

Title: Pragmatic Disorders and their Social Impact

Author: Louise Cummings

Address: School of Arts and Humanities, Nottingham Trent University, Clifton Campus, Clifton Lane, Nottingham, NG11 8NS, England, UK. Email: louise.cummings@ntu.ac.uk

Abstract:

Pragmatic disorders in children and adults have been the focus of clinical investigations for approximately 40 years. In that time, clinicians and researchers have established a diverse range of pragmatic phenomena that are disrupted in these disorders. Pragmatic deficits include problems with the use and understanding of speech acts, the processing of non-literal language, failure to adhere to Gricean maxims in conversation and discourse deficits. These deficits are found in several clinical populations including individuals with autistic spectrum disorders, schizophrenia, traumatic brain injury and right-hemisphere damage. However, what is less often investigated is the social impact of pragmatic disorders on the children and adults who are affected by them. In this paper, I examine what is known about pragmatic disorders in these clinical groups. I then consider the wider social consequences of these disorders, where consequences are broadly construed to include factors that act as indicators of social adjustment.

Keywords: autistic spectrum disorder; mental illness; occupational functioning; pragmatic disorder; right-hemisphere damage; schizophrenia; social adjustment; traumatic brain injury

1. Introduction

Children and adults whose primary communication disorder involves the pragmatics of language present many clinical and social challenges. These individuals are often not judged to be a priority for clinical intervention, as their intact articulation skills and normal intelligibility convey an impression of greater communicative competence than is actually the case. To the extent that individuals with pragmatic impairment are not perceived as disabled in the traditional sense, they often find themselves in social and occupational roles which place considerable demands on their communication skills. These roles expose significant deficits in their pragmatic language skills, a situation that can lead to much personal distress, social isolation and a lack of occupational success. These considerations are often overlooked in clinical communication studies, where the emphasis is on the characterisation of pragmatic disorders to the almost total neglect of the impact of these disorders on the social and psychological well-being of affected individuals. This paper attempts to redress this imbalance in the clinical literature by explicitly considering the social impact of pragmatic disorders on the children and adults who are affected by them.

Of course, any examination of the social impact of pragmatic disorders requires that we first consider what types of individuals experience these disorders and how they are manifested in terms of impairment of specific pragmatic language skills. One of the beneficial consequences of the intense clinical and academic interest in pragmatic disorders in recent years is that we are now able to give a reasonably full characterisation of both the clinical populations that experience pragmatic disorders and the exact nature of pragmatic impairment in these populations. Thus, clinical studies have examined pragmatic skills in individuals with autistic spectrum disorders, mental retardation, developmental language disorder, emotional and behavioural disorders, left- and right-hemisphere damage, schizophrenia, traumatic brain injury and neurodegenerative disorders (e.g. Alzheimer's disease). Of course, these populations are too numerous for each of them to be examined in this context (see Cummings (2005, 2007a, 2009) for detailed discussions of pragmatic disorders in these populations). We will, therefore, consider four of these populations with the most pronounced pragmatic impairments:

autistic spectrum disorders, schizophrenia, traumatic brain injury and right-hemisphere damage. Individuals with these conditions can exhibit severe pragmatic impairment often in the absence of articulatory defects and deficits in structural language skills. They are thus likely to match the characterisation of the pragmatically impaired client presented above. For each of these clinical populations, a brief overview of their pragmatic deficits will be presented. Having examined the pragmatic impairments in these respective populations, we will then be in a position to consider the social impact of these disorders.

2. Autistic spectrum disorders

The autistic spectrum disorders (ASDs) represent a diverse group of conditions that share impairments in communication, socialisation and imagination (the so-called 'triad of impairments'). The diagnostic criteria for ASDs are set out in the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2000), which is currently in its fourth edition. DSM-IV recognises five distinct diagnostic entities under the ASD umbrella: autistic disorder, Rett's disorder, childhood disintegrative disorder, Asperger's disorder and pervasive developmental disorder, not otherwise specified (PDD, NOS). The prevalence of these disorders varies between studies. In its review of autism research, the Medical Research Council in the UK found that the average prevalence from all studies published by the year 2000 is 10 per 10,000 for autistic disorder and 2.5 per 10,000 for Asperger's syndrome (MRC 2001). Significantly more males than females develop ASDs. Boys with the autism phenotype typically outnumber girls by at least four to one (Skuse 2000). Males constitute an even greater proportion of Asperger's syndrome cases. Gillberg (1989) reports a male to female sex ratio for Asperger's syndrome of 9-10:1. The only exception is Rett's disorder which is found almost exclusively in girls. (In Rett's disorder, there is marked regression of language and other skills after a period of normal development.) There has been an increase in ASD cases in recent years which may be related to changing diagnostic thresholds and better case ascertainment. Genetic, neurobiological and psychological factors have all been examined with a view to explaining the aetiology of ASDs (Rett's syndrome is the only disorder for which a clear genetic cause has been established). The

reader is referred to Cummings (2008) for a more detailed discussion of the clinical features, epidemiology and aetiology of ASDs.

Approximately 50 percent of individuals with autistic disorder do not develop functional speech (O'Brien and Pearson 2004). For those autistic individuals who do become verbal communicators, pragmatics is often markedly deviant. Pragmatic deficits are wide-ranging in nature and include difficulties in the production and comprehension of speech acts, in the use and understanding of non-literal language and in a range of conversational and discourse skills. Martin and McDonald (2004) found that individuals with Asperger's syndrome performed significantly more poorly than control subjects on tasks requiring the interpretation of ironic jokes. These subjects were more likely to conclude that the protagonist in stories was lying than telling an ironic joke. Surian (1996) examined the detection of utterances that violate Grice's maxims by children with autism. It was found that most of the autistic children in the study performed at chance on this detection task, while normal children and children with specific language impairment (SLI) performed above chance. Emerich et al. (2003) investigated the ability of adolescents with high-functioning autism or Asperger's syndrome to comprehend humorous material. Results confirmed the presence of a breakdown in the comprehension of humorous material in autistic subjects. Diehl et al. (2006) analysed the narratives of seventeen children with high-functioning ASDs. The narratives produced by these children were significantly less coherent than the narratives of typically developing children. Volden (2004) examined the conversational repair abilities of nine high-functioning ASD children when they were confronted with requests for clarification. ASD children were significantly more likely than language age-matched control subjects to use an inappropriate response when faced with a request for clarification.

Pragmatic disorders in ASD are increasingly being linked to theory of mind (ToM) deficits in this clinical population. Theory of mind describes the cognitive capacity to attribute mental states both to one's own mind and to the minds of others. To the extent that pragmatic interpretation involves the exchange and recovery of a particular type of mental state (viz., communicative intentions), it is unsurprising that pragmatic skills

should be disrupted in ASD clients. Ziatas et al. (2003) examined assertive speech acts in autistic children and children with Asperger's syndrome. It was found that autistic children used significantly lower proportions of assertions involving explanations and descriptions than SLI or normally developing children. When mental assertions were analysed further, it was found that children with autism and Asperger's syndrome referred predominantly to desire and made few references to thought and belief. Ziatas et al. relate these findings to ToM impairments in the autistic children. In their study of the interpretation of ironic jokes by individuals with Asperger's syndrome, Martin and McDonald (2004) found that second order ToM reasoning was significantly associated with the ability to interpret non-literal utterances. Hale and Tager-Flusberg (2005) examined discourse skills – specifically, the use of topic-related contingent utterances – and theory of mind in 57 autistic children. Over one year, autistic children made significant gains in the ability to maintain a topic of discourse. Theory of mind contributed unique variance in the contingent discourse skills of these children beyond the significant contribution made by language skills. Capps et al. (2000) found that the narrative abilities of 13 children with autism were linked to performance on measures of theory of mind and to an index of conversational competence. Studies such as these indicate the importance of considering cognitive factors within any discussion of pragmatic impairments in the ASD population.

3. Schizophrenia

Schizophrenia is a severe mental illness. According to the American Psychiatric Association (2000), prevalences of the disorder among adults are in the range 0.5% to 1.5% (although a lower lifetime prevalence of 4.0 per 1,000 is reported by Saha et al. (2005) in a review of prevalence estimates from 188 studies). Annual incidences are in the range of 0.5 to 5.0 per 10,000 (American Psychiatric Association 2000). The incidence of schizophrenia is significantly higher in males than in females and is also higher in migrants and those living in urban areas (McGrath 2006). The mean age at onset is typically lower in males than in females. Gorwood et al. (1995) report a mean age of onset of 27.8 years and 31.5 years in the males and females in their study, respectively. Diagnosis of schizophrenia proceeds according to the presence of positive

and negative symptoms which are described in DSM-IV (American Psychiatric Association 2000). Positive symptoms include thought disorder (disorganised and illogical thought), delusions (the holding of false and bizarre beliefs) and hallucinations (perception of things that do not exist), the most common of which are auditory hallucinations (the schizophrenic client hears voices). Negative symptoms involve the absence of normal behaviours. These symptoms include affective flattening, alogia (poverty of speech), apathy, avolition (absence of initiative or motivation) and social withdrawal. A further characteristic is grossly disorganised or catatonic behaviour. An individual must exhibit two (or more) of these symptoms, each present for a significant portion of time during a 1-month period.

Linguistic deficits in schizophrenia are now well documented (see Cummings (2008) for a detailed discussion). Amongst these deficits, pragmatic impairments represent by far the most severe and persistent barrier to effective communication. Behavioural evidence indicates that schizophrenic speakers perform poorly on tests of discourse planning and comprehension, understanding humour, sarcasm, metaphors and indirect requests, and the generation and comprehension of emotional prosody (Mitchell and Crow 2005). These pragmatic aspects of language 'are essential to an accurate understanding of someone's communicative intent, and the deficits displayed by patients with schizophrenia may make a significant contribution to their social interaction deficits' (Mitchell and Crow 2005: 963). Tényi et al. (2002) examined the ability of paranoid schizophrenic subjects to recognise the intended meaning behind violations of Gricean implicatures. Subjects had to identify the intended meaning in four question-and-answer vignettes in which the maxim of relevance was violated. Tényi et al. found that schizophrenic subjects made significantly more errors than normal control subjects in identifying the communicative intentions that lay behind violations of this maxim. Corcoran and Frith (1996) examined politeness and appreciation of the Gricean maxims of quantity, quality and relation in schizophrenic patients with different symptom profiles. Control subjects, schizophrenic subjects with paranoid delusions and schizophrenic subjects with negative symptoms adhered to the maxim of relation. However, all other maxims were flouted by subjects

with negative symptoms. Subjects with paranoid delusions often failed to respond in a polite fashion.

Meilijson et al. (2004) examined the pragmatic skills of 43 subjects with chronic schizophrenia using Putting and Kirchner's (1987) pragmatic protocol. Schizophrenic subjects displayed a high degree of inappropriate pragmatic abilities relative to a psychiatric control group (individuals with mixed anxiety-depression) and to subjects with hemispheric brain damage. Among the pragmatic parameters that were more than 50 percent inappropriate in the schizophrenic subjects in this study were topic selection, introduction, maintenance and change, lexical specificity/accuracy, prosody, turn-taking quantity/conciseness and facial expressions (in Cummings (2007b, 2009) I challenge the pragmatic nature of some of these features). Docherty et al. (2003) examined disturbances of referential communication in 48 schizophrenic patients. These patients scored significantly higher than control subjects on six types of referential disturbance – confused reference, missing information reference, ambiguous word meaning, wrong word reference, structural unclarity and vague reference (see Cummings (in press 2011) for discussion of the pragmatic nature of referential communication). There is also evidence that the processing of linguistic context is disrupted in schizophrenia. Such processing is integral to normal pragmatic interpretation. Bazin et al. (2000) conducted an experiment in which 30 schizophrenic subjects and 30 control subjects were required to complete sentences using the first word(s) that came to mind. Each sentence contained an ambiguous word, the less frequent meaning of which was primed by a preceding sentence. Only control subjects were able to use the linguistic context provided by the preceding sentence to prime the less frequent meaning of the ambiguous word. These studies clearly demonstrate that there is a significant burden of pragmatic disorder in individuals with schizophrenia.

4. Traumatic brain injury

Traumatic brain injury (TBI) is a significant cause of hospitalisation and disability in both children and adults. The Centers for Disease Control and Prevention (2007) report that in 2003, 28,819 people in nine US states (87.9 per 100,000 population) were

hospitalised with a TBI-related diagnosis. There are two types of traumatic brain injury. In a closed head injury, the brain sustains damage in the absence of a fracture of the skull. In an open or penetrating head injury, a foreign object (e.g. a bullet) penetrates the skull and enters the brain. Traumatic brain injury can be the result of a road traffic accident (a common cause of head injury in young males), trips and falls (particularly in young children and elderly people), a sports injury (boxing, skiing, etc.), violent crime (again, more common in young males) and child abuse. The immediate effects on the brain of a severe blow to the head – called primary brain damage – are variable and include a skull fracture, contusion or bruising (usually immediately below the point of impact or where the brain has been driven against one of the bony ridges on the inside of the skull), haematomas or blood clots (either in the brain or between the brain and the skull), lacerations (tearing of the brain's lobes and blood vessels against the skull's bony ridges) and diffuse axonal injury (damage to nerve cells in the brain's connecting nerve fibres). These primary brain injuries are usually followed, after a period of hours or days, by secondary brain injuries. Examples of such injuries include brain swelling (oedema), increased pressure inside the skull (intracranial pressure), epilepsy and intracranial infection.

The communication disorder in TBI presents clinicians with significant challenges in at least two respects. Firstly, there is a significant cognitive component to the communication disorder in TBI with TBI clients often experiencing executive function deficits which are related to frontal lobe pathology (e.g. rigidity, perseveration, poor planning and problem-solving skills). Such deficits are increasingly being linked to pragmatic impairments in the TBI population (McDonald 1992). Secondly, TBI clients can often pass conventional language batteries and yet exhibit bizarre communication skills that have been variously described as repetitive or overly talkative, confused and confabulatory and as exhibiting impoverished language content. Whether cognitive deficits or some other factors are ultimately shown to be the cause of these communication anomalies, what is clear is that the most marked deficits occur within the pragmatic and discourse skills of TBI clients. MacLennan et al. (2002) studied pragmatic impairments in 144 TBI patients, who ranged in age from 18 to 71 years. Ratings on a

pragmatic scale were based upon conversation, narrative discourse and procedural discourse. Pragmatic impairments were found in 86% of patients. Cohesion, repair, elaboration, initiation and relevance were the five scales with the highest frequency of impairment. Turkstra et al. (1995) examined pragmatic communication skills in three brain-injured adolescents. The pragmatic deficits in these subjects included an inability to use an alternative strategy to make a request when a first attempt failed, difficulty producing indirect requests (polite, direct requests were used instead), difficulty giving the procedural steps to a listener on how to play a simple board game, problems with the use of hints and the negotiation of requests and difficulty with a sarcasm task in which there weren't many contextual cues to aid the interpretation of verbally ambiguous conversational dyads.

Coelho et al. (2002) examined response appropriateness and topic initiation in the conversations of 32 closed head injured subjects. These investigators found that head injured subjects depended on their conversational partner (the examiner) to maintain the flow of the conversation and that they contributed information that did not facilitate the interaction. To compensate for these conversational impairments, the examiner asked more questions and introduced more topics than he did in conversations with non-brain-injured subjects. Togher and Hand (1998) examined the use of politeness markers during the telephone interactions of five TBI subjects with four different interlocutors (a bus service employee, the police, a therapist and the client's mother). These interlocutors varied in their contact with the TBI clients and their relationships of power and status to these clients. TBI subjects used significantly less politeness markers per clause than control subjects in the therapist, bus and police interactions. Unlike control subjects, TBI subjects were unable to vary the number of politeness markers used according to the tenor of the social relationship in each interaction. As well as pragmatic impairments being linked to executive function deficits in TBI, there is evidence that ToM deficits may account for the conversational difficulties experienced by TBI speakers. Conversational inference is the basis of all pragmatic interpretation with speakers and listeners engaged in a reciprocal inferential process that is aimed at achieving the exchange of communicative intentions. McDonald and Flanagan (2004) found that adults

with TBI were able to recognise these intentions in the form of speaker beliefs in videotaped conversational exchanges only when this information was explicitly given. Second-order ToM judgements were related to the ability to understand conversational inference.

5. Right-hemisphere damage

While the events that give rise to a traumatic brain injury can result in lesions in several different areas of the brain, right-hemisphere damage (RHD) or right brain damage (RBD) in adults is typically associated with a single, focal lesion. Focal damage in the right hemisphere of the brain is most often caused by strokes (cerebrovascular accidents), although brain tumours can also be a significant cause of focal damage in the right hemisphere. Although structural language deficits have been reported in clients with right-hemisphere damage, it was clear from the earliest investigations of these clients that such deficits were not responsible for the inadequate communication skills observed in RHD patients. In 1979, Myers published the first formal study of discourse-level communication disorders in RHD adults. The paper arose out of the author's observation that RHD stroke patients who were receiving clinical treatment for dysarthria (a speech disorder) and who had intact language skills were nevertheless communicating inadequately. Specifically, these patients produced 'irrelevant and often excessive information' and seemed 'to miss the implication of [a] question and to respond in a most literal and concrete way' (Myers 1979: 38). When attempting to respond to open-ended questions, these patients 'wended their way through a maze of disassociated detail, seemingly incapable of filtering out unnecessary information' (38). The components of a narrative, although available to these patients, could not be assembled into a narrative. There was difficulty 'in extracting critical bits of information, in seeing the relationships among them, and in reaching conclusions or drawing inferences based on those relationships' (39). Although the detail provided by these patients was related to the general topic, its appearance seemed irrelevant because it had not been 'integrated into a whole' (39).

Although Myers did not use the term 'pragmatics' to capture these communicative impairments, it is clear that the features which she had identified were part of a pragmatic disorder in her RHD patients. Today, that disorder is the focus of an increasing number of clinical studies. For example, the comprehension of non-literal language has been extensively investigated in the RHD population. Papagno et al. (2006) examined the comprehension of idioms in 15 subjects with RHD. Comprehension in these subjects was found to be severely impaired and was biased towards literal interpretation. Brundage (1996) examined the interpretation of proverbs in 10 subjects with RHD. Proverb familiarity and abstractness had a significant effect on interpretation. When explaining the meaning of proverbs high in abstractness, RHD subjects tended to produce literal explanations. Cheang and Pell (2006) administered tasks tapping humour appreciation and pragmatic interpretation of non-literal language to 10 subjects with RHD. Although the ability to interpret humour from jokes was relatively intact in these subjects, they had problems understanding communicative intentions. McDonald (2000a) relates problems comprehending sarcasm in RHD patients to their difficulty processing information about the emotional state, intentions and beliefs of the speaker. As with the other clinical populations we have examined, investigators are increasingly examining the link between pragmatic impairments in RHD subjects and a range of cognitive deficits. McDonald (2000b) reported that pragmatic performance in 18 patients with RHD was correlated to right-hemisphere visuospatial function, but not to executive function.

Discourse and conversation deficits in the RHD population have been widely studied. Lehman (2006) elicited discourse from 8 subjects with RHD. RHD subjects produced discourse which was rated as more tangential and egocentric than that produced by healthy older control subjects. Extreme verbosity or paucity of speech also characterised the discourse of RHD subjects. Marini et al. (2005) examined stories generated during two picture description tasks in 11 subjects with RHD, 11 subjects with left-hemisphere damage and 11 neurologically intact control subjects. The performance of RHD subjects was poorer than that of control subjects in terms of information content and the coherent and cohesive aspects of narrative production. Hird and Kirsner (2003) examined the ability of RHD subjects to take shared responsibility for the development of an

intentional structure in conversation. These investigators found that RHD speakers fail to use prosody to alert listeners to changes in discourse structure. Nor do they assume equal responsibility in conversation for the development and maintenance of discourse structure. The findings of these studies serve to confirm the early impression on the part of Myers of conversational and discourse deviance in subjects with RHD.

6. The social impact of pragmatic disorders

The above discussion by no means exhausts the research that has been conducted into the pragmatic skills of clients with autistic spectrum disorders, schizophrenia, traumatic brain injury and right-hemisphere damage. However, it does serve to demonstrate the quite substantial difficulties that are experienced by individuals who are often not a priority for clinical intervention on account of their relatively intact skills of articulation and structural language. The issue for the rest of this paper is the extent to which these impairments of pragmatics impact upon the lives of those who are affected by them. The impact of any communication disorder can be assessed along a number of parameters, including employment prospects and occupational success, mental health status and social integration. For the purpose of this section, we will consider all occupational and psychosocial indicators within an assessment of the social impact of pragmatic disorders. From the outset, it is worth emphasising that much of the evidence that I will adduce is necessarily indirect in nature. This is because it is only in recent years that researchers in clinical communication science have even attempted to quantify the psychosocial impact of communication disorders. Typically, this research has been undertaken as a means of demonstrating that there is a substantial need for the clinical services of speech and language therapy. However, pragmatic disorders and the clinical populations that are particularly affected by these disorders have been largely overlooked by such impact research. Nevertheless, based on the limited impact research that has been conducted to date and on what is known about how pragmatic disorders affect communication, a convincing case can still be made for the claim that pragmatic disorders create a substantial social burden for the children and adults who are affected by them.

Individuals with autistic spectrum disorders are at particular risk of social exclusion and occupational disadvantage. Pragmatic deficits in ASD children create considerable social interaction difficulties for these children. It is widely recognised that autistic children struggle to comprehend the teasing behaviour of other children and cannot use teasing effectively in social interaction. An examination of the skills that are involved in teasing makes it clear why this is the case. The comprehension of teasing requires an ability to understand intention, non-literal communication, pretence and social context (Heerey et al. 2005). The pragmatic and theory of mind skills that are the basis of these abilities are known to be impaired in ASD speakers. The playful jibes of other children during teasing are likely to be construed by ASD children as hostile interactions. This may explain the finding by van Roekel et al. (2010) that ASD adolescents who scored high on self-reported victimization were more likely to misinterpret non-bullying situations as bullying.¹ The failure to manage interpersonal interactions puts ASD children at risk of adverse psychosocial consequences. Bauminger and Kasari (2003) examined loneliness and friendship in 22 high-functioning children with autism and 19 typically developing children aged 8 to 14 years. Children with autism were both lonelier and had less complete understandings of loneliness than typically developing children. The quality of friendships in the autistic children was poorer in terms of companionship, security and help, although all children reported having at least one friend. Hedley and Young (2006) found that depressive symptoms in 36 children aged 10 to 16 years with Asperger's syndrome were significantly correlated with a Social Comparison Scale, and specifically with perceived group membership in that scale. Depression scores were significantly and independently predicted by perceived group membership.

The psychosocial consequences of social interaction and communication problems in ASD do not cease in childhood. Moreover, in adulthood factors such as occupational

¹ This is not to deny that ASD children experience significant levels of teasing and bullying. In a study of 20 pupils with Asperger's syndrome drawn from four secondary schools in north-west England, Humphrey and Lewis (2008) found that bullying and teasing were experienced at different levels of severity and regularity by nearly all pupils.

functioning become prominent for the first time. These issues are particularly pressing for autistic individuals with normal intelligence, many of whom wish to attain social integration and secure employment.² Whitehouse et al. (2009) compared the adult psychosocial outcomes of children with high-functioning ASD, specific language impairment (SLI) and pragmatic language impairment (PLI). Subjects with ASD had lower levels of independence and more difficulty obtaining employment than subjects with SLI or PLI. Although all groups experienced difficulty in establishing social relationships, these problems were most evident in the ASD and PLI groups. Hofvander et al. (2009) examined psychosocial outcomes in 122 adults with ASDs without concomitant intellectual disability. Verbal and non-verbal communication deficits were common in these subjects. Although educational level was high in this sample (65% had graduated from upper secondary school and 24% had completed college or university studies), only 43% were employed or were students at the time of assessment. Amongst subjects aged 23 years or more, half had independent living arrangements. Only 16% had lived in a long-term relationship. Poor psychosocial outcomes are also evident in ASD adults with intellectual disability, even when controlling for IQ. Esbensen et al. (2010) examined variables indicative of independence in adult life in 70 adults with ASD and intellectual disability and 70 age-matched adults with Down's syndrome. Adults with ASD had less residential independence and social contact with friends, had more limited functional abilities and literacy and displayed more behaviour problems than adults with Down's syndrome. ASD adults were less likely to be classified as having high or moderate levels of independence in adult life compared to Down's syndrome adults.

Psychosocial and occupational outcomes in individuals who sustain traumatic brain injury have been extensively documented. Almost without exception, studies have revealed that TBI survivors, even those who sustain mild head injuries, experience

² In a review of 23 studies that comprised 1,533 subjects with autism, Fombonne (1999) reported the median proportion of autistic subjects without intellectual impairment to be 19.3 percent.

significant social integration problems and occupational disadvantage.³ In a national survey in Canada, Dawson and Chipman (1995) described how 75% of TBI survivors living in the community were not working. As many as 90% reported problems with social integration. When communication impairments are considered in outcome studies, more often than not these impairments relate to articulation defects⁴ or deficits in structural language.⁵ However, a small but growing number of studies are beginning to examine the contribution of pragmatic disorders, variously construed as impairments of discourse and social communication, to psychosocial and occupational outcomes in TBI clients. Struchen et al. (2008) examined the relationship between social communication measures and occupational and social integration outcomes in 121 individuals with TBI. It was found that social communication performance accounted for a unique 5.6% of the variance in occupational outcomes and 7.9% of variance in social integration outcomes.

Dahlberg et al. (2006) assessed the association between social communication skills problems and participation outcome measures in 60 subjects with TBI who were at least one year post-injury. Outcome measures examined societal participation, social

³ It is worth remarking that most traumatic brain injuries are mild. The ratio of mild to moderate to severe brain injuries is 8:1:1 (Kraus and McArthur 1996).

⁴ Lippert-Grüner et al. (2002) examined the one-year outcome of 48 patients who sustained severe traumatic brain injury. Only 45.8% of these patients had returned to work or were able to do so without restrictions. Speech deficits were significantly more frequent in those individuals who were not able to work or were only able to do so very restrictedly. Along with behavioural deficits, speech deficits were the major cause that hindered professional reintegration in these patients.

⁵ Galski et al. (1998: 769) remark that '[c]onventional approaches to the study of communication problems after TBI have focused on the form of language production and expression, usually in terms of phonological, semantic and syntactical features'. However, as these authors acknowledge, most TBI subjects can perform within the normal range on these conventional indicators and still exhibit communicative deficits.

integration and life satisfaction. Problems with social communication skills were identified by TBI subjects, their significant others and clinicians. Dahlberg et al. found that problems with social communication skills as identified by TBI subjects were associated with lower ratings of community integration and satisfaction with life. Higher scores in social communication and social integration were reported by males than by females. Clinicians and significant others reported more social communication deficits than TBI subjects. Galski et al. (1998) examined conversational, narrative and procedural discourse in 30 patients with TBI. These investigators aimed to establish if discourse variables were related to measures of outcome defined as community integration and quality of life. Variables examined in each genre included discourse efficiency, complexity, topic management, information and pragmatic behaviours. More time for task completion, and greater wordiness and more topics in the narrative and procedural tasks were associated with lesser social integration in TBI subjects. Five discourse variables (time, orderings, and T-units in the narrative task; non-repairs and revisions in the conversational task and words per T-unit in the procedural task) predicted 64.5% of the variance for social integration in these subjects. Poorer quality of life in persons with TBI was related to greater production of uninformative language in narrative discourse and failure to repair errors in procedural discourse. Discourse variables correlated more strongly with social integration than age, gender, education and other conventional psychosocial factors.

Psychosocial and occupational outcomes have been extensively investigated in schizophrenic adults. This said, few studies have examined the contribution of pragmatic disorders to the occupational functioning, psychological well-being and social integration of adults with schizophrenia. Bowie and Harvey (2008) examined if two types of communication abnormalities – verbal underproductivity and disconnected speech – were related to social and adaptive outcomes at 2.5 years in a sample of 317 chronically institutionalised schizophrenic patients. Disconnected speech was significantly associated with socially impolite behaviour at baseline, while verbal underproductivity was associated with impaired friendships and social disengagement. Social skills, social engagement and friendships recorded at a follow-up session were predicted by verbal

underproductivity. Communication abnormalities did not predict adaptive outcomes. Dickinson et al. (2007) studied social/communication skills performance in 29 schizophrenic patients with a history of good vocational functioning and 26 patients with a history of poor vocational functioning. A measure of social competence that examined communication skills was used to assess both groups of schizophrenic patients. Patients were presented with scenarios in which they had to initiate workplace conversations and make requests of a boss. Social/communication skills were significantly impaired in the group of patients with poor vocational functioning relative to patients with good vocational functioning. Even after controlling for cognitive performance, social/communication skills remained an independent predictor of vocational functioning. Finally, pragmatic disorders in schizophrenia have been linked to ToM deficits which have, in turn, been related to social outcomes in schizophrenic clients. Bora et al. (2006) examined the relationship between ToM and social functioning in 50 schizophrenic patients. A ToM task requiring mental state decoding was the best predictor of social functioning in these patients.

Clinical studies demonstrating adverse psychosocial outcomes linked to pragmatic deficits in RHD adults are particularly limited in number. This is despite the fact that researchers frequently remark upon the social difficulties that are experienced by RHD patients as a result of their communication deficits. Bryan (1988) administered tests of metaphorical comprehension, the understanding of inferred meaning and humour to 30 right hemisphere vascular damaged and 30 aphasic left hemisphere vascular damaged (LHD) subjects as well as a control group of neurologically intact subjects. To assess functional communication in these patients, a discourse analysis was also performed. RHD subjects made significantly more errors than control subjects on all language tests and more errors on the metaphor picture test, the inferential meaning test and the discourse test than LHD subjects. The evident difficulties of RHD subjects with the pragmatics of language occurred alongside relatively intact structural language skills (the performance of RHD subjects on an aphasia test was not significantly different from that of control subjects). However, it is Bryan's remarks on the functional communication skills of the RHD patients that lead one to expect that these subjects will be at risk of

considerable social disadvantage. These subjects were described as discussing ‘highly personal or emotional issues at an inappropriate time’ and as failing ‘to change the subject despite efforts from the listener to indicate that this was desired’ (Bryan 1988: 121). During re-test visits conducted 3 months later at home, it was observed that some subjects ‘were quite withdrawn and rarely contributed spontaneously’, while other subjects ‘had offended various family members or friends because of offensive comments or inappropriate conversations’ (Bryan 1988: 122).

Tompkins et al. (1998) address the issue of functional outcomes in adults with right hemisphere brain damage (RBD). According to these investigators, the role of pragmatic and discourse impairments in such outcomes has been all but neglected, a point that is reflected in their observation that ‘there are no measures of handicap stemming from cognitive or communicative disorders that have been tailored for people with RBD’ (Tompkins et al. 1998: 310). They give examples of the potential links that may exist between pragmatic and discourse impairments in adults with RBD and the disabilities experienced by these adults. RBD adults are likely to exhibit difficulty in participating in social interactions of all kinds. They may miss indirect hints, emotional and nonverbal nuances. They may lose or alienate listeners through disinhibition and other unusual behaviour. These cognitive-communicative behaviours may create embarrassment for family members that further limits opportunities for social interaction and communication: ‘Adults with RBD may be stigmatized as bizarre, inappropriate, uncaring, lewd, or otherwise unsettling to be around...Affected persons, whether patients or families, may experience financial insecurity and social isolation due to loss of job and income, loss of friends, and loss of intimacy’ (Tompkins et al. 1998: 307). In order to better understand these functional outcomes, Tompkins et al. (1998: 315) call for basic research to be conducted in this area: ‘to determine what outcomes to measure and whether or how we can influence them in treatment, we must investigate the range of disabilities and handicaps that accompany cognitive-communicative impairments in RBD adults’.

One of the studies discussed by Tompkins et al. demonstrates why there is a need for the type of outcomes research that is advocated by these investigators. Klonoff et al. (1990) examined vocational, behavioural and social outcomes following rehabilitation in three adults with RHD. They found that measures of speech and language function tended to underestimate the impact of RHD on the functioning of these patients in a number of domains. Despite having articulate verbal skills, all three patients had marked deficits in pragmatics. These deficits, which were particularly evident in unstructured social situations, included instances of hyperverbality, tangentiality, inappropriate comments and humour, and poor eye contact and turn-taking skills. Family members reported a childish quality to the patients' communication style. The patients often blamed others during disagreements and failed to appreciate how their own behaviour had contributed to interpersonal tensions. The colleagues of one patient, who had returned to work as a community college lecturer, identified significant problems, including deficits in pragmatics. This patient had to reduce his participation in lecture activities, was unable to return to his administrative position and resigned from his other community involvements. Klonoff et al. (1990: 161) concluded that 'these patients suffered profound effects on their emotional, psychosocial, domestic, and vocational functioning. In this respect, the consequences of impaired pragmatic communications skills are liable to be underestimated'.

7. Summary

The social domain, broadly construed, has been too often neglected in clinical communication research. Yet, as the studies in the preceding section have demonstrated, it is within this domain that pragmatic disorders have their greatest and most adverse impact on the lives of individuals who are affected by these disorders. If clinicians and researchers are to devise assessments and treatments that serve the needs of pragmatically disordered children and adults, the place of pragmatic impairments in the social domain needs to be better understood. It is hoped that by emphasising the social impact of pragmatic disorders, this paper can be seen as taking a tentative, first step in this direction.

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