

CHAPTER 9

An Integrative, Developmental Approach to Intervention

This section of the book focuses on interventions for older adults at various stages of cognitive decline. This coverage is not meant to be exhaustive across the domain of older adult interventions, nor does it aim to be exhaustive within the particular domains discussed. Rather, the purpose of these chapters is to introduce the reader to the emerging research within a given area and to describe how to use this knowledge in developing a theoretically sound case conceptualization for the provision of intervention to individual clients.

Each chapter deals with a distinct area of focus—specifically, pharmacological approaches (Chapter 10), cognitive-behavioral approaches (Chapter 11), and psychological approaches (Chapter 12). These content areas are addressed separately for clarity and convenience. However, we believe that a holistic approach is likely to be the most effective, not only in terms of care provision, but also in how one thinks about the causes and conditions that give rise to problems warranting clinical attention. As such, the purpose of the current chapter is to present an overarching, integrative framework for care that respects the multiple determinants of clinical problems and the synergistic effect of interventions on one another. Our approach is broadly commensurate with the Pikes [*sic*] Peak model for training in professional geropsychology (Knight et al., 2009), which identifies six core competencies for providing interventions to older adults (pp. 213–214):

1. Apply individual, group, and family interventions to older adults using appropriate modifications to accommodate distinctive biopsychosocial functioning of older adults and distinct therapeutic relationship characteristics.
2. Use available evidence-based treatments for older adults.

3. Develop psychotherapeutic interventions based on empirical literature, theory, and clinical judgment when insufficient efficacy research is available on older adults.
4. Be proficient in using commonly applied late-life interventions such as those focusing on life review, grief, end-of-life care, and caregiving.
5. Use interventions to enhance the health of diverse older persons (e.g., chronic health problems, healthy aging, cognitive fitness).
6. Demonstrate ability to intervene in settings where older adults and their family members are often seen (e.g., health services, housing, community programs), with a range of strategies including those targeted at the individual, family, environment, and system.

To bring these ideas out of the abstract and provide some grounding for this discussion, we begin with an illustrative case study.

Sam is a 66-year-old, Italian Canadian, high school educated, right-handed gentleman who has been referred by his neurologist for assessment and treatment recommendations. Sam was diagnosed with PD 8 years earlier. His motor symptoms are relatively well managed using L-dopa and Sinemet, with minimal side effects at the current time.

Sam worked as a police officer but took early retirement at age 60. He has noticed a decline in his thinking abilities over the past 3 years, although, notably, his wife perceives even greater decline than Sam does himself, most evident in the past year. They are unsure whether his perceived decline is due to a lack of stimulation in retirement or to other causes. Since retirement, his daily routine has consisted of reading the newspaper, watching television, “tinkering in the garage” and socializing with his wife.

Sam has a prior history of depression and posttraumatic stress disorder (PTSD), associated with the many disturbing events he witnessed over the years working on the police force. He has had cognitive-behavioral therapy in the past and has learned some coping skills. As a result, he has improved his PTSD symptoms. However, he continues to report dissatisfaction with his life and fears about his future. Although his motor symptoms are relatively well managed, this change in physical status has negatively affected his self-concept, as he was once a physically active man whose physical abilities were a source of personal pride.

Sam also reports a longing for more meaningful social connection. He has a very loving relationship with his wife but has difficulty getting out to socialize and make new friends, in part owing to self-consciousness about his illness and his symptoms. He also has two adult sons both of whom live locally. He has a good relationship with one son, who is married and has children. His grandchildren are a great source of joy. However, his relationship with his younger son is

conflictual, and he is uncertain how to resolve this conflict. Sam had a difficult relationship with his own father growing up, which he attributes to his father having been a survivor of World War II and likely dealing with his own issues of PTSD. Sam feels that he was never really able to make peace with his father before his death. As a result, he feels an impetus to have good relationships with his children and to make the most of what remains of his life ahead.

In terms of formal assessment results, neuropsychometric testing revealed that Sam is showing a decline in intellectual functioning. The most consistent pattern across cognitive testing was a marked decline in executive functions, including difficulty with set-shifting, adaptation to novelty, and problem solving, as well as self-monitoring and self-regulation. He also showed evidence of slowing across most testing. Memory, language, and visuoperceptual processing were relatively intact. Questionnaires reveal that, while Sam is aware of cognitive impairment, he seems to underestimate this deficit relative to his wife's report, suggesting he is experiencing some decline in self-awareness. He also reported moderate symptoms of depression and anxiety but denied suicidal ideation, plans, or intent.

Similar to the case of Deborah in Chapter 4, Sam illustrates the point that, even when an older adult presents for neuropsychological assessment and intervention, it is essential to situate the individual within the matrix of biopsychosocial factors that can affect current functioning and to recognize that these factors may extend back in time well before the immediate presenting complaints. Acknowledging Sam's complexity highlights his humanity and further reinforces the point that any intervention plan must strive to improve the client's overall quality of life and well-being rather than simply focusing on discrete symptoms.

The area of interventions for older adults provides exciting opportunities for both clinicians and researchers, a field that is in its infancy relative to assessment of late-life cognitive decline. Until relatively recently, pharmacological efforts have dominated the field, in the race to discover effective treatments for symptoms of AD and other dementias. While there is accumulating evidence that a variety of medications can palliate the symptoms of non-normal cognitive decline (see Chapter 10), the field has yet to find a pharmacological cure for dementia. There may have been a reticence in the past to pursue cognitive and behavioral interventions for older adults, assuming that they might not benefit or would keep declining, thus proving more costly than prescribing medication. However, emerging research using both animal and human models suggests that neuroplasticity is possible across the lifespan, including in older adulthood. These findings, in conjunction with the limited efficacy of pharmacological interventions, have led to a rapid uptick in research on nonpharmacological interventions, particularly cognitive and behavioral interventions (Chapter 11). Likewise,

a relatively robust field of psychotherapy research is available, with attention being brought to the unique developmental concerns of older adults and to the potential need to modify traditional psychotherapy models or tailor them for an older clientele (Chapter 12).

The care of older adults is likely best served by taking a comprehensive, multimodal approach that includes both pharmacological and non-pharmacological interventions. An intervention designed for one domain of function may have additional therapeutic effects in another domain. For example, aside from targeting the underlying disease process, pharmacological treatments can attenuate symptoms that can otherwise interfere with engagement in nonpharmacological interventions. For example, an individual with severe major depression may benefit from an antidepressant medication to facilitate engagement with psychotherapy. Or use of a cognitive-enhancing medication may potentiate engagement in cognitive training or rehabilitation. Another example might be that improving symptoms of depression can ameliorate perceived or actual cognitive function, or alternatively, participating in cognitive rehabilitation can enhance self-efficacy and agency, which, in turn, improves mood. While the material in subsequent chapters is presented in isolation, we advocate for developing a sound case conceptualization for intervention that is informed by a biopsychosocial assessment of all relevant factors, with the express purpose of meeting the client's own goals and enhancing his or her overall quality of life. As discussed in Chapter 11, focusing on the client's own goals can promote intrinsic motivation to participate in intervention, as well as confer a sense of agency and autonomy, which may be diminishing in an older adult with cognitive impairment.

In an ideal world, an older adult would receive assessment and a comprehensive intervention program from the same provider, someone who knows them and can observe them in a variety of contexts and can contribute qualitative observations as well as objective test data to informing care. We acknowledge the practical reality that psychologists are often not equally trained in every intervention modality and may feel more or less skilled at one or another type of intervention. That said, it is an ethical mandate that psychologists only provide the care for which they are competent to deliver (American Psychological Association, 2002; Canadian Psychological Association, 2017). The aim of this section is to introduce the reader to a selection of interventions that are available and demonstrate how to weave these together within the context of a theoretically sound case conceptualization. Rather than attempting to "teach" psychologists how to provide every possible type of intervention, which other authors deftly accomplish in texts devoted solely to these interventions, we believe that taking a more integrative, holistic approach is a unique strength of this book. That is, we are more focused on teaching the clinician *how to think about older adult intervention*, rather than providing every detail on

the dissemination of any given intervention. For psychologists seeking to pursue intervention work with older adults, it is incumbent on them to seek further training, where necessary, to effectively and ethically disseminate these interventions. In support of this requirement, resources for continuing education and training are appended to each subsequent intervention chapter.

An Applied Neuropsychological Approach to Intervention

The complexity of Sam's case illustrates the utility of the biopsychosocial approach to case formulation. While Sam has been referred for evaluation of current cognitive function, we see that there are a great many factors that could affect his cognitive function, as well as others that, while they may not influence, they nevertheless warrant clinical attention. In this chapter, we discuss factors that should be considered within any biopsychosocial formulation to intervention with older adults; these factors will provide context and foundation for the application of individual interventions as presented in Chapters 10–12.

A Client-Centered, Collaborative, Goal-Setting Approach

In Chapter 11, which focuses on cognitive and behavioral interventions, we discuss the differences between the treatment modalities of cognitive training, cognitive rehabilitation, and cognitive stimulation for older adults. This taxonomy is useful in informing the design and evaluation of various types of interventions within a research context (Clare & Woods, 2004). However, in clinical practice these boundaries are likely to be less sharply delineated. In this section of the book, we subscribe to rehabilitation not so much as a treatment method per se but as an overarching philosophical approach to treatment. That is, we view rehabilitation as a client-centered, collaborative process that is multimodal, holistic, ecologically relevant, and always situated within the client's own goals. This holistic approach follows the approach of other clinician–researchers, in both acquired brain injury (e.g., Cicerone et al., 2008) and older adulthood (e.g., Huckans et al., 2013). This also means being transparent at every step of the process about how the problem is being conceptualized, what the recommended course of intervention is, and how the intervention is expected to impact the client's life and everyday function.

As psychologists, we may develop a case formulation that focuses on symptoms, as these are measurable and inform the utility of our interventions. However, the meaningfulness of those interventions will vary as a function of how relevant this case formulation is to the achievement of outcomes directly salient in the client's life. For example, in Sam's case,

his neuropsychometric test scores show evidence of executive dysfunction, including difficulties in self-monitoring and self-regulation. These symptoms may be amenable to intervention using methods such as metacognitive strategy training or mindfulness training. However, for clinicians, the goal of intervention would be to create meaningful improvement in Sam's life. As such, these interventions are likely to be beneficial only to the degree to which they meet Sam's goals, one of the most important of which is increased social connection. In this context, the clinician may want to incorporate self-monitoring activities and behavioral practice in a social context, as well as use social connection as an ecologically relevant outcome variable. Note that intervention itself becomes a source of data, as client and clinician understand more about a client's deficits, their origins, and their impact. This means that both client and clinician need to be alert to emerging data, and willing to revise goals and case formulations in a flexible and iterative fashion. This also speaks to the need for regular outcome assessment, which we will later discuss in more detail.

Ethical practice mandates prioritization of the client's autonomy, which would include generating his or her own desired outcomes for treatment. Moreover, goals that are ecologically relevant and salient are more likely to be motivating and will encourage persistence even in the face of difficulty (Kleim & Jones, 2008). Extant literature from cognitive and affective science indicates that older adults are more attuned to positive affect—the so-called positivity bias (Reed, Chan, & Mikels, 2014). In older adulthood, cognition and emotion may be experienced as competing processes; faced with a task that has both cognitive and emotional demands, an older adult may be more likely to devote available resources to maintaining positive mood, rather than performing well on the task (Peters et al., 2007). Furthermore, basic neuroscience literature demonstrates that activation of dopaminergic reward systems promotes motivation, which in turn supports new learning (Hamid et al., 2016). Building rewards and motivation can be intrinsic, such as for a client who sees him- or herself making measured progress toward some larger goal, or they can be extrinsic (e.g., token economy systems), such as for clients with more severe cognitive impairment. All of these factors support the notion that, to the extent that it is possible, intervention should be an inherently enjoyable or at least an engaging experience that progressively moves a client toward directly observable, meaningful change in his or her own life.

The willingness to work toward one's goals is related to a client's sense of *self-efficacy*. Self-efficacy pertains to the belief in one's ability to produce specific outcomes in events that will affect his or her life (Bandura, 1994). Evidence from the field of cognitive rehabilitation for acquired brain injury indicates that self-efficacy uniquely contributes to rehabilitation success and is a strong predictor of global life satisfaction (Cicerone & Azulay, 2007). Parallel findings from literature on the older adult indicate

that memory self-efficacy has a small but reliable association with objective memory performance (Beaudoin & Desrichards, 2011). Early on, the client may report a goal that seems too large to obtain directly. In this instance, it is incumbent upon the clinician to help the client parse larger goals into smaller subgoals on which progress is directly measurable and self-efficacy can be enhanced. This parsing of goals can be done informally between the client and clinician, or it can itself be the focus of intervention, as exemplified in goal management training for executive dysfunction (Levine, Stuss, Winocur, & Binns, 2007; van Hooren et al., 2007).

Readiness for Change and Self-Awareness

Occasionally, a client will suggest a goal that seems highly unrealistic to attain, something that is more likely to occur with clients with anosognosia (Ernst, Moulin, Souchay, Mograbi, & Morris, 2016). One such example is a client with dementia who wants to start driving again after having his license revoked. Failed attempts to make progress on an unrealistic goal can undermine self-efficacy and therapeutic engagement, as well as involve tangible threats of harm to the client and others. The challenge is to discover how to work collaboratively with a client in this context, respecting wishes but not setting the client up for failure by clinging to an unattainable goal.

Although we support the use of both pharmacological and nonpharmacological interventions, the major difference between the two approaches is that the success of the nonpharmacological is heavily influenced by the client's level of readiness to engage in intentional change. The transtheoretical model (TTM) or "stages-of-change" model of Prochaska and DiClemente (Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992) provides one helpful framework to conceptualize a client's readiness to change. While there are many individual differences that could affect an individual's readiness for change, the stages-of-change model is unique in its integrative, biopsychosocial approach to change, in line with the overarching framework of this book. Although a current Cochrane review indicated limited evidence for the application of the TTM in lifestyle interventions for older adults (Mastellos, Gunn, Felix, Car, & Majeed, 2014), the findings seem to indicate a lack of high-quality studies rather than a statement about the lack of applicability of the model per se. In brief, there are six stages of change:

- *Precontemplation (denial)*. The individual is not considering making any changes within the next 6 months and may be unwilling or unable to acknowledge the problem area.
- *Contemplation*. The individual is thinking about making change within the next 6 months. He or she is acutely aware of both pros

and cons to change, and such ambivalence can lead to behavioral procrastination and being stuck in this stage for long periods of time.

- *Preparation.* The individual is preparing to take action on the problem area within the next month (or immediate future). He or she may already have a plan in place and is highly motivated to benefit from structured intervention.
- *Action.* The individual has actively taken steps to address the problem within the last 6 months.
- *Maintenance.* The individual has been maintaining positive behavioral change for at least 6 months.
- *Relapse/Recycle.* The individual has temporarily stopped behavioral change and has returned to a prior behavioral state.

At the outset of intervention, it is useful to ascertain an older adult's stage of change, as this will inform what types of interventions, if any, are likely to be productive and feasible. A useful way to gauge this is by monitoring the client's response to neuropsychological assessment feedback. For example, individuals in the preparation stage may find the feedback as a source of information that motivates them to seek out concrete ways to change their behavior. Conversely, individuals in the precontemplation stage may seem defensive or dismissive, or minimize the real-world impact of feedback, particularly feedback suggesting clinically significant impairment. Broadly speaking, persons who are in the preparation–action–maintenance stages may be more immediately ready to take on structured interventions such as those discussed in the subsequent chapters. For individuals at the other stages, preparatory work may be needed to bring the individual to a point where he or she is willing to pursue intervention.

Anosognosia

A client may be at the precontemplation stage due to psychological reasons (i.e., defensive denial), neurogenic reasons (i.e., anosognosia, cognitive impairment), or some combination of both. As individuals decline from mild cognitive impairment to dementia, anosognosia may become more prominent (Ernst et al., 2016; Kalbe et al., 2005; Lehrer et al., 2015). Anosognosia can be particularly challenging to the extent that it prevents the older adult from engaging with interventions, particularly nonpharmacological interventions. In Chapter 11, we discuss principles of neuroplasticity as applied to cognitive and behavioral interventions; considering the principle of “use it or lose it,” a failure to actively engage with the world could hasten the deterioration of neural and cognitive functioning. Thus, anosognosia in and of itself may need to take precedence as an intervention target before other modalities can be effectively engaged.

One intervention that holds promise for anosognosia in older adults is motivational interviewing (MI; Miller & Rollnick, 2002, 2009; Miller

& Rose, 2009). In brief, MI is a “client-centered, nondirective method for enhancing intrinsic motivation to change by exploring and resolving ambivalence” (Miller & Rollnick, 2002, p. 25). Every behavioral choice has pros and cons, even those that seem maladaptive. For example, while smoking is generally considered bad for one’s health, it has short-term rewards in terms of making the smoker feel more relaxed and perhaps may promote socialization with other smokers. MI is based on the premise that, for adaptive behavior change to occur, one must address the underlying ambivalence about making that change, given that there will be costs and benefits to the change. The four guiding principles of MI are (1) expressing empathy, (2) helping the client to develop the discrepancy between present behavior and future goals, (3) rolling with resistance (i.e., avoiding logical argumentation about “right” and “wrong”), and (4) supporting self-efficacy. MI is nonconfrontational and collaborative, focused on developing the client’s self-efficacy and autonomy with the understanding that long-term change will come from the client’s own intrinsic motivation.

Although MI was initially developed for use in individuals with substance abuse disorders, it has been successfully applied in a wide variety of behavioral health contexts, including medication adherence, dietary changes, exercise, and gambling. In their review of cognitive rehabilitation therapies for AD, Choi and Twamley (2013) state that while the efficacy of MI for anosognosia has not yet been tested, it holds promise for helping clients find intrinsic motivation to engage in treatment. MI has tended to be applied in populations presumed to have relatively intact cognition. The authors note that it remains to be seen whether a certain level of cognitive function is required to engage individuals in MI, in terms of being able to self-reflect, follow what the therapist is saying, predict potential outcomes of behavioral choices, and hold those different choices in working memory. Interestingly, Medley and Powell (2010) produced a detailed conceptual review of the application of MI for anosognosia in individuals with acquired brain injury, including individuals who are expected to have significant cognitive impairment. They provide a useful model of how to apply MI in individuals at various levels of cognitive impairment, which the reader will find useful in conceptualizing how MI might be applied to older adults with anosognosia. For those who are seeking specific training in this modality, a list of training programs around the world are available online at www.motivationalinterviewing.org.

One final note on readiness for change: this may not be equally expressed across different problem domains. For example, in Sam’s case, there is evidence that he has decreased awareness of his cognitive impairment, so he may be at the precontemplation stage and require help building awareness before further interventions can be implemented to enhance his cognitive function. Conversely, Sam seems to have greater awareness of psychological and emotional challenges and may be in the preparation stage in terms of making interpersonal changes in his life that will facilitate

better relationships. It is incumbent upon the clinician to ascertain the client's readiness to make change in the different areas of his or her life and to apply the relevant interventions accordingly.

Socioeconomic and Cross-Cultural Factors

In subsequent chapters, we present empirical evidence for the various types of interventions. This evidence comes largely from controlled trials with homogeneous participant samples and tightly controlled dissemination of interventions. Controlled trials are important because they provide evidence on an intervention's *efficacy* based on the most experimentally rigorous, internally valid designs. However, as noted in Chapters 11 and 12, this does not necessarily mean that these treatments are *effective*, that is, translatable to a typical client with multiple comorbidities and a complex biopsychosocial history (Chambless & Hollon, 1998). We therefore caution the reader that, in implementing the interventions discussed, some *tailoring* is likely to be necessary to meet the needs of the individual client (Kreuter & Skinner, 2000).

Tailoring can occur along many dimensions, and in keeping with the focus of this book, Chapters 11 and 12 discuss the need to tailor according to a client's level of current cognitive function. In addition, from a biopsychosocial perspective, a clinician may need to tailor an intervention according to socioeconomic and cultural factors. For example, older adults often live on fixed incomes and have limited financial means, which of course affects their participation in intervention. An 8-week group psychoeducation program may not be feasible for an older adult who cannot drive and does not have the money to take taxicabs or mass transit on a weekly basis. Conversely, as telehealth rises in prominence (van den Berg, Schumann, Kraft, & Hoffmann, 2012), delivering interventions remotely via computer is becoming more common, but this, too, may be exclusionary to an older adult who either lacks the financial means to access a computer or has limited personal knowledge of computers. Moreover, as discussed in Chapter 11, available evidence suggests that electronically delivered cognitive and behavioral interventions provided in isolation have limited impact without additional therapist involvement.

Another important aspect of tailoring is cultural background. As a result of immigration and continued diversification of North America and Europe, neuropsychologists will, at some point in their careers, increasingly likely be asked to provide care for clients from cultural backgrounds different from their own. Perhaps the most obvious cross-cultural issue to address is language. Even a client who is conversant in English may miss certain nuances of expression or understanding if English is not the client's primary language. In Sam's case, we know that he has an Italian Canadian background, so it would be important to ascertain his preferred language for intervention, whether it is Italian or English.

Another example is in the meaning of intervention goals. For example, Western clinical neuropsychology is situated within a largely individualistic cultural context. This may translate to an implicit assumption that goals of assessment and intervention are related to the promotion of autonomous individual functions, with an emphasis on personal agency and peak performance. Such goals may hold less meaning for persons from collectivist cultures, where “function” is more socially and interpersonally grounded. For example, given Sam’s growing up in an Italian family, intervention might entail greater involvement of the immediate family, as well as goal setting embedded within the needs and priorities of the family system. Cross-cultural differences further underscore the importance of a client-centered approach that prioritizes the client’s own goals. It is incumbent on the clinician to “translate” the standard clinical-neuropsychological paradigm of assessment and intervention into terms that are meaningful for culturally different clients, in order to promote intrinsic motivation and transfer to everyday life.

Hays (1996) has proposed the ADDRESSING model of culturally responsive care of diverse older clients: that is, Age, Developmental and acquired disabilities, Religion, Social status, Sexual orientation, Indigenous heritage, National origin, and Gender. Neuropsychologists, in providing appropriate care to their clients, must consider each of these dimensions. Of course, it is unreasonable to expect a neuropsychologist to have equal expertise and experience in each of these areas. In following the mandates of professional ethics codes, where a neuropsychologist lacks particular expertise and experience, he or she must seek consultation and supervision in order to provide competent care. If the amount of training and experience is too great, then it may be necessary to refer a client to a provider with established competence in a particular area. The fields of cross-cultural neuropsychology and cultural neuroscience are growing rapidly, and there are many great resources on this topic. As starting points, we refer the reader in particular to Ferraro (2016) and Fujii (2017).

In sum, we encourage the reader to consider the material presented in subsequent chapters as a base of existing knowledge from which to develop a case formulation that is idiographic and respects the individual particularities of the client’s life and background, applying appropriate tailoring where needed.

Staging of Intervention

In keeping with the theme of this book—a developmental approach to assessment and intervention—each subsequent chapter includes some discussion of the relative utility of different interventions as a function of current cognitive impairment (see Table 9.1). This staging of intervention is critical, as individuals at different stages of decline will have more or less manifest symptoms and more or less cognitive reserve available to support

TABLE 9.1. Conceptual Framework for Considering the Types of Interventions Most Likely to Benefit Older Adults at Various Levels of Cognitive/Neuropsychiatric Symptomatology

Clinical issue	Characteristics	Management approach	Intervention strategies	Considerations for consultation
Normal aging and SCD	Minor cognitive lapses within the scope and severity of other older adults of similar demographic background (e.g., word-finding). Significant concern about the meaning of such lapses, as in the case of subjective cognitive decline	Focus on prevention by providing information about expected changes with normal cognitive aging, as well as emphasizing taking active steps to boost cognitive reserve	<ul style="list-style-type: none"> Psychoeducation on normal age-related cognitive failures, as well as the effect of situational variables such as mood, sleep, and blood sugar on cognitive performance Provision of suggestions to offset failures (e.g., compensatory memory strategies, taking extra time to complete tasks) Encourage physical, mental, and social engagement to increase cognitive reserve Maintain physical health 	Regular follow-up with general practitioner/geriatrician to monitor general health, particularly vascular risk factors (e.g., hypertension, type II diabetes)
MCI and variants thereof	Cognitive impairment that is beyond normal aging (i.e., $>1.5 SD$ below performance of peers with similar demographics), yet instrumental activities of daily living remain intact. MCI in this instance includes the prodromes for AD and other dementias (e.g., VCI)	Continue focusing on enhancing cognitive reserve, as well as directed cognitive intervention to target deficits of interest	<ul style="list-style-type: none"> Adaptation of existing, empirically supported cognitive rehabilitation protocols for older adults (e.g., Attention Process Training, Metacognitive Strategy Training, Mindfulness Training) Use of procedural memory to train in use of assistive devices (e.g., smartphone) Psychotherapy to assist with emotional reactions to cognitive impairment and changing life roles 	Occupational therapy for in-home assessment to ascertain instrumental activities of daily living competence and need for relevant supports

Dementias (various types)	Cognitive impairment substantially below normal aging (i.e., >2 <i>SD</i> below peers) with impairment in one or more instrumental activities of daily living	Maintain safety and independence in home as long as feasible; transition to full-time supervised care, when appropriate	<ul style="list-style-type: none"> • Training in task-specific routines using preserved procedural memory (e.g., self-care/hygiene) • Maintain optimal mental and social stimulation and engagement congruent with the individual's previous interests (e.g., music, dance, art, movies) 	Social worker for care planning assistance (e.g., homecare, transportation, formal care facilities); Eldercare attorney for consultation on medicolegal and financial decisions (e.g., health care proxy designation, financial power of attorney)
Neuropsychiatric syndromes	Recurrence of premorbid psychiatric syndromes (e.g., major depression, anxiety disorders), as well as those that may be part of an underlying neurological disease process (e.g., depression associated with vascular dementia, hallucinations associated with DLB, and Capgras syndrome associated with certain dementias or traumatic brain injury)	<p>Mimimization of symptoms, particularly those that lead to agitation or cause safety concerns; Balancing symptom management with allowing the individual to experience normative feelings of grief or sadness associated with the developmental challenges of late life (e.g., partner loss, retirement)</p>	<ul style="list-style-type: none"> • For mood/anxiety disorders, provision of psychotherapy appropriate to the source of symptoms (e.g., cognitive-behavioral therapy for situational stressors; existential therapy for developmentally appropriate end-of-life concerns) • For psychotic symptoms (i.e., hallucinations and delusions), providing psychoeducation to the patient, as well as working with caregivers to minimize agitation (e.g., avoiding directly challenging delusional beliefs) 	Neuropsychiatrist or behavioral neurologist for medication consultation

intervention efforts (Stern, 2009, 2012). For example, in terms of cognitive and behavioral interventions, significant restoration of cognitive function may be unrealistic in an individual already experiencing dementia owing to the degree of cognitive loss already sustained. Conversely, without longitudinal follow-up, improvement in the instrumental activities of daily living function may go unnoticed in currently cognitively normal individuals who are yet to show impairment in this area of function. In terms of psychotherapy, cognitive-behavioral therapy for various conditions is a popular and well-validated evidence-based intervention with younger and middle-aged adults. However, an older adult with difficulties in memory or abstract reasoning may struggle with the cognitive demands of this intervention. Likewise, for an individual whose primary concern is coming to terms with grief and finding meaning in life, targeting automatic thoughts may seem irrelevant.

Being clear about the individual's current level of function and the kinds of goals that are attainable will likely lead to more fruitful application of intervention. Regardless of stage, any intervention should serve the individual's dignity, autonomy, and independence to the greatest degree possible. It goes without saying that, for any intervention, informed consent (or assent, in the case of persons who lack capacity) should always be sought (American Psychological Association, 2002; Canadian Psychological Association, 2017).

Maintenance of Physical Health

With advancing age, older adults are more likely to face chronic medical comorbidities. Coping with so many health issues can negatively impact cognitive performance (McConnell, 2014), as well as psychological functioning and quality of life. Lifestyle factors comprise an important part of overall health and well-being for older adults, and evidence suggests that these are an efficacious and complementary approach to formal cognitive/behavioral and psychological interventions (Jak, 2012). In Sam's case, even though his PD is currently well managed, it has already affected his self-concept, and as the disease progresses, it may create further stress and negative effects on his quality of life (Salive, 2013). Thus, an important intervention goal for Sam may be to optimize his physical health to the greatest degree possible.

In Chapter 2, we reviewed some of the available literature on nutrition and physical activity in healthy aging and non-normal cognitive decline. For physical exercise in particular, there is accumulating literature to support its utility in older adults, not only in terms of physical health but also cognitive benefits—literature that we discuss further in Chapter 10. Recent work by Lauenroth, Ioannidis, and Teichmann (2016) suggests that the combination of exercise and cognitive interventions has a synergistic effect

on cognition that is greater than either intervention in isolation. Based on their review, Lauenroth et al. provided some recommendations regarding the adequate amount of exercise: they suggested that training sessions should range between 60 and 180 minutes per session, at a frequency of three times per week, over a period of 3 to 4 months, or longer. They further recommended that physical training be stimulating and engaging, include both cardiovascular and strength-training components, and be conducted with constant monitoring of heart rate. This mirrors the basic neuroscience research indicating that it is not the mere repetition of rote activities that promotes neuroplasticity, but rather activities that challenge and stimulate the individual. (We discuss neuroplasticity in detail in Chapter 10.) It is recommended that older adults work with professionals who have expertise in exercise programs for older people, particularly those with health conditions such as PD, which may affect mobility.

Aside from physical health difficulties occurring in late life, as already discussed in Chapter 4, chronic stress has been shown to create immunosenescence, or accelerated aging of the immune system. Recent research has examined the deleterious effects of stressful early life experiences and childhood adversity on immunosenescence and immune dysregulation in middle and older adulthood (Fagundes, Glaser, & Kiecolt-Glaser, 2013; Miller, Chen, & Parker, 2011). Considering particular cohorts of older adults may have survived major wars as well as geographic displacement through war or immigration, in addition to socioeconomic stressors such as poverty, these intriguing studies emphasize the need to consider how early life history may have influenced an older adult's unfolding developmental trajectory. In Sam's case, he has his own history of PTSD through repeated exposure to trauma associated with his job. Considering his father was a war survivor, he may bear an additional biological burden: emerging research demonstrates the epigenetic transmission of intergenerational trauma (Bowers & Yehuda, 2016). The chronic effects of stress may or may not place upper limits on how much response an older adult will show to intervention, as well as influence the type of therapeutic approach that may be indicated in someone with long-standing stress and early-life adversity.

Any intervention plan should begin with a comprehensive medical assessment. This assessment should include an evaluation of factors that can cause reversible cognitive impairment, such as vitamin and hormone levels, liver and thyroid function, as well as infectious disease processes such as HIV/AIDS, syphilis, and Lyme disease (American Academy of Neurology, n.d.). Diagnosis and management of these conditions can improve an older adult's cognitive and psychological functioning, as well as further clarify which cognitive changes may be associated with underlying neurodegenerative disease processes. In order to monitor the person on an ongoing basis, ideally an older adult should be followed by a provider with whom the client has an ongoing relationship (e.g., a general practitioner or

geriatrician). Additionally, if pharmacological approaches are warranted (see Chapter 9), additional referral to a geriatric psychiatrist, neuropsychiatrist, or neurologist can be fruitful.

Outcome Measurement

While research studies are a critical source of information, time and economic limits mean that they may lack comprehensiveness in outcome measurements. This is particularly true of outcomes that are most relevant to the client but are much more difficult to operationalize, such as living independently or improving one's social network. While we revisit this point in subsequent chapters, here we remind the reader to consider the following points regarding appropriate outcome measurement:

- Standardized measures should be *psychometrically robust*. This means that, minimally, they are reliable and valid for the construct under study, ideally designed for (and tested in) an older adult population, and scored according to older adult norms;
- Measures should be matched to the purported *goal of intervention*. For example, mindfulness training is alleged to improve self-regulation of attention, emotion, and self-awareness (goal) through training in being able to attend to the present moment. Appropriate outcome measures would be self-reported mindfulness, as well as objective measures of self-regulation of attention, emotion, and self-awareness;
- Measures should be relevant for the presumed *mechanism of action* of intervention. This issue is particularly true of the field of cognitive and behavioral interventions and is a weakness we observed time and again in our review of that literature. For example, if the goal of memory strategy training is to improve compensatory strategy use, then following intervention, we would not necessarily expect cognitive or neural changes, but rather an improvement in ecologically relevant outcomes. Conversely, a working memory training program may show near-transfer to other working memory tasks, but not produce far-transfer to real-world behaviors. Ideally, where time and resources permit, the clinician would use multimodal outcomes to have the best chance of capturing intervention effects, including ecologically oriented outcome measures;
- In an older adult population, “no change in outcome measures” does not necessarily mean that no change has occurred. For example, in the context of psychotherapy, many self-report scales are symptom-oriented. This type of measure might make sense for a symptom-focused form of treatment such as cognitive-behavioral therapy, but less so for more existentially

oriented therapy such as life-review. In terms of cognitive and behavioral interventions, most of the empirical evidence is based on short-term follow-up, yet ground-breaking research studies such as the ACTIVE trial (discussed in Chapter 10) show that meaningful change may not occur until 2–3 years after the active intervention period is complete. Plasticity and change in brain, behavior, and self-report measures can all occur on differing time-scales and take longer than in younger or middle-age adults. Moreover, maintenance of current function may be as reasonable a goal as objective “improvement” or enhancement of function, in which case one is more concerned about the presence of declining test scores over time than about the absence of improved test scores. The clinician faces the challenge of balancing the need to evaluate the impact of the intervention with the fact that change is a complex variable that may occur on longer-range time-scales with older adults than with other clientele.

The Single-Case Experimental Design as a Guiding Approach to Intervention

Most trainees in graduate clinical psychology programs—as well as psychologists—are familiar with between-subjects research designs exemplified by the randomized controlled trial (RCT) approach. However, an equally powerful methodology is the single-case experimental design approach, which may be less familiar to trainees and practitioners (Kazdin, 2011). While this approach is typically considered a form of clinical research design, ideally the scientist–practitioner approach to clinical psychology exemplifies this model in routine clinical practice. In other words, the psychologist uses available assessment data to make reasonable clinical hypotheses about how a certain intervention or interventions would ameliorate current difficulties. Then outcomes are systematically measured in order to demonstrate that the intervention is more effective than doing nothing.

Using this type of approach to inform the application of intervention has many benefits. For one, it facilitates translation and application of group-based research findings to individual clients, allowing for tailoring to that individual client. In addition, one can ascertain the overall effectiveness of an intervention plan for a particular client, even when multiple approaches have been used simultaneously. This is more naturalistic than the strict experimental designs that are often published in the literature. Likewise, following this type of methodology means that a treatment success could be submitted for later publication. For disorders with a lower base rate or where it is difficult to access a large number of clients with the same diagnosis simultaneously (e.g., frontotemporal dementia), publishing a series of case studies is a viable means of building the evidence base in a particular population or for a particular type of intervention.

The Chambless criteria (Chambless et al., 1998) provide guidance on what should be considered an efficacious psychological treatment; they note that nine well-controlled case studies are considered sufficient evidence for efficacy. The appeal of this approach is that clinicians in routine practice, who do not have access to the time and economic resources required to conduct RCTs, can nevertheless contribute to the evidence base in this field, providing commentary on how these interventions work in the real world for typical clients.

A recent consensus statement was published on the conduct and subsequent publication of single-case experimental designs, the so-called Single-Case Reporting Guideline in BEhavioral Interventions (SCRIBE) guidelines (Tate et al., 2016). This expert group outlined several key points illustrating how to set up and conduct such case studies, including the specific type of design (e.g., withdrawal/reversal, multiple-baseline, alternating treatments), the use of blinding and randomization, control conditions, and maintenance of treatment fidelity. Even if a psychologist has no direct intent to publish a particular case study, these guidelines provide useful support for deriving a theoretically and empirically supported case conceptualization for a given client, along with robust means to evaluate the impact of the interventions contained therein.

In concluding the case of Sam for this chapter, in Appendix 9.1 we provide an example of a psychoeducation handout we created for him, discussing his assessment results in the context of his goals and an agreed-upon treatment plan. Creating such a handout is a place to weave together each aspect of intervention we will discuss in Chapters 10, 11, and 12—something that has utility for both the client and the clinician. Being transparent about treatment will also facilitate the client’s “buy-in” and provide a useful point of reference for clients, particularly those with significant memory impairment. (The use of a therapy journal is discussed further in Chapter 12.)

Summary and Conclusions

This chapter provides an overview of the integrative, developmental approach to intervention that is articulated further in this summary section. In Chapter 10, we discuss the use of medications in persons at all stages of cognitive decline, although the evidence base focuses primarily on persons with MCI and dementia. Under certain conditions, medications can provide some symptom relief and improvement in cognitive function. However, their true utility may lie in their combination with other non-pharmacological interventions: medications provide a stable foundation on which to build, using other interventions that require more active engagement from the individual. Chapters 11 and 12 are notably longer than most

other chapters, which is expected given the sheer volume of literature covered in these areas of practice. That said, we have still taken a rather broad approach to the material in these chapters, again focusing on providing a higher-level view for practitioners who then want to dive more deeply into a given area.

Chapter 11 provides an overview of the rapidly expanding area of cognitive and behavioral interventions for older adults at every stage of cognitive decline, focusing particularly on cognitive training, cognitive rehabilitation, and cognitive stimulation. A review of the current state of evidence is provided, along with specific guidance about how to conceptualize the implementation of such intervention methods. We also discuss the important distinction between restitution and compensation, and how certain mechanisms of action may call for different outcome measures, in order to ensure the most meaningful assessment of outcome.

Chapter 12 provides an overview of some of the more commonly used or most empirically supported interventions to improve psychological function in older adults. As is true of the material in Chapter 11, the literature in this area is formidable. As such, we focus on providing a high-level summary of available evidence, again coupled with conceptual guidance on how to implement these interventions. With certain clinical presentations, such as psychosis, medications may be contraindicated entirely; this underscores the utility of psychological approaches in affected individuals. Having been introduced to these three major modalities of medication, cognitive and behavioral interventions, and psychological interventions, the reader can then return to this chapter to consider how one or more of these interventions may be integrated into a holistic treatment plan for a given individual.

In reviewing the material for Chapters 10–12, we see an emphasis in the literature on proof-of-principle, RCT intervention designs that seek to establish efficacy and focus on internal validity. This provides a solid evidence base across a variety of interventions, particularly nonpharmacological interventions, under the most well-controlled conditions. In terms of future directions, while this research is important and worthwhile, we feel that it is time for the field to consider other complementary approaches as well. Given the very real and pressing need to provide effective care to older adults, effective knowledge translation and dissemination with regard to what already exists is essential, and we would even go as far as to say, an ethical imperative. More research needs to be conducted on effectiveness designs, including single-case experimental designs, to ascertain the conditions under which these interventions are successful in routine clinical practice and to suggest where tailoring needs to occur to make interventions accessible. Moreover, RCT designs are based on a medical model of intervention, which uses pharmacological terminology such as “active ingredients” and “dose response.” While such terminology can help to bring precision to the study of psychological phenomena, there are

limitations. For example, we will review literature in a variety of intervention contexts, suggesting that multicomponent interventions, as well as those that are personalized and tailored to the individual, are ultimately more beneficial than those that take a “one-size-fits-all” approach or are focused on isolating specific ingredients. The difference between medication and nonmedication trials is that thought, feeling, and behavior are part of a matrix of biopsychosocial influences that are difficult to study in isolation. That is, we caution the field against taking an overly reductionist approach to the study of psychological phenomena, particularly as they apply to clinical samples and clinical interventions. With that said, even pharmacological trials could benefit from better biopsychosocial characterization of their participants, as medications may only modify one specific contributor to an older adult’s current cognitive function.

KEY POINTS

- ✓ Cognitive function in older adulthood is multiply determined, including concurrent factors such as health and mood, as well as historical factors such as interpersonal functioning and early-life stress and adversity.
- ✓ Given the multiplicity of contributing factors, we advocate for a holistic and integrative approach that considers different intervention approaches consecutively or concurrently.
- ✓ The single-case experimental design is a useful heuristic for developing an intervention plan that is grounded in solid clinical hypotheses with a clear means to test outcome. This also provides a rigorous way to implement and test the findings of group-based research studies in individual clients.
- ✓ While many intervention studies focus on discrete symptoms, in clinical practice we advocate for a client-centered, collaborative approach that is grounded in the client’s goals. Focusing on the client’s desired outcomes will enhance intrinsic motivation, particularly when tasks become challenging.
- ✓ As opposed to medications, nonpharmacological interventions require active engagement in intervention activities (e.g., homework exercises). Thus, the client’s readiness for change should be considered, and different levels of readiness will indicate different approaches to intervention. This is particularly true for clients who have anosognosia, or diminished self-awareness.
- ✓ The client’s current level of cognitive decline should be taken into consideration in terms of which interventions are likely to be beneficial or not, and will help shape expectations about the scope of improvement that can be expected.

Example Psychoeducational Handout for Sam Prior to Initiating Treatment

This handout is to provide you with information on what we have learned about you thus far and how we can use that information to support your care going forward.

As you may remember, your neurologist referred you for a neuropsychological assessment, given concerns about a decline in your thinking abilities. In an assessment, the neuropsychologist is asking three main questions:

1. Does the client have impairment in his or her thinking abilities, more than normal aging?
2. If there is evidence of impairment, can we determine the most likely cause?
3. What can be done to help minimize the impact of this impairment and/or prevent it from getting worse in the future?

In the evaluation, we determined that there was evidence of impairment in your thinking abilities that was more than just normal aging. This was most obvious in the domain we refer to as *executive functions*. You can think of executive functions like the “CEO of your brain”—they are responsible for functions such as planning, organization, time management, being able to switch from one task to another, problem solving, and also regulating your behavior from one moment to the next. We also found evidence that your *speed of processing* is lower than we would expect for your age and education. In terms of what is causing these impairments, these are consistent with the effects of Parkinson’s disease and may be a manifestation of your illness. We also found that you were experiencing symptoms of depression and anxiety, which may be in part due to dealing with your illness, as well as some of the relationship stressors you have going on in your life right now.

In terms of what we can do to help you deal with these challenges, there are different options. Despite the difficulties described, your evaluation showed us that you have many cognitive functions that remain in good shape, including your memory, your ability to communicate and understand language, and your visual-perceptual abilities. These are positive signs that you could benefit from learning skills and strategies to actively manage your difficulties in speed of processing and executive functions. We discussed a trial of intervention where we would work together to help your thinking abilities, and we will put this in the context of helping you achieve your goals of improving your relationship with your son and improving your quality of life. We will start with a trial of 6 weeks, and at that point we will reevaluate and see how you are doing.

(continued)

APPENDIX 9.1 (continued)

Another thing we are recommending is that your neurologist consider putting you on a trial of an antidepressant. Aside from helping your mood, this type of medication might also improve your processing speed, something that can be affected not only by Parkinson's disease but also depression. If your neurologist does not feel comfortable prescribing this type of medication, then you may need to see a behavioral neurologist or a neuropsychiatrist, medical doctors who specialize in prescribing medications to people who have neurological conditions such as Parkinson's disease. I will be in contact with your neurologist so that together we can coordinate the best care possible for you.

As a psychologist, it is my ethical obligation to provide you with access to psychological treatments that have been shown to be effective for people like you. It is also my obligation to be as upfront with you as I can each step of the way. This is so that you can be informed about how we are working together, and so we can collaborate together on helping you reach your life goals. If at any point you feel that the treatment is not going the way you had hoped, or you want to change direction, it is your right to tell me about this and request that a different approach be taken. I also encourage you to ask me any questions that come up and I will do my best to answer them.

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