence, in response to which he was becoming increasingly withdrawn and demonstrating limited independence.

Current Compensatory Methods/Activities and Unique Factors

Interestingly, several compensatory methods and activities were in place, because the patient's wife realized early during the course of his recovery that cognitive stimulation and external aids were important. The patient recorded his activities and important information in a daily memory book that she had constructed for him, which, while detailed, was straightforward and effective. In addition, the patient participated in a number of "activities," or games/puzzles, to ensure cognitive "stimulation" in an effort to promote recovery. For the most part, the patient enjoyed these activities. No unique factors relevant to intervention were notable.

Intervention

The initial treatment targets included memory functioning, confidence and independence, with later work related to awareness.

1. *Memory functioning.* Intervention first targeted memory skills. The patient made significant gains using a combination of regular calendar use (which was systematically trained; see the following point), spaced retrieval, and retrieval search techniques.
2. *External aids and compensatory exercises.* Modification of established compensatory activities was appropriate during the course of intervention at two time points. First, education about our current understanding (and its limits) of the utility of cognitively stimulating activities was provided. This information gave the patient and his wife a context within which to choose how much to emphasize participation in games/puzzles in hopes of enhancing functioning through cognitive stimulation. They were discouraged from using in frustrating activities of any kind, given that these were more likely to undermine confidence than provide any tangible gains. They modified their regimen accordingly. Second, as the patient continued to improve, it became evident that the level of detail and structure involved in his memory book was not necessary the way it had been during the more acute stages of his illness. We therefore progressed this system toward the use of a regular appointment calendar. This was done by systematically collapsing the established categories of entry, to the point that entries could be made in a regular calendar in a few relevant domains (e.g., health-related tasks, social/recreational activities, appointments).
3. *Awareness.* The focus of intervention then evolved to identification of methods that would assist the patient in compensating for his reduced awareness. An example of a practical intervention in this area involved a disruptive functional issue: The patient could not track whether or not he had taken a shower each day, so he would have to rely on his wife to either cue him to do so or to inform him that he had taken one already when he asked (repeatedly, of course). This problem was resolved in the following simple manner: Spaced retrieval (see Camp, Chapter 12, this volume) was used to teach the patient to take a towel out of the drawer and put it on the bathroom counter first thing every morning before starting any other activity. With systematic repetition, this became an estab-

lished part of his routine. Later, when curious about whether or not he had showered, he needed only to look at the counter—if the towel was there, he had not yet showered; if it was not there, it had been used, indicating that he had showered. He no longer needed to (repeatedly) ask his wife for assistance with this aspect of self-care. This simple solution took 10 minutes of a session to introduce and review and approximately 10 morning spaced-retrieval sessions (with the patient being cued by his wife) to establish this pattern as an independent behavior.

4. *Emotional functioning*. Throughout treatment, the patient was encouraged to identify and participate in meaningful and rewarding projects (see Logsdon, McCurry, & Teri, Chapter 16, this volume) to address the overlapping areas of affect, confidence, and independence.

Case 3. Mrs. L, Disconnection Syndrome

Mrs. L suffered from a vascular disconnection syndrome in her early 60s that had left her with elements of aphasia. She was referred for intervention services with a specific functional complaint.

Goals and Motivation

The primary functional complaint of this patient and her husband was that she could no longer shop to prepare meals. She was completely capable of cooking—of planning and executing the process—with the exception of the shopping, which she had previously done daily for each evening meal. She was highly motivated to identify and participate in a solution.

Neuropsychological Profile and Insight

Specifically, she was anomic (could not name pictures or objects); she could not name specific objects when she was trying to express something that she desired. She therefore could not ask for specific items at the store. She also could not comprehend written language and therefore could not follow a shopping list. Insight was intact.

Affective Status

Although Mrs. L was frustrated by her language deficits, she remained relatively euthymic and free from excessive emotional distress.

Current Compensatory Methods/Activities and Unique Factors

There was no compensatory strategy in place and no relevant unique factors.

Intervention

Treatment targeted the patient's specific functional complaint. Because Mrs. L could not comprehend written language, she could not effectively use a prepared shopping list. She likewise could not tell anyone what ingredients she needed due to her anomia, so even her husband could be of little assistance. And although she could visually recognize (but not name) the desired items, canvassing an entire store (e.g., "Do I need this? Do I need this? Do I need this?") would be unwieldy. This problem was targeted and resolved in the following simple manner: A pocket-sized picture photo album displaying the most common grocery items Mrs. L used was constructed. Prior to shopping, she would mark the items she wanted with stickies and then take the album with her as her shopping list. In contrast to written words, she could visually recognize pictures, and could thus match the picture with the store item for purchase.

SUMMARY

This chapter outlined a model to guide intervention planning for individuals with dementia and other geriatric cognitive disorders. It reviewed fundamental aspects of treatment planning based on the best current approaches reported in the research literature. Those working in intervention anticipate and welcome continued efforts in this arena, so that treatment approaches and planning methods become more refined as new research helps to further define this promising area of practice. The chapters that follow highlight efficacious and promising outcomes in specific areas of clinical intervention. Rigorously defined research needs to continue to ensure that these services remain available in the context of evidence-based practice.

The vignettes presented in this chapter illustrate intervention planning and the yield of practical functional interventions at the individual level. The reader is encouraged to consider the meaning of these simple practical gains in terms of patient well-being, autonomy, and quality of life. Regardless of the targets and techniques employed, this work indeed reflects how people try to find and use the degrees of freedom they have within the constraints of their illness.

So what, then, is intervention? One answer is that *it is the work that occurs at the intersection of biology and existentialism*. It is here that people try to find, and move themselves within, the context of their experience. Although treatment progress sometimes centers on simple, practical solutions to specific complaints, it is more common that patients are debilitated and depressed by their functional deficits, and in these cases intervention encompasses much more. In these cases *intervention often involves a restructuring of the patient's responsibilities, expectations, and sense of self, largely to yield a transformation in role identity that is adaptive in the behavioral context of the illness.*

Many patients emphasize the favorable impact of intervention on quality of life, functional outcomes, and sense of well-being, dignity, and purpose. The potential reduction of costs and disability should also not be overlooked. The chapters that follow illustrate these outcomes. At present, there are few treatment options for our rapidly aging population of elders with cognitive compromise. Until prevention and cure of geriatric cognitive disorders becomes a reality, it remains our obligation to continue devoting effort to both clinical and research-based intervention. We enthusiastically look ahead as this promising area continues to be defined.

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