Louise Cummings *Editor*

Handbook of Pragmatic Language Disorders

Complex and Underserved Populations

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Foreword

The field of clinical pragmatics has witnessed considerable expansion in recent years. But while empirical studies of certain clinical populations have proliferated, other populations have languished in a state of almost complete neglect by clinicians and researchers. The reasons for this neglect are twofold. First, an understanding of conditions like psychiatric disorders, neurodegenerative dementias, and traumatic brain injury involves expertise from a range of disciplines, most notably psychiatry, neurology, and psychology, in addition to speech-language pathology and clinical linguistics. In clinical practice and theory, these disciplines tend to run in parallel to each other, which makes true interdisciplinary collaboration difficult to achieve. The result is that speech-language pathologists tend not to study and treat clients whose disorders are perceived to fall within the remit of specialists in fields like psychology and psychiatry, even though the expertise in language that speech-language pathologists can contribute is vital to an understanding of these disorders.

Second, not all clients with pragmatic disorders have equal access to clinical language services. Clients with substance abuse disorders and addiction, HIV infection, or who are detained in young offender institutions and prisons face social exclusion and marginalization. These clients often have social difficulties and psychiatric issues which may limit their access to, and compliance with, the very services that are best placed to address their pragmatic language difficulties. Other underserved populations include children in residential care and internationally adopted children who on account of linguistic, cultural and social factors may have pragmatic language problems that remain undetected. All these clients are underrepresented in the caseloads of speech-language pathologists notwithstanding their evident need for specialist language assessment and intervention.

This volume addresses the neglect of these children and adults by giving emphasis to complex and underserved populations of clients. In doing so, it addresses a significant gap in the clinical literature and responds to the needs of clinicians who often lack direction in the management of these clients. The chapters have been carefully crafted to ensure that they are accessible to students, researchers, and clinicians in speech-language pathology and related disciplines. The individual

contributors to the volume are drawn from a wide range of disciplines, most notably speech-language pathology, but also psychology, psychiatry, neurology, paediatrics, and genetics. Collectively, they represent a vast body of clinical experience and academic learning in the conditions addressed by this volume. It is a wealth of expertise that can help establish new research priorities in clinical pragmatics.

Finally, a book can only claim to contribute to knowledge when it makes us look afresh at complex issues that we thought we understood or brings problems into focus that had previously evaded our gaze. It is hoped that in some small way, this book achieves both these outcomes for the many children and adults who must face the challenge of living with a pragmatic language disorder.

Kowloon, Hong Kong Louise Cummings

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Contents

Part II Complex Populations in Adulthood

Part III Underserved Populations

Chapter 1
Pragmatic Disorders in the Twenty-First Century

Louise Cummings

1.1 Introduction

This is an unusual starting point for a chapter on clinical pragmatics. But I want the reader to join me in thinking about what daily life must be like for children and adults with a pragmatic disorder. The world with its millions of pieces of linguistic information and social signals must be a bewildering place to occupy. Children with pragmatic disorder must wake up in the morning unsure of whether they will be able to cope with the day's communicative challenges. They must hope that their attempts to join in games and other activities with friends in the playground will not be misunderstood and rejected. They must wonder if their teacher will not interpret their difficulties with communication as reluctance to engage or, worse still, bad behaviour and defiance. They must think about how they are going to indicate their food preferences to catering staff when they have not successfully achieved this on many previous occasions. They must worry about being read stories in class and having to answer questions about them for fear that they will not understand the narratives they have heard. And they must think about how they are going to ask the teacher or classroom assistant for permission to leave the room to attend the toilet. The difficulties for adults with pragmatic disorder are no less challenging. They must be concerned that they will appear awkward, inept, or even incompetent in front of their colleagues when they are asked to contribute to a meeting or give a presentation to others. They must think about how they are going to accept or decline an invitation to a friend's birthday party, or hold a conversation with colleagues over lunch. They must hope that they will not misunderstand an email from their line manager and make an impolite response in consequence. They must consider how to respond appropriately to a colleague who offers them a lift home.

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All these anxieties (and many more not mentioned) occupy the thoughts of children and adults with pragmatic disorders. Even those children and adults who are not fully cognizant of their pragmatic difficulties cannot escape the feeling of a lack of success in their everyday verbally mediated interactions. These difficulties limit the academic achievement of children, the employment prospects of young people and adults, and the social functioning of individuals of all ages (Cummings, 2014a; Snow & Douglas, 2017). Pragmatic disorders are also associated with psychological distress in the form of depression and anxiety and, for young males in particular, problems such as offending behaviour and engagement with the criminal justice system. These adverse consequences can be mitigated, if not wholly then partially, by effective and timely clinical language services. But what happens to those individuals who are not able to access these services, or whose pragmatic problems remain undetected or are poorly characterized? This is the central challenge for all clinicians who work with clients who have pragmatic disorders. In reflecting on how we can best address this challenge, we need to think about clinical populations which have been neglected to date by clinical language services. The individuals who constitute these populations may have complex neurocognitive and neuropsychiatric problems which are assessed and treated by professionals other than speech-language pathologists. Alternatively, they may experience social exclusion and a lack of cultural integration which may limit their access to services. It is these children and adults who are the focus of the chapters in this volume.

This chapter will unfold as follows. In Sect. 1.2, we examine some of the achievements and drawbacks of clinical pragmatic research which has been conducted to date. This research has produced an abundance of empirical findings, not all of which have facilitated our understanding of pragmatic disorders (Cummings, 2007). The reasons why this has occurred should be examined if we are to chart a productive road ahead. In Sect. 1.3, clinical populations which have traditionally not been prominent in the caseloads of speech-language pathologists are considered. The clients in these populations often have complex neurocognitive and neuropsychiatric problems which are assessed and treated by professionals other than speech-language pathologists. It will be argued that these clients must have access to the specialist services of speech-language pathology because of the interaction of these problems with language, and pragmatics in particular. These complex populations of clients have unmet pragmatic language needs. But they are not alone. In Sect. 1.4, we examine several other populations of clients who are underserved by speech-language pathology. They include children in residential care and adults in prison, both of whom may not have access to clinical language services because of factors such as social exclusion. Individuals with substance use disorders and other forms of addiction may not be able to comply with pragmatic language interventions. The pragmatic language needs of these clients are no less significant than those of many other clients with pragmatic language impairments who do receive clinical services. But they remain unaddressed for the most part because of societal prejudice and exclusion.

For clinical pragmatics to be fit for purpose in the twenty-first century, it must embrace these previously overlooked populations of clients. But it is worth asking why the pragmatic difficulties of these clients have been overlooked in the first

place. Standard routes of referral between clinical services are certainly part of the explanation. Children with autism spectrum disorder access speech-language pathology services by means of referral from paediatricians and psychologists in child development clinics. However, there is not the same precedent for children with Tourette's syndrome to be referred for assessment by a speech-language pathologist even though these children can have significant pragmatic language difficulties (e.g. Eddy et al., 2010). Another part of the explanation is that speech-language pathologists have not been sufficiently proactive in making professionals like psychologists and psychiatrists aware of the relevance of clinical language services to the children and adults in their care. As a result of this lack of awareness, pragmatic language difficulties become subordinated to other behavioural problems in these clients. Also, speech-language pathologists may not have the knowledge and professional training that are required to assess and treat non-traditional clients (e.g. adults in prisons). Even if they do believe that they can offer effective clinical services to these clients, a lack of professional experience may dissuade them from this course of action. Also in Sect. 1.4, we examine these reasons in more detail, as an understanding of their true nature and complexity is vital to establishing a clinical pragmatics that can address the needs of clients in the twenty-first century.

Alongside the discovery of those factors that have led to the neglect of certain populations of clients in the past comes a responsibility to put clinical pragmatics on a firm footing for the future. This involves establishing new applications for clinical pragmatics which will sustain the continued development of the discipline. Chief among these applications is a new role for clinical pragmatics in the diagnosis of a range of disorders. This extends beyond the role that pragmatic language features currently fulfil in the diagnosis of primary pragmatic disorders such as social communication disorder. Instead, it will be argued in Sect. 1.5 that pragmatic features can also serve a role in the diagnosis of conditions such as dementia and schizophrenia (Cummings, 2012). This represents a new departure for clinical pragmatics into nosology and diagnosis. This departure is all the more significant given one of the great diagnostic challenges of our time, namely, the diagnosis of clients for whom there is a suspicion of dementia. What makes the diagnosis of dementia so challenging for clinicians is that there is a high degree of overlap in the initial presenting symptoms of several dementia syndromes. Also, there is a lack of a definitive, non-surgically invasive biomarker with which to make an *in vivo* diagnosis (Reilly et al., 2010). Against this backdrop, there are calls to develop reliable behavioural markers of the dementias. It will be argued in Sect. 1.5 that pragmatic language impairments have the potential to function as such markers.

1.2 Clinical Pragmatics: The Story So Far

Research into pragmatic disorders has proceeded apace in the last 40 years. From relatively small beginnings in investigations of speech acts (typically requests) in language impaired children (Rom & Bliss, 1983; Prinz, 1982; Prinz & Ferrier,

1983) and adults with aphasia (Wilcox & Davis, 1977; Hirst et al., 1984), the discipline has spawned an extensive array of empirical findings. There have been clinical studies into all the main pragmatic concepts including speech acts, implicatures, presupposition, deixis, context, and non-literal and figurative language (see Cummings (2009, 2014a) for an extensive review). This body of work has given clinicians and researchers considerable insight into pragmatic language function. For example, we now know that pragmatics is separable from structural aspects of language. An adult with non-fluent aphasia, for example, can have poor structural language skills (e.g. reduced grammatical structure) but still produce sufficient content words to be an effective communicator. By the same token, a child with pragmatic language impairment (or social communication disorder) can produce fluent, well-formed language. However, this same child might struggle to conduct a conversation or tell a story to a friend. We also know that improvements in structural language in adults with aphasia are not necessarily reflected in improvements in pragmatic communication (Coelho & Flewellyn, 2003), and that the pragmatic language system can selectively deteriorate in clients with early-stage dementia even as phonology and syntax remain intact (Cummings, 2021). Each of these findings has given support to the view that pragmatics is a rather unique type of competence within the wider cognitive architecture of the mind (see Cummings (2009, 2014a) for discussion).

But a separable competence is not necessarily a competence which is wholly independent of language. For it remains the case that certain linguistic structures are required in order to undertake pragmatic language functions such as producing speech acts and encoding information in the presuppositions of an utterance. An adult with agrammatic aphasia may not be able to perform the syntactic inversion that is required to produce indirect speech acts such as requests (e.g. *Can you close that window?*). This same adult may struggle to use lexical and grammatical structures that are known to generate presuppositions, including definite noun phrases (e.g. *The house on the hill is expensive → There is a house on the hill)*, cleft constructions (e.g. *It was the boy who broke the window → Someone broke the window*), and factive verbs (e.g. *Joan regretted leaving her job → Joan left her job*). It is an inescapable fact that several pragmatic language functions are intertwined with the ability to produce and comprehend syntactic and semantic structures. Much of the clinical pragmatic research which has been conducted to date serves to remind us that this is the case. For example, Katsos et al. (2011) found that children with specific language impairment (SLI) had difficulty comprehending statements which were quantified with expressions like ‘all’ and ‘some’. However, these children’s difficulties were comparable to those of younger, typically developing children with whom they were matched on a receptive grammar test. The finding that these children’s difficulties employing the maxim of informativeness are in keeping with their overall language difficulties is evidence, according to these authors, that pragmatic and grammatical competence are not the dissociable components that other investigators have contended.

If clinical pragmatic research has made possible an interesting line of inquiry into the pragmatics-language interface, it has permitted examination of another,

equally important interface between pragmatics and cognition. In recent years, there has been prolific investigation into the relationship between pragmatics and theory of mind (Cummings, 2013, 2014b, 2015, 2017a). Theory of mind is the cognitive ability to attribute mental states to one's own mind and to the minds of others (Premack & Woodruff, 1978). Mental states include cognitive states such as knowledge and beliefs and affective states like happiness and sadness. Theory of mind allows us to predict and explain the behaviour of other people. This includes linguistic and non-linguistic behaviour during communication. It is by means of theory of mind that we are able to establish the communicative intention of the speaker who produces the utterance: *Do you know the time?* The communicative intention is the mental state that motivated the speaker to produce the utterance. In this case, the speaker does not know the time and wants his hearer to tell him the time. So the communicative intention can be described in terms of a desire to be given some information that the speaker currently lacks. A quite different communicative intention motivates the speaker who produces an ironic utterance like: *Your lack of generosity is so endearing*. In this case, the speaker entertains the belief that the hearer's lack of generosity is anything but endearing, and wishes to communicate this belief indirectly to the hearer by means of sarcasm. The same recovery process occurs in each of these instances of utterance interpretation. The hearer uses his theory of mind to recover the communicative intention that motivated the speaker to produce the utterance.

Theory of mind has proven to be a valuable explanatory concept in understanding pragmatic disorders in children and adults. We know that theory of mind in conditions like autism spectrum disorder, schizophrenia, and dementia is associated with pragmatic language impairments (Losh et al., 2012; Maki et al., 2013; Fukuhara et al., 2017). We also know why some pragmatic aspects of language pose a greater challenge to clients with pragmatic disorder than other pragmatic aspects of language. For example, the comprehension of sarcasm or irony deteriorates more rapidly for clients with Alzheimer's disease than the comprehension of metaphor (Maki et al., 2013). This is because sarcasm comprehension requires second-order theory of mind (the attribution of a mental state to the speaker about another person's mind) (Winner & Leekam, 1991), while metaphor comprehension requires first-order theory of mind (the attribution of a mental state to the speaker about the world). We also know that the relationship between theory of mind and pragmatics is unlikely to be a simple causal relationship. This is because the relationship appears to be mediated in some cases at least by executive functions such as working memory (Honan et al., 2015). Disordered pragmatic development in children can also be explained in terms of theory of mind. For example, delays in the acquisition of pragmatic language and nonliteral language in children with autism spectrum disorders have been found to reflect a delayed developmental trajectory in theory of mind abilities (Whyte & Nelson, 2015). These studies and many others not addressed here point to the versatility of the theory of mind concept in understanding the different ways in which pragmatics may be impaired in children and adults.

Theory of mind is merely one component of the cognitive substrate of pragmatic disorders (Bosco et al., 2018). Clinical pragmatic research has also investigated the relationship between pragmatic impairments and executive functions. Executive function is integral to the planning, execution, and regulation of goal-directed behaviour (Diamond, 2013). Key executive functions are inhibition, planning ability and organization, working memory, and attention. Clinicians have known for some time that executive function deficits are integral to the pragmatic communication difficulties of clients with traumatic brain injury (Douglas, 2010). But there is now a growing realisation that executive dysfunction is also associated with the communication difficulties of many other populations of clients, including adults with neurodegenerative diseases (Bambini, Arcara, Martinelli, et al., 2016b; Cummings, 2021) and right-hemisphere damage (Saldert & Ahlsén, 2007; Cummings, 2019a). (The reader is referred to Feyereisen et al. (2007) and McDonald (2000) for a different view of the relationship between executive functions and pragmatics in these populations.) It is as a result of clinical pragmatic research that we are beginning to understand the executive basis of what speech-language pathologists call 'cognitive-communication disorders' in these clients. Information management is impaired in many (or most) clients with cognitive-communication disorders. Information may be omitted, repeated, and poorly organized during discourse. Speakers may also convey incorrect and irrelevant information. We now know that these difficulties are related to executive deficits (Ash et al., 2011). We also know that problems with the use of cohesion in discourse have their basis in executive functioning (Ellis et al., 2015). With each study of this type that is conducted, more of the executive substrate of pragmatic disorders is revealed.

The reason cognitive accounts of pragmatic disorders have held such appeal is that they provide an explanatory framework for these disorders. In the absence of these frameworks, early studies in clinical pragmatics produced an abundance of empirical findings, not all of which shed light on the nature of pragmatic disorder (Cummings, 2007). Knowing that a child with pragmatic disorder cannot use cohesive devices like anaphoric reference during narrative production is certainly something very much worth knowing. But unless this aspect of a child's pragmatic function is explained in linguistic or cognitive terms (e.g. failure to retain an antecedent noun phrase in working memory), this knowledge does not progress our understanding of the child's pragmatic disorder (even less our ability to treat it). Many clinical pragmatic studies have also cast the net of pragmatics so widely that it is not clear what the term may be taken to exclude (Cummings, 2009). Not every aspect of communicative behaviour is pragmatic in nature. The ability to use facial expression to establish a speaker's communicative intention in producing an utterance is a social perceptual skill which has consequences for pragmatic language understanding. The fact that this skill contributes to pragmatic understanding does not thereby make it pragmatic – it is still a social perceptual skill. Finally, some clinical pragmatic studies have misused pragmatic concepts such as implicature, presupposition, and speech acts (Cummings, 2009). Simply recognising that a speaker has flouted a maxim is not tantamount to recovering the implicature of an

utterance. Yet, this has been an assumption of several clinical studies of implicature (e.g. Surian, 1996). These drawbacks aside, this section has clearly demonstrated that clinical pragmatics can claim considerable achievements in its relatively short history to date.

1.3 Complex Clinical Populations

When a discipline first emerges, it can take some time for it to establish its scope and identity. As part of its continuing growth, a discipline may acquire new applications and areas of interest. These novel lines of inquiry are what sustain its future development and ensure that it remains relevant to all those who study it. Clinical pragmatics, I contend, is at this point in its development. It has made a substantial contribution to our knowledge of pragmatics in a wide range of clients including children and adults with autism spectrum disorder, traumatic brain injury, and social communication disorder. And that contribution will undoubtedly continue. But clinical pragmatics is now ready to address new clinical challenges and to move beyond its traditional areas of theory and practice. A significant challenge for the discipline comes in the form of clients who have pragmatic language impairments but who are not normally referred to speech-language pathology. This may be because their care is provided by medical or health professionals who do not recognise the need for referral. Alternatively, the presenting symptoms and behaviours for which these clients are receiving treatment may serve to mask their pragmatic language difficulties. A further challenge for clinical pragmatics comes from clients who are referred to speech-language pathology but for whom we lack a clear profile of their pragmatic communication difficulties. Many of these clients have complex neurocognitive and neuropsychiatric disorders which contribute to their pragmatic difficulties. However, the exact nature of that contribution is not well understood. In this section, we outline the challenge that these different clients pose for clinical pragmatics.

There is considerable heterogeneity among the children and adults who are served by speech-language pathologists. Clients of all ages, education levels, and social and cultural backgrounds are assessed and treated by speech-language pathologists. But while the clients of speech-language pathologists are heterogeneous, the conditions which they manifest are not for the most part. Certain clinical disorders have come to dominate the caseloads of speech-language pathologists. They include language disorders such as aphasia and specific language impairment and motor speech disorders like dysarthria and apraxia of speech. The language and communication problems that occur in clients with epilepsy or Tourette's syndrome are much less common or even non-existent in the caseloads of speech-language pathologists. This is not because these disorders have a low prevalence, or because there are few, if any, language and communication problems in these clients. Epilepsy is at least as prevalent as developmental stuttering in the general

population[1] and its language and pragmatic impairments have been documented in clinical studies (Broeders et al., 2010; Debiais et al., 2007). We must find an alternative explanation of the lack of prominence afforded to these conditions if we are to understand why only certain clients with pragmatic disorders have been the focus of clinical pragmatics to date. That explanation should involve the following factors: (1) poor professional awareness of (pragmatic) communication disorders and the need for onward referral to speech-language pathology; (2) an understanding of how pragmatic impairments are manifested in clients with complex behavioural presentations; and (3) an understanding of how pragmatics may be compromised in neurocognitive and neuropsychiatric disorders. These factors are discussed below.

There is nothing new in the statement that many medical and health professionals have poor knowledge and understanding of communication disorders and of the work of speech-language pathologists. McCann et al. (2013) investigated awareness and knowledge of aphasia among 100 health professionals. Although health professionals had better awareness and knowledge of aphasia than members of the general public, it was still relatively low at 68% for awareness and 21% for knowledge. In a study of general practitioners, Nesbitt and Thompson (1995) reported poor awareness of the role of speech and language therapy in the management of clients with Parkinson's disease. What makes these findings so significant is that this lack of knowledge and awareness has consequences for the referral of clients to speech-language pathology. In the study conducted by Nesbitt and Thompson, referral analysis indicated that of 18 patients with Parkinson's disease referred to speech and language therapy, only one had been referred by a general practitioner. Keating et al. (1998) found that the referral rate to speech pathology services among paediatricians was associated with the quality of their training in and knowledge of communication development and disabilities. If awareness of communication disorders in general is poor, it is poorer still for pragmatic disorders. Many clients with pragmatic disorders have intelligible speech production. These clients can also often produce well-formed language. In the absence of striking communication difficulties like unintelligible speech production, it may not be immediately apparent to medical and health professionals that clients have a pragmatic disorder and should be referred to speech-language pathology. These factors explain, I believe, why many clients with pragmatic disorders have not accessed the services of speech-language pathology to date.

To address this lack of referral, speech-language pathologists need to identify the medical and health professionals who manage the care of clients with undiagnosed pragmatic disorders. For clients with conditions such as epilepsy and neurodegenerative diseases with and without dementia, the lead medical professional is usually a neurologist. For clients with genetic and other syndromes, paediatricians often lead the multidisciplinary team that provides assessment and treatment. Clinical psychologists manage the treatment of clients with obsessive-compulsive disorder

[1] The Epilepsy Foundation of America (2020) reports that the prevalence of epilepsy in the US population is between 5–8.4/1000 persons per year or approximately 1% of the population. The point prevalence of developmental stuttering is also 1% (Bloodstein & Bernstein Ratner, 2008).

and reactive attachment disorders. Psychiatrists, psychologists, and educationalists are involved in the assessment and treatment of children with disruptive behaviour disorders. Speech-language pathologists must attempt to educate these different professionals about pragmatic communication disorders if referral of children and adults with these disorders to speech-language pathology is to occur. This educational effort will not be easy. Even experienced speech-language pathologists can struggle to identify pragmatic disorder in clients, especially when it occurs alongside other behavioural problems. There are, however, tools that professionals other than speech-language pathologists can use to help them identify clients with pragmatic disorder. One such tool is the Children's Communication Checklist (Bishop, 2003), a 70-item questionnaire which can identify pragmatic impairment in children with communication problems. The use of this checklist and other similar assessments will undoubtedly serve to improve the rate and accuracy of referral of clients with pragmatic disorder to speech-language pathology.

The accurate identification of clients with pragmatic disorder is a precondition of referral to speech-language pathology. But in clients whose pragmatic disorders have gone undiagnosed, identification is made difficult by complex behavioural problems. Children with disruptive behaviour disorders can display defiance of authority figures, angry outbursts, and other antisocial behaviours like lying and stealing. However, behaviours associated with pragmatic language impairment such as a failure to follow instructions or understand the communicative intent of a speaker who uses a speech act like '*Can you sit down?'* can easily be misinterpreted as acts of defiance. Also, it is difficult to discern if an outburst of anger is related to a disruptive behaviour disorder or is the inevitable consequence of the frustration that a young child experiences when he or she is unable to convey a message to a hearer. Disruptive behaviour disorders are not the only clinical condition where pragmatic language impairment may be effectively masked by behavioural symptoms. Children and adults with Tourette's syndrome exhibit simple and complex motor tics and vocal tics. Tics are not a feature of pragmatic language impairment. But motor and vocal tics, like pragmatic language impairment, disrupt gestural and verbal communication. If a client with Tourette syndrome had pragmatic language impairment, it is highly likely that its impact on verbal and non-verbal communication would pass undetected in the presence of motor and vocal tics. A child with reactive attachment disorder may display inhibition or hesitancy in social interactions. But so too may the child with pragmatic language impairment who has limited experience of communicative success and avoids social interaction in consequence.

Untangling the features of pragmatic disorder from the behavioural symptoms of these other conditions is complex and poses a significant diagnostic challenge for clinicians. The diagnostic specificity that is required is beyond our current knowledge of the clinical symptoms of pragmatic disorder and conditions like disruptive behaviour disorder. One way to ensure that clients with pragmatic disorder do not evade detection is for clinical evaluations of clients to be jointly conducted by speech-language pathologists and psychiatrists and/or psychologists. Joint evaluations of this type are only rarely conducted in clinical practice. But the potential that

they create for discussion of the diagnostic weighting that should be attached to behavioural symptoms means that they are a productive way forward in the management of clients with complex behavioural presentations. Of course, joint clinical evaluations only work well when the professionals who are conducting them are as immersed in the terminology and frameworks of another clinician's discipline as they are in the terminology and frameworks of their own discipline. Once again, this requires a comprehensive educational effort on the part of all concerned. Speech-language pathologists must be prepared to educate colleagues in psychiatry and clinical psychology about pragmatic language impairment. For their part, psychiatrists and psychologists must make speech-language pathologists aware of the diagnostic criteria and protocols that guide their evaluations of clients with conditions like disruptive behaviour disorder and reactive attachment disorder. If conducted well, joint clinical evaluations could make a significant contribution towards reducing the lack of diagnosis and misdiagnosis of pragmatic language impairment in clients.

There is a further reason why certain clients with pragmatic disorders have not been prominent in the caseloads of speech-language pathologists. Many of these clients have pragmatic disorders against a backdrop of neurocognitive and neuropsychiatric dysfunction. Few speech-language pathologists have specialist knowledge of neurocognitive and neuropsychiatric disorders and their effect on language in general, and pragmatics in particular. All speech-language pathologists receive clinical education in the neuroanatomical and neurophysiological basis of aphasia and dysarthria. However, the same cannot be said of language disorder in neurodegenerative diseases like Parkinson's disease and in psychiatric conditions like schizophrenia and disruptive behaviour disorders. In recent years, considerable progress has been made in our understanding of the cognitive basis of language and communication disorder. Cognitive impairments in conditions like specific language impairment and developmental dyslexia have been widely investigated (Christo, 2014; Ellis Weismer, 2014). There is also considerable awareness of the role of theory of mind deficits in the communication problems of clients with autism spectrum disorder, and of the contribution of executive function deficits to communication problems in clients who sustain a traumatic brain injury (Cummings, 2009, 2013, 2014a, 2014b, 2017a). However, it still remains the case that much of this knowledge exists within the research base of speech-language pathology and is not yet part of the working knowledge of speech-language pathologists. The situation is even worse for neuropsychiatric disorders. Writing in 2001, Novak and Kapolnek describe the lack of clinical services for, and research into, clients with psychiatric disorders in speech-language pathology:

> Traditionally and in general, speech-language pathologists have not provided speech/language services for individuals with mental illness, and no articles have been found to be published on this topic in the *Journal of Speech, Language, and Hearing Research* from 1995 to date. (2001: 111)

These remarks remain as true today as they were nearly 20 years ago when they were made. Degrees in speech-language pathology rarely contain dedicated

modules or courses on communication disorders in psychiatric conditions. The *International Journal of Language & Communication Disorders* published only two articles on mental health conditions in the 5-year period between January 2012 and January 2017 (one article on schizophrenia and one on emotional problems in childhood). It should not be surprising to discover that speech-language pathologists who lack formal training in certain clinical disorders, or who are unable to access research to guide their clinical management of clients, should end up not prioritising these clients or their pragmatic communication needs. It is once again the case that clients with pragmatic disorders, who could benefit from clinical language services, may remain undetected by these services.

1.4 Underserved Clinical Populations

A further aim of this volume is to highlight the pragmatic communication problems of several other groups of clients who also fail to access the specialist services of speech-language pathology. However, the reasons for this lack of access differ from the reasons we have just examined in Sect. 1.3. Clients with problems such as addiction and offending behaviour face social marginalization and exclusion. These social difficulties reduce the access of these clients to the healthcare services, including speech-language pathology, that are available to the rest of the population. Children in residential and foster care may have experienced severe physical and emotional neglect and sexual abuse at the hands of their biological parents. These events can place their social and emotional development at risk, with consequences also for language development. Residential and foster care can be fragmented, with children often experiencing multiple placements and different carers over relatively short periods of time. This lack of continuity in care may result in poor detection of language and pragmatic disorders and lead to reduced referral to speech-language pathology. It can be the case that as the number of agencies and individuals involved with the child increases, so too does the risk that a child's pragmatic language difficulties will not be undetected. As well as social barriers to clinical language services, there are also significant cultural barriers. Children who have been internationally adopted may experience pragmatic language problems. However, these problems may be dismissed as difficulty with cultural adjustment or misinterpreted as 'normal' pragmatic behaviour in a different cultural context. In this section, each of these underserved populations is examined in more detail.

There is a considerable burden of pragmatic disorder in the young offender and prison population. This burden arises in large part because pragmatic disorders are associated with several clinical conditions which have an increased prevalence in incarcerated individuals. These conditions include autism spectrum disorder, intellectual disability, schizophrenia, attention deficit hyperactivity disorder, traumatic brain injury, and conduct disorder (Cummings, 2017b). Pragmatic language impairments have particularly pernicious consequences for those juvenile offenders and prison inmates who have them. Individuals with pragmatic disorder are poorly

equipped to comply with the verbally mediated rehabilitation programs which are available to inmates in prison. These programs are important in that they reduce rates of reoffending behaviour. They also help the offender achieve successful reintegration into society and secure employment on leaving prison. Rehabilitation programs address issues such as conflict resolution and encourage reflection on the factors that serve as triggers for an individual's offending behaviour. The meta-pragmatic and meta-cognitive demands of these programs are considerable and may exceed the pragmatic language skills of many inmates. To the extent that pragmatic disorder reduces engagement with these programs, early identification of inmates with pragmatic disorder must be a priority for clinical language services in prisons. It is unfortunately the case, however, that these services are lacking in many prisons. In written evidence in October 2016 to the UK Justice Committee inquiry into prison reform, the Royal College of Speech and Language Therapists stated that:

> There is a strong presence of speech, language, and communication needs within the prison population. There may not, however, be functional access to speech and language therapy which would allow access to rehabilitation programmes. This may be due to the following factors: a lack of identification of speech, language, and communication needs and the need for speech and language therapy as a result of a deficiency in workforce training; the availability of speech and language therapy services within prisons.

Clark et al. reported in 2012 that there was only one dedicated speech and language therapy service (21 hours per week) in Scotland's entire criminal justice system (Clark et al., 2012). Until the availability of speech and language therapy to the prison population is comparable to that of the population as a whole, it is difficult to see how prisons and other correctional facilities are going to achieve the successful rehabilitation of offenders. What is clear is that whatever clinical language services are made available to the prison population, pragmatics must be an integral part of them.

Even when individuals in prison do get access to clinical language services, they may have complex psychiatric problems which prevent them from complying fully with those services. There are high rates of substance use disorders and alcoholism in the prison population. In a systematic review of 18,388 prisoners across 24 studies, Fazel et al. (2017) reported that around a quarter of newly incarcerated male and female prisoners have an alcohol use disorder. The prevalence of a drug use disorder is at least as high in incarcerated men, and higher still in incarcerated women. There is also a high prevalence of alcohol and drug addiction in community populations (Arria et al., 2017; Krill et al., 2016). As well as reducing compliance with pragmatic language interventions, alcohol and substance use disorders are a risk factor for pragmatic language impairment. This may be on account of impaired theory of mind in individuals with alcohol and substance use disorders (Kim et al., 2011; Onuoha et al., 2016). After all, an individual who has impaired understanding of others' intentions and emotions (theory of mind) may also have impaired understanding of the communicative intentions involved in pragmatic interpretation. It appears that pragmatic language impairment can also increase liability for alcohol and substance use disorders. Najam et al. (1997) examined the language abilities of 135 children who were the offspring of men diagnosed as having a substance use

disorder. These children, who were judged to be at high risk of drug abuse, were compared at baseline (10–12 years) and follow-up (16 years) to 208 children whose fathers had no psychiatric disorder or substance use disorder (low risk children).

High risk children obtained significantly lower scores than low risk children on subtests of the Test of Language Competence (Wiig & Secord, 1989) which assess pragmatic language skills. Specifically, the tests in question examined these children's ability to assign meaning to ambiguous sentences, comprehend metaphorical language, and express intents. At follow-up at age 16 years, high risk children were still significantly poorer than low risk children at comprehending ambiguous sentences and expressing intents. Najam et al. (1997: 78) concluded that '[i]mpaired linguistic ability, especially in those facets which involve the interpretation of abstract information […] appears to contribute to the liability for a substance use disorder'. Regardless of whether alcohol and substance use disorder is an independent risk factor for pragmatic language impairment, pragmatic disorder increases the risk of alcohol and substance use disorder, or both are a consequence of a third variable like theory of mind, it is clear that clients with problems of addiction do not access healthcare services to the same extent as the rest of the population (Palepu et al., 2013). This includes the clinical language services that speech-language pathology is able to offer. If community outreach programs are to be successful in tackling drug and alcohol addiction, physical and mental health needs of clients must be addressed. This includes problems with language and communication which, if left untreated, limit societal reintegration, the prospects of gaining employment, and participation in drug and alcohol recovery programs. Speech-language pathology has successfully adapted its services in the past to address the needs of clients. It must now do the same to address the language and communication needs of clients with alcohol and substance use disorder.

Incarcerated individuals and individuals with alcohol and substance use disorders are not the only marginalized clients who have undiagnosed pragmatic language impairments. Children in residential and foster care can also have pragmatic disorders which may remain unidentified, often with serious consequences for the social functioning and academic achievement of these children (Cummings, 2014a). The pragmatic impairments of these looked-after children may be missed for several reasons. A significant reason is that the number of referrals to speech-language pathology from social work departments with responsibility for these children is very low. Clark and Fitzsimons (2016) reported that one paediatric speech and language therapy service in a healthcare trust in Scotland received only 14 referrals from the local social work department in the last 5 years. This amounted to 0.13% of total referrals to the service in this period. This low referral rate may be explained by a lack of expertise and training on the part of social workers in the identification of pragmatic language impairments in the children in their care. Also, social workers have other professional priorities and responsibilities, chief amongst which is the secure placement of children with complex social and emotional needs in residential and foster homes. Language and communication difficulties may simply be overlooked against the backdrop of these other priorities.

A further reason why pragmatic language impairments may not be detected in looked-after children is that these children have often experienced chaotic home lives with their biological parents before being taken into the care of local authorities. The parents of these children may not have complied with the developmental checks that are conducted by health visitors between 0 and 5 years. Poor school attendance limits the opportunity of teachers to identify children with language problems. The language surveillance afforded by health and educational services for children in stable home environments is often not present for looked-after children. Another reason why looked-after children do not come to the attention of speech-language pathology is that multiple agencies, professionals, and foster carers are often involved in the care of these children. It might be thought that this would increase the surveillance of these children and with it the rate of detection of language problems. However, there is a significant risk that as the number of agencies and professionals involved in a child's care increases, language problems are not detected as each agency and professional focuses on a particular area of responsibility. This is even more likely to happen when communication between agencies and professionals is poor. In order for there to be improved detection of looked-after children with pragmatic impairments, it seems clear that speech-language pathologists must forge closer alliances with social workers and other professionals involved in the care of these children. Education and training in the recognition of pragmatic disorders must be an integral part of this effort.

Finally, there is another group of children with pragmatic impairments who have been underserved by speech-language pathology. However, these children do not lack access to clinical language services because of social reasons such as marginalization and exclusion. Children who have been internationally adopted are known to be at an increased risk of language impairment and pragmatic disorder (Petranovich et al., 2016; Rakhlin et al., 2015). It is not difficult to see why this is the case. Many of these children spend several years in institutions before they are accepted for adoption. During this time, they may receive less language stimulation than they might receive in a home environment. Pragmatic language skills develop early in young children as a result of the many everyday exchanges that occur between children and their parents and other adults. Children who are institutionalized in poorly staffed orphanages often receive little in the way of communicative interaction from the adults who care for them. Pragmatic language skills are particularly vulnerable to the lack of stimulation that this environment affords. If these children are eventually placed with an adoptive family, they must then embark on a process of assimilation and adjustment to the culture of a new country. This carries many hazards for these children who may already be trailing pragmatic language impairments from their time in institutions. The pragmatic language norms of a new culture may not be easily acquired, if acquired at all. To compound the difficulties of these children, pragmatic language impairments may be dismissed by the adoptive parents of these children as temporary difficulties with cultural adjustment. In recent years, there has been growing recognition among speech-language pathologists of the unique needs and challenges of internationally adopted children.

1.5 The Road Ahead for Clinical Pragmatics

Each population of clients examined in Sects. 1.3 and 1.4 will contribute to a new and more inclusive road ahead for clinical pragmatics. The relevance of clinical pragmatics in the twenty-first century can only be increased by consideration of the pragmatic difficulties of these hitherto neglected populations of clients. But there is another way in which clinical pragmatics can establish its relevance and value to clinicians and researchers in the years ahead. That way takes clinical pragmatics into the areas of nosology and medical diagnosis. These are not areas traditionally associated with pragmatics, or at least not as they are envisaged here. The proposal in this section is that clinical pragmatics is now at a point in its internal development where it can demonstrate its utility to other areas of enquiry by establishing new applications of its work and ideas. There is no more pressing application than that clinical pragmatics can play a significant role in the many diagnostic challenges that confront us in medicine and elsewhere. This new application will be examined in brief in this section, and is developed at length elsewhere (Cummings, 2012).

Speech-language pathologists have used pragmatic features of language for some time to diagnose primary pragmatic disorders[2] and to set these disorders apart from other conditions with which there appears to be some diagnostic overlap. For example, let us consider one of the long-standing issues in the nosology of child language disorder. Children who have good structural language skills but who struggle to use language in contextually appropriate ways have always presented clinicians with something of a diagnostic challenge. These children have normal non-verbal cognitive skills like children with specific language impairment (SLI). However, they lack the marked deficits in morphosyntax that typify children with SLI. At the same time, their pragmatic language impairments are similar in many respects to those of children with autism spectrum disorder (ASD). However, they lack the restricted interests, repetitive behaviours, insistence on sameness, and sensory abnormalities of children with ASD. This anomalous group of pragmatically impaired children has been variously labelled as having semantic-pragmatic disorder, pragmatic language impairment (PLI) and, most recently in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013), social communication disorder. For clinicians, the question is whether to characterize these pragmatically impaired children as a subgroup of children with SLI (reflecting the diagnostic overlap of PLI with SLI), or as a separate disorder which lies somewhere between SLI and ASD. Gerenser (2009) aptly captures this diagnostic quandary as follows:

[2] Pragmatic language skills may be impaired on account of deficits in structural language (syntax and semantics) or as a result of cognitive deficits. Clients who have impaired pragmatic language skills in the presence of language and/or cognitive deficits have a *secondary* pragmatic disorder. However, in a *primary* pragmatic disorder, the pragmatic impairment does not arise on account of any structural language impairment or cognitive deficit.

> The question today involves the relationship between ASD, PLI, and SLI. There may be a closer relationship between PLI and autism than between PLI and SLI; PLI may be a subgroup of autism, typically described as high-functioning autism. An alternative to this concept is that some children with PLI may actually fall between the classifications of SLI and ASD – that is, these children demonstrate some aspects of SLI and some symptoms of autism, but they fail to reach diagnostic criteria for an autism spectrum disorder (74–75).

This is the type of diagnostic debate that clinical pragmatics has contributed to up until this point in time. And that contribution has been a significant one. This is reflected in the inclusion of social (pragmatic) communication disorder for the first time in the fifth edition of DSM. But I believe there is a more significant role still for pragmatics in nosology and diagnosis. Unlike PLI or social communication disorder, where pragmatic criteria are used to diagnose a primary pragmatic disorder, I contend that pragmatic features of language may also be used to diagnose psychiatric, cognitive, and behavioural disorders like attention deficit hyperactivity disorder (ADHD), dementia and schizophrenia (Bambini, Arcara, Bechi, et al., 2016a; Pawełczyk et al., 2018). This new diagnostic role for pragmatics is supported by several considerations, two of which are outlined here as they pertain to schizophrenia. First, the criteria that are currently used in DSM-5 to diagnose schizophrenia are essentially pragmatic in nature. Alogia or poverty of speech is a negative symptom[3] of schizophrenia. The speaker with alogia produces minimal, unelaborated turns which convey little information to the hearer. In failing to address the informational needs of his or her hearer, a speaker with alogia is in violation of the Gricean maxim of quantity – the speaker's utterances are under-informative. Disorganized speech or formal thought disorder is a positive symptom of schizophrenia. The speaker in this case produces language which lacks referential cohesion, contains irrelevant utterances, and is illogical and incoherent. Once again, the similarity of these features of disorganized speech to pragmatic language impairments is undeniable. The use of irrelevant utterances amounts to a violation of the Gricean maxim of relation. Utterances which lack cohesive links are unclear, ambiguous and difficult to follow. The Gricean maxim of manner has been compromised in this case.

Second, pragmatic language features in schizophrenia vary with the course and duration of the illness. Positive symptoms are most prominent in schizophrenia during the first psychotic episode and in the early stage of the condition. Over time, positive symptoms tend to subside and are replaced by negative symptoms. So clients with chronic schizophrenia have more negative than positive symptoms. To the extent that the symptoms of schizophrenia are pragmatic language behaviours, we might expect to see more pragmatic features like poor cohesion, irrelevance, and a lack of coherence (features of disorganised speech) in early-stage schizophrenia and verbal under-productivity and reduced information (features of alogia) in clients

[3] Negative symptoms in schizophrenia are the absence of normal behaviours. They include alogia, avolition (lack of motivation) and a lack of affect. Positive symptoms in schizophrenia are the presence of abnormal behaviours. They include delusions (false and bizarre beliefs), hallucinations (the perception of things which do not exist), and disorganised speech. A diagnosis of schizophrenia is based on the presence of both types of symptom.

with chronic schizophrenia. This pattern of pragmatic features is supported by the findings of studies. Bearden et al. (2011) examined the speech samples of 105 adolescents, 54 of whom were considered to be at high risk of a first psychotic episode. At 1 year follow-up, adolescents who converted to psychosis used significantly less referential cohesion in their baseline speech samples than adolescents who did not convert to psychosis. Bowie et al. (2005) studied 220 geriatric patients with chronic schizophrenia. These investigators found that the verbal under-productivity of patients increased during a follow-up period of 2.3 years. However, scores for disorganized speech remained relatively stable during follow-up. Saavedra (2010) studied paranoid schizophrenic patients with duration of illness in excess of 20 years. A lack of cohesion in the narratives of a sub-group of these patients who had been long-stay residents in a care home had decreased to the point of almost disappearing.

Clearly, the psychopathology of schizophrenia lends itself to the type of analysis that must be possible if pragmatic features of language are to serve a role in the diagnosis of conditions other than primary pragmatic disorders. But for that role to be fully realized, pragmatic criteria must have greater diagnostic reach than just this one condition. Initial analysis suggests that this is indeed the case (Cummings, 2012). Symptoms of inattention and hyperactivity-impulsivity in ADHD can also undergo the type of pragmatic analysis that has just been conducted in relation to schizophrenia. An inability to wait on a speaker to complete a turn before starting the next turn and a tendency to blurt out an answer before a question is completed are both symptoms of hyperactivity-impulsivity in ADHD. But they are also pragmatic anomalies in the conversations of children and adults with ADHD. Even more exciting is the prospect that pragmatic criteria could become significant behavioural markers of the dementias. This could assist in the *in vivo* diagnosis of dementia. This is all the more important when one considers that dementia pathology can only be determined *post mortem* and is not a definitive guide to the type of dementia that a client may experience in any event. For example, as well as causing Alzheimer's dementia, Alzheimer's disease pathology accounts for around 19% of cases of primary progressive aphasia (Spinelli et al., 2017), a clinical dementia syndrome in which there is progressive deterioration of language functions alongside relative preservation of other aspects of cognition. It seems that pragmatic behavioural markers of dementia might have a diagnostic potential which exceeds that of even neuropathology itself.

The question naturally arises of what kinds of pragmatic impairments are likely to serve as diagnostic markers of different types of dementia. At this early stage, what can be said with some certainty is that a single pragmatic impairment is unlikely to distinguish one form of dementia from all other forms of dementia. It is unlikely to be the case, for example, that impaired comprehension of metaphor or irony will be able to distinguish clients with Alzheimer's dementia from those with vascular dementia or frontotemporal dementia. Pragmatic language skills operate across too many neural and cognitive levels for this to be a plausible scenario (Stemmer, 2017). But what does seem plausible is that constellations of pragmatic impairments could be used to differentiate types of dementia. In this event, a group

of pragmatic impairments like poor referential cohesion, use of tangential utterances, and impaired comprehension of idioms might very well serve to distinguish different types of dementia. In two recent studies, the discourse of clients with Alzheimer's disease and primary progressive aphasia was examined (Cummings, 2019b, 2019c). Both groups of clients displayed reduced informational content in their respective discourses. This was the single most significant pragmatic anomaly for both groups of speakers with dementia – the discourse of these speakers failed to address the informational needs of listeners. However, apart from poor referential cohesion, which contributed to the informational difficulties of both groups of speakers, there was little overlap in the profiles of these clients. Lexical-semantic deficits made a large contribution to the discourse problems of adults with Alzheimer's disease, while executive planning problems were prominent in the discourse of adults with primary progressive aphasia. This work continues.

1.6 Summary

This chapter has reviewed some of the many achievements of clinical pragmatics in its relatively short history. It has been argued that if these achievements are to continue in the future, clinical pragmatics must look beyond its traditional client base and consider a range of other children and adults with pragmatic disorders. These clients have been overlooked by speech-language pathologists for a variety of reasons. Some clients have complex psychiatric, cognitive, and behavioural disorders that may mask pragmatic language impairments, making a diagnosis of these impairments difficult. Other clients experience marginalization and social exclusion on account of alcohol and substance use disorders, and fail to access the services of speech-language pathology on account of these difficulties. The clients in these complex and underserved populations deserve access to the same specialist language services that are available to the rest of the population. Ensuring that these clients achieve this access will be the next big challenge for all workers in clinical pragmatics. The chapter also addressed a new application of clinical pragmatics in the areas of nosology and diagnosis. The type of diagnostic work that pragmatic features of language might be expected to undertake was discussed in relation to schizophrenia, ADHD, and the dementias.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Author.

Arria, A. M., Caldeira, K. M., Allen, H. K., Bugbee, B. A., Vincent, K. B., & O'Grady, K. E. (2017). Prevalence and incidence of drug use among college students: An 8-year longitudinal analysis. *American Journal of Drug and Alcohol Abuse, 12*, 1–8.

Ash, S., McMillan, C., Gross, R. G., Cook, P., Morgan, B., Boller, A., Dreyfuss, M., Siderowf, A., & Grossman, M. (2011). The organization of narrative discourse in Lewy body spectrum disorder. *Brain and Language, 119*(1), 30–41.

Bambini, V., Arcara, G., Bechi, M., Buonocore, M., Cavallaro, R., & Bosia, M. (2016a). The communicative impairment as a core feature of schizophrenia: Frequency of pragmatic deficit, cognitive substrates, and relation with quality of life. *Comprehensive Psychiatry, 71*, 106–120.

Bambini, V., Arcara, G., Martinelli, I., Bernini, S., Alvisi, E., Moro, A., Cappa, S. F., & Ceroni, M. (2016b). Communication and pragmatic breakdowns in amyotrophic lateral sclerosis patients. *Brain and Language, 153–154*, 1–12.

Bearden, C. E., Wu, K. N., Caplan, R., & Cannon, T. D. (2011). Thought disorder and communication deviance as predictors of outcome in youth at clinical high risk for psychosis. *Journal of the American Academy of Child and Adolescent Psychiatry, 50*(7), 669–680.

Bishop, D. V. M. (2003). *Children's communication checklist–revised* (2nd ed.). Psychological Corporation.

Bloodstein, O., & Bernstein Ratner, N. (2008). *A handbook on stuttering* (6th ed.). Thomson Delmar.

Bosco, F. M., Tirassa, M., & Gabbatore, I. (2018). Why pragmatics and theory of mind do not (completely) overlap. *Frontiers in Psychology, 9*, 1453. https://doi.org/10.3389/fpsyg.2018.01453

Bowie, C. R., Tsapelas, I., Friedman, J., Parrella, M., White, L., & Harvey, P. D. (2005). The longitudinal course of thought disorder in geriatric patients with chronic schizophrenia. *American Journal of Psychiatry, 162*(4), 793–795.

Broeders, M., Geurts, H., & Jennekens-Schinkel, A. (2010). Pragmatic communication deficits in children with epilepsy. *International Journal of Language & Communication Disorders, 45*(5), 608–616.

Christo, C. (2014). Developmental dyslexia. In L. Cummings (Ed.), *Cambridge handbook of communication disorders* (pp. 88–108). Cambridge University Press.

Clark, A., & Fitzsimons, D. (2016). Unidentified and unmet. *Bulletin, 769*, 16–17.

Clark, A., Barrow, E., & Hartley, K. (2012). Unmet need in Scotland's criminal justice system. *Bulletin, 718*, 20–21.

Coelho, C. A., & Flewellyn, L. (2003). Longitudinal assessment of coherence in an adult with fluent aphasia. *Aphasiology, 17*(2), 173–182.

Cummings, L. (2007). Clinical pragmatics: A field in search of phenomena? *Language & Communication, 27*(4), 396–432.

Cummings, L. (2009). *Clinical pragmatics*. Cambridge University Press.

Cummings, L. (2012). Establishing diagnostic criteria: The role of clinical pragmatics. *Lodz Papers in Pragmatics, 8*(1), 61–84.

Cummings, L. (2013). Clinical pragmatics and theory of mind. In A. Capone, F. Lo Piparo, & M. Carapezza (Eds.), *Perspectives on linguistic pragmatics* (Perspectives in pragmatics, philosophy & psychology) (Vol. 2, pp. 23–56). Springer.

Cummings, L. (2014a). *Pragmatic disorders*. Springer.

Cummings, L. (2014b). Pragmatic disorders and theory of mind. In L. Cummings (Ed.), *Cambridge handbook of communication disorders* (pp. 559–577). Cambridge University Press.

Cummings, L. (2015). Theory of mind in utterance interpretation: The case from clinical pragmatics. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2015.01286

Cummings, L. (2017a). Cognitive aspects of pragmatic disorders. In L. Cummings (Ed.), *Research in clinical pragmatics* (Perspectives in pragmatics, philosophy & psychology) (Vol. 11, pp. 587–616). Springer International Publishing AG.

Cummings, L. (2017b). Pragmatic disorders in forensic settings. In F. Poggi & A. Capone (Eds.), *Pragmatics and law* (Perspectives in pragmatics, philosophy & psychology) (Vol. 10, pp. 349–377). Springer International Publishing AG.

Cummings, L. (2019a). On making a sandwich: Procedural discourse in adults with right-hemisphere damage. In A. Capone, M. Carapezza, & F. Lo Piparo (Eds.), *Further advances in pragmatics and philosophy. Part 2: Theories and applications* (pp. 331–355). Springer International Publishing AG.

Cummings, L. (2019b). Describing the Cookie Theft picture: Sources of breakdown in Alzheimer's dementia. *Pragmatics & Society, 10*(2), 151–174.
Cummings, L. (2019c). Narrating the Cinderella story in adults with primary progressive aphasia. In A. Capone (Ed.), *Further advances in pragmatics. New paradigms* (Vol. 2, pp. 301–329). Springer International Publishing AG.
Cummings, L. (2021). *Language in dementia*. Cambridge University Press.
Debiais, S., Tuller, L., Barthez, M.-A., Monjauze, C., Khomsi, A., Praline, J., de Toffol, B., Autret, A., Barthelemy, C., & Hommet, C. (2007). Epilepsy and language development: The continuous spike-waves during slow sleep syndrome. *Epilepsia, 48*(6), 1104–1110.
Diamond, A. (2013). Executive functions. *Annual Review of Psychology, 64*, 135–168.
Douglas, J. M. (2010). Relation of executive functioning to pragmatic outcome following severe traumatic brain injury. *Journal of Speech, Language, and Hearing Research, 53*(2), 365–382.
Eddy, C. M., Mitchell, I. J., Beck, S. R., Cavanna, A. E., & Rickards, H. E. (2010). Impaired comprehension of nonliteral language in Tourette syndrome. *Cognitive and Behavioral Neurology, 23*(3), 178–184.
Ellis Weismer, S. (2014). Specific language impairment. In L. Cummings (Ed.), *Cambridge handbook of communication disorders* (pp. 73–87). Cambridge University Press.
Ellis, C., Crosson, B., Gonzalez Rothi, L. J., Okun, M. S., & Rosenbek, J. C. (2015). Narrative discourse cohesion in early stage Parkinson's disease. *Journal of Parkinson's Disease, 5*(2), 403–411.
Epilepsy Foundation of America. (2020). Epilepsy statistics. Retrieved 11 August 2021, from https://www.epilepsy.com/learn/about-epilepsy-basics/epilepsy-statistics.
Fazel, S., Yoon, I. A., & Hayes, A. J. (2017). Substance use disorders in prisoners: An updated systematic review and meta-regression analysis in recently incarcerated men and women. *Addiction, 112*(10), 1725–1739.
Feyereisen, P., Berrewaerts, J., & Hupet, M. (2007). Pragmatic skills in the early stages of Alzheimer's disease: An analysis by means of a referential communication task. *International Journal of Language & Communication Disorders, 42*(1), 1–17.
Fukuhara, K., Ogawa, Y., Tanaka, H., Nagata, Y., Nishida, S., Haga, D., & Nishikawa, T. (2017). Impaired interpretation of others' behavior is associated with difficulties in recognizing pragmatic language in patients with schizophrenia. *Journal of Psycholinguistic Research, 46*(5), 1309–1318.
Gerenser, J. (2009). Language disorders in children with autism. In R. G. Schwartz (Ed.), *Handbook of child language disorders* (pp. 67–89). Psychology Press.
Hirst, W., LeDoux, J., & Stein, S. (1984). Constraints on the processing of indirect speech acts: Evidence from aphasiology. *Brain and Language, 23*(1), 26–33.
Honan, C. A., McDonald, S., Gowland, A., Fisher, A., & Randall, R. K. (2015). Deficits in comprehension of speech acts after TBI: The role of theory of mind and executive function. *Brain and Language, 150*, 69–79.
Katsos, N., Roqueta, C. A., Estevan, R. A. C., & Cummins, C. (2011). Are children with specific language impairment competent with the pragmatics and logic of quantification? *Cognition, 119*(1), 43–57.
Keating, D., Syrmis, M., Hamilton, L., & McMahon, S. (1998). Paediatricians: Referral rates and speech pathology waiting lists. *Journal of Paediatrics and Child Health, 34*(5), 451–455.
Kim, Y. T., Kwon, D. H., & Chang, Y. (2011). Impairments of facial emotion recognition and theory of mind in methamphetamine abusers. *Psychiatry Research, 186*(1), 80–84.
Krill, P. R., Johnson, R., & Albert, L. (2016). The prevalence of substance use and other mental health concerns among American attorneys. *Journal of Addiction Medicine, 10*(1), 46–52.
Losh, M., Martin, G. E., Klusek, J., Hogan-Brown, A. L., & Sideris, J. (2012). Social communication and theory of mind in boys with autism and fragile X syndrome. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2012.00266

Maki, Y., Yamaguchi, T., Koeda, T., & Yamaguchi, H. (2013). Communicative competence in Alzheimer's disease: Metaphor and sarcasm comprehension. *American Journal of Alzheimer's Disease and Other Dementias, 28*(1), 69–74.

McCann, C., Tunnicliffe, K., & Anderson, R. (2013). Public awareness of aphasia in New Zealand. *Aphasiology, 27*(5), 568–580.

McDonald, S. (2000). Exploring the cognitive basis of right-hemisphere pragmatic language disorders. *Brain and Language, 75*(1), 82–107.

Najam, N., Tarter, R. E., & Kirisci, L. (1997). Language deficits in children at high risk for drug abuse. *Journal of Child & Adolescent Substance Abuse, 6*(2), 69–80.

Nesbitt, R., & Thompson, R. (1995). Exploring interdisciplinary management of Parkinson's disease. *International Journal of Language & Communication Disorders, 30*(S1), 414.

Novak, J. M., & Kapolnek, K. M. (2001). Speech-language pathologists serving clients with mental illness: A collaborative treatment approach. *Contemporary Issues in Communication Science and Disorders, 28*, 111–122.

Onuoha, R. C., Quintana, D. S., Lyvers, M., & Guastella, A. J. (2016). A meta-analysis of theory of mind in alcohol use disorders. *Alcohol and Alcoholism, 51*(4), 410–415.

Palepu, A., Gadermann, A., Hubley, A. M., Farrell, S., Gogosis, E., Aubry, T., & Hwang, S. W. (2013). Substance use and access to health care and addiction treatment among homeless and vulnerably housed persons in three Canadian cities. *PLoS One*. https://doi.org/10.1371/journal.pone.0075133

Pawełczyk, A., Łojek, E., Żurner, N., Gawłowska-Sawosz, M., & Pawełczyk, T. (2018). Higher-order language dysfunctions as a possible neurolinguistic endophenotype for schizophrenia: Evidence from patients and their unaffected first-degree relatives. *Psychiatry Research, 267*, 63–72.

Petranovich, C. L., Walz, N. C., Staat, M. A., Chiu, C. P., & Wade, S. L. (2016). Structural language, pragmatic communication, behaviour, and social competence in children adopted internationally: A pilot study. *Applied Neuropsychology. Child, 23*, 1–12.

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have theory of mind? *Behavioral and Brain Sciences, 1*(4), 515–526.

Prinz, P. M. (1982). An investigation of the comprehension and production of requests in normal and language-disordered children. *Journal of Communication Disorders, 15*(2), 75–93.

Prinz, P. M., & Ferrier, L. J. (1983). "Can you give me that one?": The comprehension, production and judgment of directives in language-impaired children. *Journal of Speech and Hearing Research, 48*(1), 44–54.

Rakhlin, N., Hein, S., Doyle, N., Hart, L., Macomber, D., Ruchkin, V., Tan, M., & Grigorenko, E. L. (2015). Language development of internationally adopted children: Adverse early experiences outweigh the age of acquisition effect. *Journal of Communication Disorders, 57*, 66–80.

Reilly, J., Rodriguez, A. D., Lamy, M., & Neils-Strunjas, J. (2010). Cognition, language and clinical pathological features of non-Alzheimer's dementias: An overview. *Journal of Communication Disorders, 43*(5), 438–452.

Rom, A., & Bliss, L. S. (1983). The use of nonverbal pragmatic behaviors by language-impaired and normal-speaking children. *Journal of Communication Disorders, 16*(4), 251–256.

Saavedra, J. (2010). Quantitative criteria of narrative coherence and complexity in persons with paranoid schizophrenia. *Journal of Nervous and Mental Disease, 198*(5), 349–355.

Saldert, C., & Ahlsén, E. (2007). Inference in right hemisphere damaged individuals' comprehension: The role of sustained attention. *Clinical Linguistics & Phonetics, 21*(8), 637–655.

Snow, P., & Douglas, J. (2017). Psychosocial aspects of pragmatic disorders. In L. Cummings (Ed.), *Research in clinical pragmatics* (Perspectives in pragmatics, philosophy & psychology) (Vol. 11, pp. 617–649). Springer International Publishing AG.

Spinelli, E. G., Mandelli, M. L., Miller, Z. A., Santos-Santos, M. A., Wilson, S. M., Agosta, F., Grinberg, L. T., Huang, E. J., Trojanowski, J. Q., Meyer, M., Henry, M. L., Comi, G., Rabinovici, G., Rosen, H. J., Filippi, M., Miller, B. L., Seeley, W. W., & Gorno-Tempini, M. L. (2017). Typical and atypical pathology in primary progressive aphasia variants. *Annals of Neurology, 81*(3), 430–443.