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A Comparison of Methodologies in a Diagnostic Overshadowing Study: Clinical Impressions of Short Case Presentations

by

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Thesis Abstract

The diagnostic overshadowing bias is a proposed clinician cognitive bias affecting the accuracy of the diagnosis of mental disorders in people with learning disabilities. It has been fairly consistently demonstrated that a variety of clinicians display this bias in response to short case descriptions. The majority of studies assessing this proposed bias have, however, adhered to one analogue methodology. Studies that have not adhered strictly to this methodology have had more mixed results. The fact that this proposed bias has only been clearly demonstrated within a single methodological approach raises questions about its validity.

The current review critically assesses diagnostic overshadowing with regard to clinical standards of assessment, and with reference to the decision-making literature. The relationships between these areas of psychological knowledge have implications for the validity of diagnostic overshadowing research. These are discussed, as are the clinical implications, and implications for future directions of research in this field.

The second part of this study describes a piece of research that manipulated the presentation of diagnostically relevant case information to clinicians, and assessed the impact of this on the diagnostic overshadowing bias. Relationships between length of clinical experience and diagnostic and treatment ratings were explored, and an initial examination of the use of standardised assessment tools in clinical practice was undertaken. Implications for research into diagnostic overshadowing are discussed, as are the clinical implications.

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Literature Review

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Running head: THE VALIDITY OF THE DIAGNOSTIC OVERSHADOWING BIAS

A Comparison of Methodologies in a Diagnostic Overshadowing Study: Clinical Impressions of Short Case Presentations

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Abstract

The diagnostic overshadowing bias is a proposed clinician cognitive bias affecting the accuracy of the diagnosis of mental disorders in people with learning disabilities. Reiss, Levitan, and Szyszko (1982) demonstrated this effect empirically. They asked two groups of clinicians to make diagnostic and treatment recommendations for a hypothetical client presented in a short case vignette. The two groups received identical case vignettes, except that one group was told that the individual was of average intelligence, and the other that the individual had a mild learning disability. The correct diagnosis of schizophrenia was significantly less likely to be applied to the client with learning disabilities than to the client with average intelligence. Treatment recommendations also differed significantly between groups.

A series of studies replicated and extended these results, generally using the same methodological approach. Two studies that introduced variations to this format did not, however, find clear support for diagnostic overshadowing. The fact that this proposed bias has only been clearly demonstrated within a single methodological approach raises questions about the validity of the findings.

The current review looks in detail at the process of assessing for mental disorders in people with learning disabilities. It also considers the diagnostic overshadowing bias in relation to psychological models of decision-making. The relationships between these areas of psychological knowledge have implications for the validity of diagnostic overshadowing research. These are discussed, as are the clinical implications, and implications for future directions of research in this field.

Introduction

This review will focus on mental health problems in people with learning disabilities. There is considerable evidence that mental health problems are under diagnosed in this population (Borthwick-Duffy, 1994; Moss, 2001; Reiss, Levitan, & McNally, 1982). One possible reason for this is a proposed clinician cognitive bias referred to as the 'diagnostic overshadowing bias' (Reiss, Levitan, & Szyszko, 1982). This hypothesised bias will form a central part of this review.

The basic tenet of diagnostic overshadowing is that the intellectual deficit in someone with a learning disability is such a salient feature that any accompanying mental health problems are less likely to be recognised on psychiatric assessment (Alford & Locke, 1984). In other words, diagnostic overshadowing is a cognitive bias on the part of the clinician, resulting in under-recognition of mental health problems in the learning disabled population.

As will be shown, the body of literature supporting the existence of this bias has strengths and weaknesses. These will be explored. Fundamental to a critical assessment of this area of research is the validity of the findings on diagnostic overshadowing. Is this an actual clinical bias, or is it limited to the artificial experimental situations in which it has been demonstrated?

To explore this question fully, it is necessary to draw together a number of areas of relevant clinical and theoretical knowledge. Firstly, an awareness of the impact of a learning disability on the normal assessment process is vital to accurate assessment.

The practical challenges faced by the clinician in diagnosing mental disorders in people with learning disabilities will therefore be reviewed.

The second step will be to summarise the range of information that is required to make an accurate diagnosis of mental disorders in people with learning disabilities. There is agreement that detailed and objective data around certain issues are required for accurate assessment (Reiss, 1994).

Third, the findings to date in the diagnostic overshadowing literature will be critically reviewed and discussed in depth.

Fourth, the psychological literature on human decision-making will be reviewed. This literature serves not only as a theoretical basis for the overshadowing bias, but also provides some interesting points for consideration in assessing the validity of the research.

The relationship between these four areas of research will form an essential part of this review. The basic question of the validity of the diagnostic overshadowing bias will be explored in relation to each. Implications for future research will also be considered.

For the purposes of this review, mental health problems will be conceptualised with reference to psychiatric diagnostic categories. It is acknowledged that this perspective is open to criticism, and also that there are other ways of conceptualising mental disorders. It is recognised in the literature that the authors of DSM-IV could

not have been entirely value-free, but it can also be argued that the existing developmental structure in DSM represents a reasonable approach to resolving the tension inherent in a scientifically based but value-laden process (Widiger, 2002). It is also the case that the research that will form much of the basis of this review has been rooted in psychiatric conceptualisations of mental disorders, and this, combined with the dominance of this approach within mental health services in this and other countries, provides a logical basis for its use in this review.

To facilitate this review, essential terms will be defined, epidemiological data will be presented, and some background information about mental heath services for people with learning disabilities will be discussed:

Definitions:

"Mental retardation" is the term commonly used in the United States which corresponds to the U.K. term "learning disability". The Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) (DSM-IV, APA, 1994) defines mental retardation as "significantly subaverage general intellectual functioning (Criterion A) that is accompanied by significant limitations in adaptive functioning ... (Criterion B). The onset must occur before the age of 18 years ... (Criterion C)."

Emotional and mental health problems will be referred to as 'mental disorders'. DSM-IV defines a mental disorder as "... a clinically significant behavioural or psychological syndrome or pattern that occurs in an individual and that is associated with present distress (e.g. a painful symptom) or with a significant increased risk of suffering death, pain, disability, or an important loss of freedom ... this ... must not

be merely an expectable and culturally sanctioned response to a particular event, for example, the loss of a loved one ... Neither deviant behaviour ... nor conflicts that are primarily between the individual and society are mental disorders unless the deviance or conflict is a symptom of dysfunction...".

The coincidence of a learning disability and a mental disorder will be referred to as 'dual diagnosis' (Berrios, 1994).

It should be noted at this point that alternative systems of categorising mental disorders exist. The International Statistical Classification of Diseases and Related Health Problems (ICD-10) (World Health Organisation, 1992) is widely used outside of the United States (and is commonly used within the NHS). The majority of the literature contained within this review, however, refers to DSM diagnostic categories, and this will therefore also be the case for the remainder of this discussion.

Epidemiological data:

There is a general consensus that people with learning disabilities can and do display the range of mental disorders presented in DSM-IV (Balthazar and Stevens, 1974; Reiss, 1994; Sovner & Hurley, 1986; Szymanski & Tanguay, 1980).

It is also generally agreed that, for a variety of reasons, people with learning disabilities are at an increased risk of developing mental disorders (Borthwick-Duffy, 1994; Reiss, 1994). Risk factors, such as impoverished social and physical environments, lack of social support, lack of choice, and lack of resources are

frequently present in the care system. Therefore, the prevalence of psychopathology in people with a learning disability may even exceed rates found in the non-learning disabled population (Eaton & Menolascino, 1982; Matson & Barrett, 1982; Reiss, 1994; Rojahn & Tasse, 1996; Sevin & Matson, 1994).

The prevalence of dual diagnosis among adults with learning disabilities is estimated to be between 10% and 40%. This variation in prevalence estimates is likely to be due to both definitional and sampling issues (Borthwick-Duffy, 1994). Definitions of both learning disability and mental disorders have shifted depending on the source of the data under examination. For example, in some studies, 'behavioural problems' have been categorised as psychiatric disorders, and in other studies they have not.

Reiss (1990) carried out an interesting study demonstrating that variability in prevalence estimates can result from different approaches used to assess psychopathology. The study was conducted in community-based day programmes in the Chicago metropolitan area. Prevalence estimates were taken from three sources: case file information; the Reiss Screen for Maladaptive Behaviour (1988); and assessment by clinical psychologists. The results yielded prevalence estimates of 11.7%, 39%, and 59.5%, respectively.

Prevalence estimates are also seriously affected by the selection of the target population that is examined. A variety of populations have been examined, including GP referrals, residents in supported accommodation, residents in institutional care, and populations who access various services (such as psychology services, social services, etc.). Overall, prevalence estimates are highest for groups referred for

psychiatric evaluation (25-71%), and lowest for studies based on case records (10-15%) (Borthwick-Duffy, 1994).

It should be noted that there are difficulties in assessing prevalence rates of mental disorders in people in the non-learning disabled population. However, prevalence studies for the non-learning disabled population have consistently yielded estimates significantly lower than those discussed above for the learning disabled population (Borthwick-Duffy, 1994; Sturmey, 1998). Definitional and sampling difficulties are only likely to be compounded by the presence of a learning disability in the assessment process.

Mental health care for people with learning disabilities:

People with learning disabilities are underserved by mental health care systems (Moss, 2001). Over the past twenty years, there has been growing concern over the failure to recognise and treat mental health problems occurring in this population (Russell & Tanguay, 1981). It has been observed that people with a learning disability do not receive psychotherapy, counselling, and other mental health services proportionate to their apparent need (Reiss, Levitan, & McNally, 1982).

White et al. (1995) estimated that people with a learning disability could expect about a 20% drop in diagnostic accuracy when compared to individuals with comparable symptoms but no other disability. A lack of accuracy in assessment will automatically lead to a lack of provision of sufficient or appropriate treatment.

The reasons for this lack of recognition and treatment are complex, and there remain areas of fundamental disagreement. As stated above, four areas of research and clinical knowledge relating to this short-coming will be discussed. These will now be reviewed in turn:

Difficulties associated with making accurate dual diagnoses

There are practical, service, and theoretical difficulties associated with the accurate diagnosis of mental disorders in people with learning disabilities.

Practical issues:

The clinical interview is the cornerstone of psychiatric assessment. During this interview, the client is asked to communicate details of intellectual, emotional, and behavioural experiences. These experiences are recorded by the clinician and a judgement is made as to whether or not they constitute symptomatology consistent with one or more possible diagnoses. Various aspects of communication are likely to be affected in the context of a learning disability, however. It may not be possible for the individual to comprehend or to respond to assessment questions. Furthermore, emotional and cognitive experiences are abstract concepts. Abstract reasoning is likely to adversely affected in the context of a learning disability.

Finlay & Lyons (2001) present a comprehensive account of the practical considerations and potential difficulties that are involved when gathering self-report data from people with learning disabilities. Briefly, some of the other major difficulties include acquiescence, difficulties in judging quantity or frequency of

experiences, difficulties discriminating between real and imagined experiences, and overly literal interpretations of diagnostic questions.

Service issues:

The way that social and health care services have developed is likely to have contributed to a lack of accurate assessment of mental disorders in people with learning disabilities. Mental health services have developed separately from and parallel to learning disability services (Borthwick-Duffy, 1994; Coelho & Saunders, 1996). Services and funding have generally been devised on the assumption that learning disability and mental disorders do not co-occur. This separation between systems has left a gap into which many individuals with both learning disabilities and mental disorders have fallen. Such individuals are often shuttled between the two services, and in the process are left unserved.

Theoretical issues:

It is also possible that the behavioural approach to the care of people with learning disabilities has complicated the issue of conceptualising mental disorders in this population (Sturmey, 1998).

The behavioural approach focuses on modifying, replacing, or eliminating problem behaviours. It is well suited to organised or institutional care, and is effective in reducing challenging behaviour. Management of challenging behaviour is a fundamental concern of many services for people with a learning disability, and is one of the most common reasons for referral to psychiatry or psychology (Fraser & Nolan, 1994).

Within the behavioural approach, the cause of the behaviour is located in the environment, and it is therefore not necessary to search for, or to try to conceptualise underlying problems in the individual. Because of this, mental disorders *per se* are not relevant. While a behavioural conceptualisation does not preclude the existence of underlying mental health problems, it may reduce discussion of such possibilities (Sturmey, 1998).

There is also evidence to suggest that challenging behaviours can be symptomatic of mental health problems (Moss, 2001). For example, some forms of self-injurious behaviour may constitute atypical presentations of OCD. They can be repetitive, ritualistic, and stereotyped, are often seemingly unrelated to immediate demands, and are extremely resistant to change.

It is important to note that whatever approach is used to conceptualise disordered thought and behaviour, it is not actually necessary to distinguish between 'behavioural problems' and mental disorders under DSM-IV. DSM-IV makes no claims about the aetiologies of many mental disorders, and so long as the diagnostic criteria are met, then a diagnosis is appropriate (Garb, 1998).

The difficulties discussed above present real challenges to accurate diagnosis. They result in problems in the collection and interpretation of assessment data, and they may also result in a limited conceptualisation of the mental health problems of people with learning disabilities. Given these challenges, how are accurate diagnoses to be made?

In recent years there has been increased discussion about exactly which data are required in order to make accurate diagnoses within this population. There is general agreement that careful, objective, and thorough assessment processes are of paramount importance. Other more specific requirements will be now be summarised:

Requirements for making accurate diagnoses of mental disorders in people with learning disabilities

Understanding premorbid levels of functioning:

An individual with a learning disability can usually be expected to function at his or her level of competence and behave rationally at that level (Coelho & Saunders, 1996). A mental disorder, as defined by DSM-IV, will commonly inhibit an individual's functioning. With the exception of personality disorders, mental disorders have periods of onset and represent deteriorations in behaviour from the premorbid state. An individual with a dual diagnosis would therefore be expected to be functioning below their natural level. At baseline, however, behaviour, affect, and cognition are likely to be atypical in a person with a learning disability. An obvious first requirement of accurate diagnosis, therefore, is an understanding of that individual's pre-morbid level of functioning.

An understanding of previous levels of functioning should be based on data that are as objective as possible (Reiss, 1994). Accounts from family members, carers, or people involved in day services or employment are often valuable sources of

information. Psychological and medical records can provide assessments of previous cognitive and functional abilities. In order to establish the severity of current difficulties, these need to be measured and compared to previous levels of functioning. Again, obtaining multiple observations and descriptions of the individual's behaviour over time is necessary.

Discriminating between diagnostically relevant symptoms and other forms of maladaptive behaviour:

A second key requirement is the separation of diagnostically relevant symptoms from other forms of maladaptive behaviour. It is important to be sensitive to environmentally dependent factors (such as failed attempts to communicate or aberrant behaviours that have been inadvertently reinforced) and environmentally independent factors (such as the person's stage of development) (Weissblatt, 1994). It has been suggested that a person with a learning disability may develop maladaptive behaviours that are 'non-specific' effects of developmental disabilities (i.e. they may be caused by limited communication skills or organic deficits).

Sovner and Hurley (1986) suggested that there were four non-specific effects of a learning disability that could result in abnormal or maladaptive behaviours. These are intellectual distortion, which relates to deficits in abstract thinking and expressive and receptive language skills; psychosocial masking, which relates to the effect of limited or impoverished social experiences; cognitive disintegration, which relates to a lower toleration of stress; and baseline exaggeration, which refers to the increased severity and frequency of longstanding maladaptive behaviours that may predict the onset of a psychiatric illness.

These non-specific effects can result in difficulty in expressing subjective experiences, a bland presentation of symptoms, the presentation of symptoms that are related to stress and not mental disorders, or the presentation of symptoms that represent maladaptive coping strategies and not mental illness.

The degree to which the diagnostic process is affected also depends on the severity of the individual's learning disability and their overall life experience. DSM-IV criteria can be used with individuals who have moderate to mild learning disabilities without difficulty, as long as the above issues are taken into account. Certain behaviours or symptoms of mental disorders in people with learning disabilities will lead to a diagnosis as specific as that observed in the general population. Given the appropriate amount of information and having performed the appropriate tests to rule out organic or other causes, a confident diagnosis consistent with DSM-IV criteria can be made (Coelho & Saunders, 1996).

In general, Reiss (1994) suggested the following four principles for deciding when behaviour is symptomatic of a mental illness: Diagnose patterns of symptomatology (as required by diagnostic criteria); diagnose changes in behaviour; make allowances for the impact of the learning disability on the expression of symptomatology; admit limitations of knowledge.

Diagnostic Overshadowing

The issues discussed so far highlight the challenges and special requirements of accurate assessment of mental disorders in people with learning disabilities. Careful

attention to these issues should result in more accurate assessment. As stated earlier, however, it has also been suggested that the way in which clinicians make diagnostic decisions is another crucial issue in the under-recognition of mental health problems in people with learning disabilities (Jopp & Keys, 2001). The issue of clinical decision making in general, and the diagnostic overshadowing bias in particular, will form the subject of the next section of this discussion.

In order to establish the context for a critical discussion of the research on the diagnostic overshadowing bias, issues of reliability and validity of the diagnostic decision-making process itself need to be highlighted.

Reliability:

The reliability of the diagnosis of mental disorders has dramatically improved over the last thirty years. Improved training, the development of specific and explicit diagnostic criteria, and the use of structured interviews and assessment tools have contributed to this improvement. The introduction of DSM-IV was an important step in improving the accuracy of diagnosis of mental disorders in people with learning disabilities. Before DSM-IV, mental disorders and mental retardation (learning disability) were contained within the same diagnostic axis. It was therefore possible for clinicians to meet pressure to make a diagnosis with a single diagnosis of mental retardation. Any behavioural problems could be conveniently contained within this diagnosis. DSM-IV separated learning disability and psychiatric disorders and placed them on separate axes.

The separation of learning disabilities from psychiatric disorders was linked with a recognition that dual diagnoses of learning disability and mental disorder were possible and descriptive of some people's problems.

These developments have potentially large gains for reliability of diagnosis. Some studies have shown, however, that this potential is not fully utilised in clinical practice. It has been suggested that there is a lack of adherence to these criteria in clinical practice and that this compromises the accuracy of diagnosis (Garb, 1998).

Reliability will be low when clinicians adhere to diagnostic criteria in an idiosyncratic or excessively flexible way. Empirical research indicates that clinicians frequently do not attend to criteria when they make diagnoses (Blashfield & Herkov, 1996; Davis, Blashfield, & McElroy, 1993; Jampala, Sierles, & Taylor, 1988). For example, Davis et al. (1993) asked clinicians read case histories and make diagnoses when various numbers of symptoms were reported. Almost three quarters made a diagnosis before sufficient criteria were satisfied.

Validity:

The validity of clinical diagnosis is a more complex issue than its reliability. An unreliable process is unlikely to be a valid one. Ultimately, new developments such as psychological assessment tools are validated by comparing them with diagnoses made by in clinical practice. If psychiatric diagnosis is an unreliable process, then this procedure has limitations. It is important to note, however, that diagnostic categories are open concepts. A working definition that will develop as more is discovered can still be useful (Garb, 1998).

The overshadowing bias:

Bearing in mind these general points, it is possible to look more closely at factors that might impact in specific ways on the reliability and validity of the diagnostic process. A diagnosis of a mental disorder is the result of a complex process, involving the gathering and processing of a large amount of data from a variety of sources. Commonly, a single clinician, often a psychiatrist or psychologist, will direct the diagnostic process and carry out a large proportion of the diagnostic work. If this individual approaches the diagnostic process with beliefs that do not reflect the clinical reality, or makes errors in judgement, then the resulting diagnosis is likely to be unsound.

Diagnostic overshadowing has been proposed as a process by which a bias such as this might occur. The basic tenet of diagnostic overshadowing is that the intellectual deficit in someone with a learning disability is such a salient feature that accompanying emotional and behavioural disturbances are 'overshadowed' in importance by its presence. Reiss, Levitan, and Szyszko (1982) hypothesised that the presence of a learning disability decreases the significance of abnormal behaviour that is usually considered to be indicative of a psychological disorder. They also suggested that there was something about cognitive impairment in particular as compared to other impairments (e.g. physical disability) that played a unique role in eliciting the overshadowing phenomenon.

Investigators had referred to the possible existence of such phenomena during the 1960s and 1970s (Sarason & Doris, 1969). This had not, however, been

demonstrated experimentally. Reiss, Levitan, and Szyszko (1982) carried out two controlled experiments designed to evaluate the existence of diagnostic overshadowing. These experiments will be described in some detail because the majority of subsequent research into diagnostic overshadowing has been based on this format.

The first experiment was designed to evaluate the extent to which overshadowing effects were generally related to the presence of multiple disabilities (i.e. not just learning disabilities). Three groups of psychologists gave their initial diagnostic impressions of a case description that suggested phobia. The short case description that was used (about 70 words in length) described an individual who had been commuting by bus to his job in a fast-food restaurant until he accidentally took the wrong bus home, ended up in a high crime area, and was then robbed. He subsequently refused to use the bus and gave up his job. This information was intended to suggest an acute phobic reaction precipitated by a traumatic psychosocial experience.

The three groups of participants received identical case descriptions, but were given three different pieces of introductory information. The first introduction suggested that the individual had a learning disability; the second that the individual was suffering from alcoholism (and was of average intelligence); the third that the individual was of average intelligence without any other significant mental or physical health issues.

A total of 48 psychologists participated. They rated, on a Likert-type scale, the likelihood that the individual in the case vignette was psychotic, neurotic, tense, emotionally disturbed, or irrational. Analysis of the clinicians' responses showed that the labels psychotic, neurotic, irrational, and emotionally disturbed were significantly less likely to be applied to the learning disability condition than to either of the other two conditions. There were also some significant differences between ratings made for the normal intelligence condition and the alcoholism condition. Reiss, Levitan, and Szyszko (1982) concluded that a significant proportion of the diagnostic overshadowing effect was specifically related to the condition of having a learning disability and that the remainder of the effect may be generally related to the presence of other or multiple disabilities.

The second experiment examined more closely the diagnostic overshadowing effect in relation to learning disability. Again, clinicians were presented with short case descriptions. This time, two different case vignettes were presented: one suggesting schizophrenia and the other suggesting avoidant personality disorder. The case descriptions were preceded either with an introduction suggesting that the individual was of average intelligence, or that the individual had a learning disability. The case descriptions were constructed in accordance with DSM-III (APA, 1980) criteria and were about 200 words in length.

There were between 10 and 15 psychologists in each condition. Participants gave their initial diagnostic impressions using a similar rating form to that used in the first experiment. They also gave ratings of the extent to which the client would benefit from two kinds of treatment: long-term psychotherapy and drug therapy.

The results showed that the same clinical case descriptions were rated as significantly less likely to be examples of schizophrenia, psychosis, emotional disturbance, and personality disorder when the individual was suggested as having a learning disability as opposed to being of average intelligence. The results also showed that participants believed that the individual with a learning disability would be less likely to benefit from long-term psychotherapy. There were no statistically significant interaction effects; the presence of learning disability had a general and consistent effect of lowering ratings regardless of whether the symptoms suggested schizophrenia or avoidant personality disorder.

Reiss, Levitan, and Szyszko (1982) stated that attributions of abnormal behaviour to individuals with a learning disability were examples of diagnostic overshadowing when they were unsubstantiated. They pointed out that none of the case presentations provided evidence that the learning disability caused the emotional problems. In the description about the phobic individual, the person with a learning disability was described as having successfully commuted to work via public transport for over a year, and that the phobic reaction did not result from an inability to commute.

Overall, these results showed that an overshadowing effect occurred when clinicians responded to three short case descriptions that differed in terms of the syndrome suggested (schizophrenia, personality disorder, and phobia).

Following this, other studies were carried out in order to replicate and extend the findings. The majority of these used a similar analogue design and the "classic

vignette" format. Clinicians were presented with case materials (usually, but not always, case vignettes) and asked to rate the likelihood that the individual described suffered from one or more of a range of mental health problems. They were usually also asked to rate the suitability of providing a range of treatments to the clients.

Several of these studies also investigated the effect of other factors on diagnostic overshadowing. The combined results of these studies suggest that diagnostic overshadowing is a fairly robust and commonly encountered effect, within the limits of the methodological approach used.

Table 1 (adapted from Jopp & Keys, 2001) summarises the results of the major published and unpublished studies, including the results of investigations into possible moderating factors. These moderating factors will be described in more detail below, because they display the current status of research into the diagnostic overshadowing bias, they support the robust nature of the bias, and they have theoretical and clinical implications.

Insert Table 1 about here

Client Variables:

A number of studies have investigated the effect on the overshadowing bias of manipulating variables relating to the client, as follows:

Symptom severity:

As a general rule, a clinical diagnosis is easier to make when the symptoms of a disorder are clear and severe. Whittman (1989) examined the impact on clinicians' ratings of varying the severity of symptoms described in case vignettes. One hundred-and-nine psychologists examined two levels of schizophrenic symptomatology. There was a main effect for symptom severity in that high severity was related to more accurate ratings of the mental illness across both average and learning disability conditions. However, within both conditions (high and low severity) clinicians still made significantly more assessment mistakes for persons with a learning disability compared to those without a learning disability.

Level of learning disability:

Spengler, Strohmer, & Prout (1990) noted that previous research had only used examples of clients with learning disabilities with IQ scores at the low end of mild learning disability. They argued that these results might not apply to the large group of people with IQs at the upper end of the mild range. Their study, therefore, looked at a range of learning disability and borderline intelligence diagnoses.

The authors hypothesised that as the level of intellectual disability decreased (IQ increases) the saliency of the client's learning disability would diminish, resulting in a decrease in diagnostic overshadowing effect. Theoretical considerations regarding

the saliency of social stimuli and judgemental bias (e.g. Nisbett & Ross, 1980) supported this assumption.

Fifty-seven rehabilitation counsellors participated in this study. The overshadowing effect was only found when the individual was described as having an IQ in the lower range of mild learning disability (58), and not in the upper and borderline ranges (70, 80).

Clinician variables:

Clinician variables have also been examined as possible mediating factors for the diagnostic overshadowing effect. Diagnostic overshadowing has been shown to occur when clinicians' responses are averaged, but some individual respondents show the effect less than others. A number of possible moderating factors have been suggested: professional background; level of clinical experience and theoretical background, and the 'cognitive complexity' of the assessing clinician. These will be discussed in turn:

Professional background:

In their review of the literature, Jopp and Keys (2001) found that a range of professionals, including school and clinical psychologists, counselling psychologists, and rehabilitation counsellors had all demonstrated diagnostic overshadowing in experimental situations. For example, Levitan and Reiss (1983), in the only study to compare professionals directly, compared clinical psychology doctoral candidates to 53 advanced social work students. Both groups overshadowed equally. Reiss and Szyszko (1983) also compared diagnoses given by 60 psychology PhDs to diagnoses

given by 27 psychology graduate students and found no significant effect for educational attainment on diagnostic overshadowing.

Garner, Strohmer, Langford, & Boas (1994) addressed the effect of training on the overshadowing bias. They asked rehabilitation counsellors to participate in their study. They suggested that rehabilitation counsellors might be less affected by the overshadowing bias than other professionals because of their unique training regarding the medical, physical, and psychological aspects of disabilities.

A case vignette, based on the one used by Reiss, Levitan, & Szyszko (1982), was presented to rehabilitation counsellors, suggesting symptoms consistent with a DSM-III diagnosis of schizophrenia. There were five variations on the introduction to suggest one of the following: no diagnosed disability; traumatic brain injury; hearing impairment; epilepsy; an IQ of 65. Participants were only asked to rate one diagnostic overshadowing item (thought disorder). Specific diagnostic judgements were not requested as those items were not viewed as consistent with the role of many of the rehabilitation workers who participated. The results showed that the rehabilitation counsellors were less likely to indicate thought disorder in the learning disability condition. The learning disability condition did not, however, significantly affect treatment recommendations.

It is notable that none of the major studies to date have included psychiatrists as participants. Since DSM-IV is a psychiatric diagnosis system, it would be desirable to assess the presence of the bias in psychiatrists. As will be discussed below, studies into clinical decision-making have found evidence for the presence of cognitive bias

in psychiatrists. It also seems unlikely that psychiatrists would be immune from a bias displayed fairly uniformly by a variety of other clinicians involved in assessment and diagnosis. Some associated studies have examined diagnostic overshadowing in psychiatrists (e.g. Lennox & Chaplin, 1996), but this is an area that requires further investigation.

Level of clinician experience and theoretical background:

Alford & Locke (1984) examined the forms of treatment endorsed and the severity of psychopathology perceived, as a function of theoretical orientation and level of experience of clinicians. Three hundred and seventy-two psychologists participated. All were members of one of three American Psychological Association Divisions (Learning Disability, Experimental Analysis of Behaviour, and Psychotherapy). Forty-six percent described themselves as 'behavioural' (vs. nonbehavioural) in orientation, and 59% reported clinical experience with people with a learning disability equal to at least three months full time work. Participants responded to one of two therapy transcripts with ratings of severity of psychopathology and preferred treatment choices. Treatment choices were along a continuum (less to more behavioural).

The presence of the learning disability label resulted in significantly lower ratings of the severity of psychopathology. Contrary to what the authors expected, the effect of the learning disability label on severity of psychopathology scores was not moderated by behavioural orientation or experience with people with a learning disability.

Treatments suggested for the learning disability case were more behavioural. Behaviourally oriented therapists were more likely to recommend behavioural interventions (as expected), but this tendency was enhanced in the learning disability condition.

Spengler, Strohmer, & Prout (1990) also looked at the effect of clinical experience on diagnostic overshadowing. They argued that methodological and statistical problems in previous studies precluded concluding that clinical experience did not interact with overshadowing. A more sensitive analysis of possible interactions between clinical experience and diagnostic overshadowing was therefore undertaken.

Instead of simply dividing participants into groups of 'high' and 'low' experience, Spengler et al. (1990) measured experience by number of months of clinical contact with individuals who had a learning disability. They found that that this measure of experience did interact with diagnostic overshadowing. More experienced counsellors were less likely to recommend psychotherapy and psychopharmacological treatment, but rated the person with a learning disability as more neurotic than less experienced counsellors.

Clinician cognitive complexity:

Spengler & Strohmer (1994) looked at the 'cognitive complexity' of clinicians as a possible moderating factor in diagnostic overshadowing. They defined cognitive complexity as an important information-processing variable that mediated the stimulus input and judgement output sequence of clinical and social judgements. A

more cognitively complex person has a more differentiated system of dimensions for perceiving the behaviour of others.

A more cognitively complex clinician would therefore construe a client's thoughts, feelings, and behaviours in a more versatile way. Spengler and Strohmer (1994) hypothesised that counsellors with higher cognitive complexity would be less likely to engage in diagnostic overshadowing because they would be better able to differentiate between the learning disability and the psychopathology information, and be less influenced by the saliency of the limited IQ information.

Participants in the study were 119 members (44 women and 75 men) of the division of counselling psychology of the APA. A vignette similar to that used by Reiss, Levitan, and Szyszko (1982) was presented to the participants. Cognitive complexity was assessed using a repertory grid technique.

The results showed that counsellors with lower cognitive complexity were less likely to diagnose and treat a psychiatric disorder when the client had a learning disability as compared with the same client description with average intelligence.

The authors noted that the desirable qualities of high cognitive complexity were remarkably similar to the corrective procedures commonly recommended by others for the avoidance of biases in clinical judgement (Arkes, 1991), such as resolving congruent client information, better quality and clarity of client hypotheses, broader search and use of greater amounts of client information.

Treatment Bias:

Results from diagnostic overshadowing studies have suggested the presence of a treatment bias. Participants have generally rated individuals with learning disabilities as less likely to benefit from psychotherapy than those without a learning disability. Some authors have suggested that diagnostic and treatment overshadowing biases are different but related phenomena. For example, in the study described above, carried out by Garner et al. (1994), there was evidence for a diagnostic overshadowing bias, but treatment decisions were not affected by the presence of the learning disability label.

Spengler et al (1990) suggested that increased clinician experience may allow personal stereotypical beliefs to become strengthened over time. Consequently, symptoms decline in importance over time and the reluctance to recommend appropriate treatments and diagnoses increases. It may also be that some professionals do not see the value in treating persons with a learning disability or have mistaken beliefs about the effectiveness of treatments with this population. Additionally, if service provision is poor, some treatments may not seem to be viable options because of practical or financial considerations. The relevance of these issues has not yet been fully explored in the diagnostic overshadowing literature.

Unfortunately, the response formats commonly used in diagnostic overshadowing studies have only provided respondents with two treatment options: psychotherapy and medication. As treatment options for people with learning disabilities are developing, it would be interesting to explore the treatment bias in greater depth.

Now that the major findings within this body of literature have been reviewed, it is possible to examine the validity of the findings with reference to the strengths and weaknesses of this research.

Strengths of diagnostic overshadowing research:

The major strength of diagnostic overshadowing research has been the consistency of the findings. Multiple studies using the analogue methodology described above have shown that clinicians' responses to the hypothetical case descriptions are affected by the disability label. Clinicians with a range of training backgrounds have been found to respond in a similar, biased way. Findings are also easily comparable because of the similar methodological approach used in the majority of studies. Overall, there is little doubt about the existence of this effect, within the bounds of the methodological approach used to test it.

Weaknesses in diagnostic overshadowing research:

Although the phenomenon of diagnostic overshadowing has been found consistently in experimental situations, one fundamental issue remains unclear. It is as yet unknown whether the overshadowing effect present in the empirical studies reflects biased assessment decisions and treatment recommendations in clinical practice. The main reason for this lack of clarity is that diagnostic overshadowing has yet to be clearly established outside of a single methodological approach or, indeed, in actual settings serving persons with learning disabilities and mental disorders.

In the two studies reviewed by Jopp & Keys (2001) that did not strictly adhere to the classic vignette format, researchers found no diagnostic differences across

intelligence conditions. The reason for this, however, is not clear. Levitan (1983) and Reidy (1987) (as cited in Jopp & Keys, 2001) used novel stimulus materials that, although based on the case vignettes, provided more diagnostic information. Reidy presented participants with more lengthy material which more closely resembled that found in a case report. Levitan gave clinicians vignettes and then allowed them to request further information during a simulated interview. Reidy found that all conditions evidenced equal proportions of correct and incorrect diagnoses. Levitan found that participants were equally likely to diagnose the concomitant disorder when paired with either the learning disability or average IQ conditions.

Both attributed the additional information as the primary reason for not finding overshadowing. There were, however, other differences between these studies and other diagnostic overshadowing studies that might have accounted for the lack of the overshadowing effect. Both studies also required participants to give specific DSM multiaxial diagnoses rather than using the Likert scale ratings. The lack of overshadowing could therefore have been due to the increased complexity of the participants' information processing when coming to a DSM diagnosis. Whether the amount of diagnostic information or the type of diagnostic judgement required has an impact on diagnostic overshadowing is a promising avenue for further investigation.

In summary, without diversification of the methodology, it could be argued that the overshadowing bias is, in some way, an artefact of the methodological approach used. The bias might be an interesting experimental effect, but one that has little significance for clinical practice.

Jopp & Keys (2001) consider this issue in their review, and suggest that, in their opinion, the bias is not simply a methodological artefact. They suggest that if clinician likelihood judgements are so clearly and obviously affected in an experimental setting, then it may well be true that these or other judgments are affected in other settings.

It is perhaps more fruitful to ask: To what extent does diagnostic overshadowing occur in actual clinical settings? Some commentators have suggested that there will be an increase in the overshadowing bias in clinical practice, and others have suggested that there will be a decrease. In an initial consideration of this question, there appear to be a number of logical arguments for both views.

In support of the existence of a greater overshadowing bias than that observed in the empirical studies, it is likely that practising clinicians will obtain a less clear picture of symptomatology than presented in the vignettes. Clinicians are not commonly presented with a concise description of salient client details. Coelho and Saunders (1996) noted that clinical settings offer unique challenges to accurate assessment (see above).

Reiss, Levitan, and Szyszko (1982) also suggested that if clinicians show a bias in making a diagnosis when the information they are given consistently suggests the major symptoms of that diagnosis, they should not be expected to fare significantly better in actual practice where they must discover the symptoms, extract irrelevant information, and recognise the diagnostic pattern.

An important argument in favour of a reduction in overshadowing bias in clinical settings is that objective assessment measures such as the Reiss Screen for Maladaptive Behaviour (Reiss, 1988), or the Psychopathology Instrument for Mentally Retarded Adults (PIMRA) (Matson, Kazdin, & Senatore, 1984) are available. In addition, a number of tools initially developed for the non-learning disabled population have been adapted for use with people with learning disabilities. There are some important questions surrounding the validity of these measures, but it is possible that their regular use would alert the diagnosing clinician to the possible presence of mental disorders, and may therefore act against the effect of individual bias.

Clinical settings also offer the opportunity to interact directly with the client, and importantly, with carers and family members, which can lead to the collection of richer forms of data.

It is also possible that biased perceptions do not necessarily lead to biased behaviours. Developments in diagnostic criteria have been intended to provide clinicians with reliable and valid procedures which, when followed, will be likely to result in more accurate decisions. It might therefore be argued that as long as clinicians are following such procedures, any biases that they display in their initial reactions to hypothetical case descriptions in non-clinical settings might not necessarily translate to errors or bias in clinical practice.

In summary, there are logical arguments to support both more and less diagnostic overshadowing in clinical practice. It is at this point that a consideration of the

psychological literature on decision-making is of great value. This area of research has been linked to clinical decision-making and the overshadowing bias (Jopp & Keys, 2001), and it is informative when considering the likelihood that the overshadowing bias extends to clinical practice.

Decision-making literature

Jopp & Keys (2001) highlighted a number of cognitive biases and heuristics that might be relevant to diagnostic overshadowing. Cognitive heuristics can be defined as cognitive short-cuts. They are quick and crude ways of organising large amounts of data. They are employed in many decision-making situations, and are likely to be active in conditions of uncertainty. People are often capable of entering into more sophisticated analyses of data, but this entails additional costs of time and cognitive effort (Arkes, 1991).

Clinicians are not exempt from this practice. A significant number of studies into cognitive heuristics have been undertaken with clinicians as participants (summarised in Garb, 1998). It is likely that certain cognitive heuristics are descriptive of clinicians' decision-making under uncertain conditions. The diagnostic process consists of a complex series of data collection and decision-making steps. There are likely to be several points in this process that may be subject to cognitive bias and error.

Model of clinical decision-making:

These errors, and studies supporting their presence in clinicians' decision-making, will be outlined in the following section. The following model of clinical decision-

making, proposed by Rabinowitz (1993), will be used as framework for this discussion.

Insert Figure 1 about here

Within this model, clinical decision-making is divided into four phases: input, processing, output and action, and feedback. The possible presence of decision-making heuristics and biases will be discussed in relation to these phases.

Phase 1:

The Input Phase begins when any information relating to the client is received. This can be in the form of reports, case records, or information given directly by clients. Clinicians will form initial impressions about the client based on the clinical assessment interview. This is, however, only a small sample of the client's behaviour, but this sample may be seen as representative. A client's behaviour may differ markedly depending on the environment and the people with whom he or she is interacting (Reiss, 1994).

There is evidence that first impressions can be formed rapidly and may change little, even in the face of contradictory information (Gauron & Dickinson, 1969; Sandifer, Horndean, & Green, 1970). It is possible that the first pieces of information revealed

by the client during the assessment interview will orient the clinician, leading to anchoring and adjustment errors (discussed below). In addition, the first pieces of information are often problem based (for example, reason for referral, current problems, etc.). Some researchers have found that clinicians' first impressions are predictive of later judgements (Nisbett & Ross, 1980; Richards & Wierzbicki, 1990), but others have not.

The representativeness heuristic may also be active in initial judgements about clients. This heuristic relates to the judgment: What is the probability that object A belongs to class B? (Tversky & Kahneman, 1974). It has been suggested that the representativeness heuristic can occur when clinicians make judgements about the probability that a particular client belongs to a particular diagnostic group. With regard to the diagnostic overshadowing effect, the clinician will be judging the likelihood that someone with a learning disability belongs to a group of people with a certain mental disorder.

In order to test this suggestion, Garb (1996) presented 67 psychologists and psychology interns with case histories. Participants were asked to rate how similar the person in the case description was to the typical patient with the particular diagnosis. Only 18 of the 67 participants made appropriate DSM-III diagnoses. Correlations between diagnostic and similarity ratings were high, indicating that the representativeness heuristic was descriptive of their decision-making (i.e. that clinicians based their diagnostic decisions on the similarity of the person in the case example to their idea of the typical patient with that disorder, rather than adhering strictly to DSM-IV criteria). The fact that diagnostic accuracy was low in this

experiment suggests that clinicians' stereotypes of people with certain disorders do not always match the diagnostic criteria.

Hypothesis forming is a potentially difficult area. There is evidence that clinicians tend to generate few hypotheses in their clinical practice. Elstien, Shulman, & Sparfka (1978) found that physicians and medical students generated an average of 5 hypotheses, regardless of the amount of information that they received. Importantly, these clinicians also tended to add new information to existing hypotheses rather than generate new ones. Selected findings that did not fit into these hypotheses were often ignored.

The availability heuristic might also be of relevance when considering clinicians' initial assessments of clients. The availability heuristic is descriptive of a person's decision-making when an assessment of the probability of an event is made by the ease with which instances or occurrences of that event can be brought to mind. Availability is, however, affected by factors other than frequency and probability.

Relevant to diagnostic overshadowing is the finding that the strength of the verbal associative connections between two events affects availability (Garb, 1998). The judgement of how frequently two events co-occur (such as learning disability and mental illness) might be based on the strength of the associative bond between them. When the association is strong, the events will be judged to have co-occurred frequently. A strong verbal associative connection can make it easier to remember when a test indicator and a symptom or behaviour co-occur (for example, 'challenging behaviour' and 'learning disability' or 'bizarre behaviour' and 'learning

disability'). An implication of this is that basing judgements on clinical experience rather than on diagnostic criteria can contribute to invalid judgements.

People often make estimates by starting from an initial value and adjusting it to yield a final answer. It has been shown that different starting points yield different results, even if these starting points are known to be arbitrary or to have been chosen at random. This 'anchoring and adjustment' effect (Tversky & Kahneman, 1974) has occurred when the order of presentation of assessment information has varied even when clinicians received identical information by the time they made their final ratings. (e.g. Ellis, Robbins, Schult, Ladany, & Banker, 1990; Friedlander & Phillips, 1984; Friedlander & Stockman, 1983). In one study, clinicians were presented with case notes for a hypothetical client indicating the presence of suicidal ideation or anorexia nervosa. If this information was presented in the notes from the first session, the client was seen as being more maladjusted and as having a worse prognosis than if this information appeared in the notes for the fourth session.

It is still a common, although misguided, belief that people with learning disabilities do not or cannot suffer from mental illness (Moss, 2001). It is possible that the presence of a learning disability anchors clinicians' estimates of the likelihood that the individual suffers from a mental disorder at a different point (i.e. 'further away' from a diagnosis of a mental disorder) than if the clinician is told that the person is of average intelligence. This different anchoring point will mean that certain symptomatology is not sufficient to convince a clinician of a diagnosis of a mental disorder in a person with a learning disability, but it might be sufficient for a person of average intelligence.

Phase 2:

Rabinowitz (1993) suggests that the processing and organisation of information is also likely to be subject to bias. Again, information appears to be organised around a central theme, which is typically the clinician's initial hypothesis, and synthesised to support that hypothesis using confirmatory strategies, such as selective overweighting of confirmatory evidence (Faust, 1980). Strohmer, Shivy, and Chiodo (1990) found that their sample of clinicians asked more hypothesis confirming than disconfirming questions.

After making a diagnosis, a clinician may also selectively remember information that supports the judgement. Arkes & Harkness (1980) also showed this in a study of recall of counsellors. There is evidence that anecdotal information is likely to be preferred over empirical evidence, and that there is an over-reliance on conceptually appealing but not empirically validated tests (Garb, 1998).

Phase 3:

Rabinowitz (1993) suggests that treatment alternatives may be chosen as a function of the popularity of various treatments in the particular setting. Possible treatment alternatives are based on information discovered, which is likely to be influenced by theoretical orientations, values, and individual clinician variables, such as mood.

Treatment choice may also be weighed against consequences. The anticipated effects of a decision can potentially act to modify that decision (for example, if a particular

diagnosis will help the individual to get superior support). It is also likely that clinicians favour a type two error (finding a condition that does not exist). This might also be relevant to the suggestion noted above that a treatment overshadowing bias may be separate to some degree from the diagnostic overshadowing bias.

Phase 4:

The Feedback Phase is problematic because clinicians rarely receive systematic, objective feedback on their clinical decisions (Garb, 1998). Clients are often the only source of feedback information, and they may acquiesce. When clinicians do receive feedback, it is often misleading. If it is from the client, then the Barnum Effect (Snyder & Newburg, 1981) may be relevant. Studies investigating this effect have shown that clients will often endorse a test report that is so general that it is descriptive of most clients. There is also evidence that clinicians can persuade a client that an interpretation is correct even when it is not (for example, false memories of sexual abuse, observed by Loftus, 1993).

When clients drop out of therapy or are discharged, eventual outcome and relapse information is often not received. Finally, it is not possible to see the outcome of decisions that we do not make.

Overall, there appears to be significant empirical and theoretical support for the presence of decision-making heuristics and errors in diagnostic practice. There is agreement that the diagnosis of mental disorders in people with learning disabilities is currently problematic, inaccurate, and unreliable. Clinicians have been shown to be at risk of employing decision-making heuristics when making assessment and

diagnosis decisions. There is evidence that diagnostic criteria, such as those in DSM-IV are not consistently followed (Garb, 1998). These weaknesses in the diagnostic process provide a logical basis for the presence of the diagnostic overshadowing effect.

Experimental vs. clinical environments:

Further investigation of the decision-making literature, however, suggests a note of caution. While clinical diagnosis is likely to be problematic for the reasons suggested above, there are real differences between experimental studies and clinical practice. The decision-making literature is also helpful in assessing the importance of some of these differences. This will now be discussed.

There are costs and benefits of using various decision-making heuristics. Because they are quick, they are easy and convenient to use. This is a benefit. Because they are crude, they result in more errors, which is obviously a cost. In many situations, the cost of making these errors is outweighed by the benefit of time and effort saved. People will often choose to save cognitive effort (Arkes, 1991).

Arkes (1991) suggests that when the costs of making a judgement error are high, individuals often change from a sub-optimal strategy to a better one. This has been demonstrated experimentally (e.g. Harkness, DeBono, & Borgida, 1985; Tetlock & Kim, 1987). Researchers who are optimistic about human judgement and decision-making performance point out that sensitivity to such factors as incentive, task complexity and time pressure is highly adaptive (Arkes, 1991).

These findings suggest that if the problem is important and the relevant tools are available, then people will use them and make more accurate decisions. Perhaps a criticism of the diagnostic overshadowing literature, therefore, is that in many of the experiments the problem is not important, and the tools are often not available.

In the majority of diagnostic overshadowing studies, the clinicians were not made explicitly aware that conclusions about clinical practice would be drawn from their responses to hypothetical case descriptions. They may not therefore have perceived that their responses were particularly important and required careful consideration.

Moreover, since the case example is hypothetical, clinicians will not be concerned about the consequences of their decisions to a real person. The costs of making a poor judgment will therefore probably not outweigh the benefits of completing the response form quickly and getting back to work. There is therefore likely to be no real incentive for clinicians to engage in a more sophisticated analysis of the data.

Decision-making in the experimental situation may therefore be characterised by sub-optimal strategies (such as basing judgements on representativeness and availability). This might not be the case in a clinical setting where there are many real consequences of diagnostic judgements. Poor judgements can have implications for individual reputations, and can lead to loss of job or status. Moreover, clinicians are well aware that their decisions can have important consequences for their clients. Overall, clinicians are accountable in the clinical setting. If accountability is a good debiasing strategy, then it might be expected that clinicians will use more

sophisticated analytic strategies in clinical settings then they do when responding to brief, hypothetical case description

Conclusions and recommendations for future research

Research into diagnostic overshadowing to date has been successful in demonstrating the presence of a clinician response bias within the bounds of one analogue methodology. As Jopp and Keys (2001) conclude, the next step within this field must be a diversification of the methodology. The extended adherence to virtually the same stimulus materials and procedures runs the risk of eventually undermining the phenomenon of interest.

This review has brought together a number of areas of psychological theory and clinical knowledge. Consideration of the diagnostic overshadowing literature in relation to these issues provides a useful basis for specific recommendations for future research.

Firstly, the stimulus materials could be developed so that clinicians are presented with assessment data that are more reflective of clinical practice. Good clinical assessment involves the collection of a wide range of data from a variety of sources in a systematic and objective way. As discussed earlier, when assessing people with learning disabilities, it is necessary to discriminate between symptoms of mental disorders and the possible 'non-specific effects' of a learning disability. It is also necessary to have a clear idea of the individual's premorbid level of functioning. It is possible to argue that the classic vignettes do not contain clear data that allow clinicians to make these judgements. It could therefore be argued that the classic

vignettes do not necessarily indicate mental disorders in people with learning disabilities to the same extent as they do in people in the non-learning disabled population. Case descriptions could be developed that include more objective data about the symptomology, and provide clearer indications of levels of premorbid functioning.

Secondly, the decision-making literature presents many possibilities for future research. For example, the consequences of clinicians' ratings could be manipulated in order to reflect clinical practice more closely. With regard to accountability, clinicians might be asked to justify or rationalise their responses in some experimental conditions. They might also be asked to imagine the likely consequences of their diagnostic assessment for the individual involved, and what sort of care package might be likely to be successful.

Also with regard to the studies carried out by Levitan (1983) and Reidy (1987), the way that clinicians respond to the assessment data could be developed. Directing clinicians' attention specifically to diagnostic criteria might result in a more sophisticated analysis of the data.

Thirdly, it is important to develop process models of diagnostic overshadowing. As suggested by Rabinowitz (1993), diagnostic overshadowing errors may arise at various points in the assessment and diagnosis procedure, and a variety of situational and individual factors may compound these difficulties. The theory and research reviewed above suggest that decision-making heuristics such as availability and representativeness play a significant role in diagnostic errors, but these need to be

explored in a focused and systematic way in relation to diagnostic overshadowing in people with a dual diagnosis.

Fourthly, more sensitive analyses of variables related to clinician decision-making is necessary. Spengler and Strohmer (1994) showed that when the power of statistical analyses were maximised, variables such as clinician experience appeared to moderate overshadowing. These findings need to be replicated and extended.

Fifthly, treatment overshadowing is an interesting area that has not been fully explored. As noted above, there is range of reasons why clinicians may or may not propose certain treatments for certain clients. There are also reasons why clinicians may want to avoid the use of certain diagnostic labels, but may still want to treat clients as though they had certain disorders. The limited research carried out to date suggests that although assessment and treatment biases are probably related, they may have a degree of independence. In addition, treatment options presented to participants have been fairly limited, and as treatments for people with learning disabilities have been developed greatly over the last twenty years, it would be important to assess the possible presence of a treatment bias on a wider range treatment options.

Sixth, the development of assessment tools for use with people with learning disabilities should improve the quality of assessment. As noted above, a variety of these have been developed for use with this population, and others have been adapted from tools developed for use with other populations. As discussed above, however, there are issues about the validity and reliability of these tools, and also about the

regularity of their use in clinical practice. Exploration of the use of these tools and their properties would be enlightening.

Finally, some of the initial studies (such as that carried out by Reiss, Levitan, & Szyszko, 1982) were conducted over twenty years ago, and the majority have been carried out in the United States. Some of the terminology and concepts are outdated. For example, the diagnostic label 'neurotic' is one of the primary measures used so far in diagnostic overshadowing studies, yet it has been largely abandoned in clinical practice today. There has also been a great deal of development in the mental health care of people with learning disabilities over that time period, so findings may no longer apply.

In conclusion, the diagnostic overshadowing may be an important factor in the lack of adequate assessment and treatment of mental disorders in people with learning disabilities. The validity of this concept must be established with more certainty, as there are several strong reasons for arguing either for an increase or for a decrease of this bias in clinical practice. It is an area of research that, if appropriately developed, may have important implications for the improvement of mental health services for people with learning disabilities.

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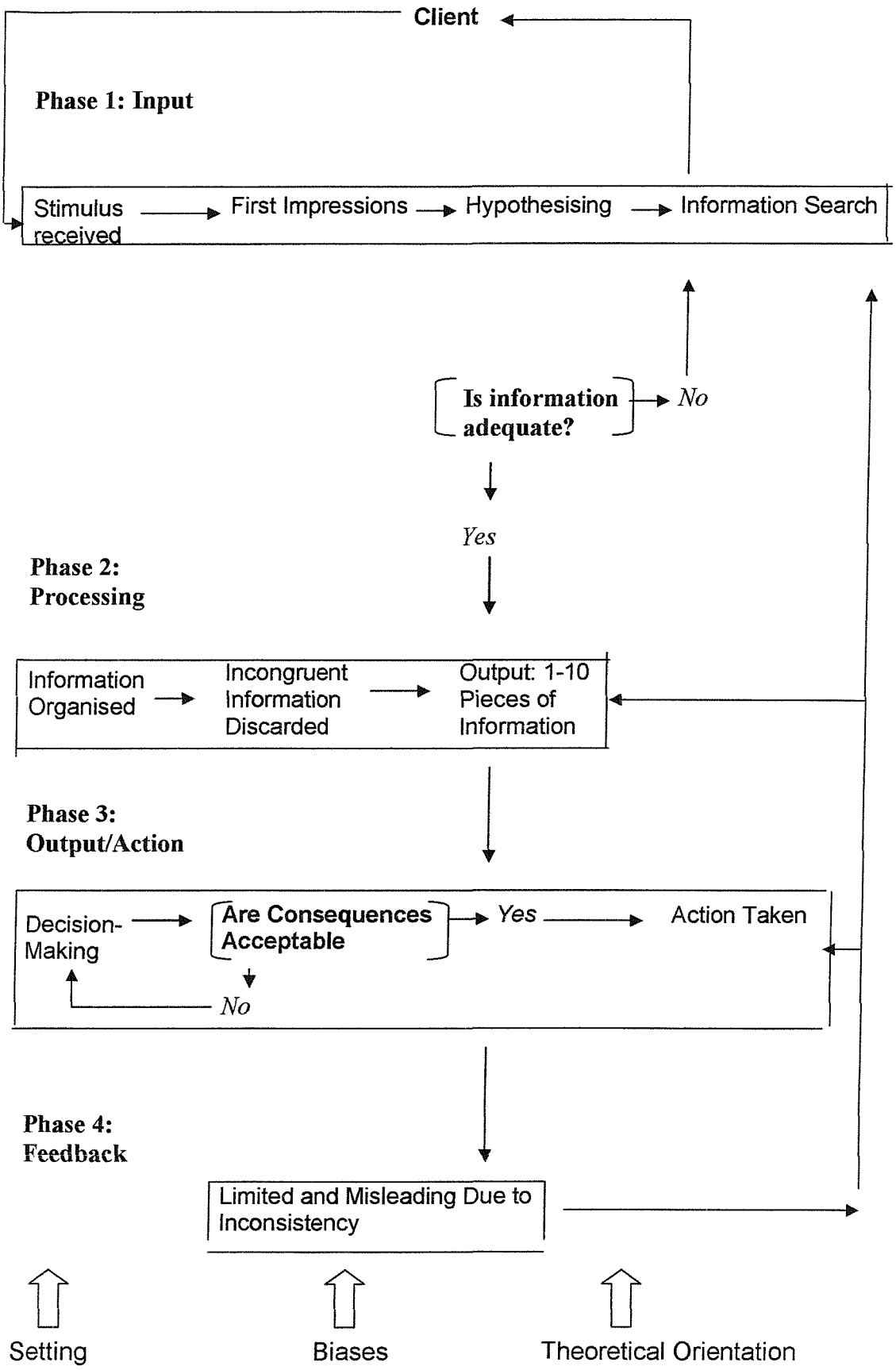
Table 1.
Research into the diagnostic overshadowing bias

Authors	Method	Sample Size and Composition	Disorder Examined	Was DO Found?	Variables Examined	Significant Results
Alford & Locke, 1984	Short Vignette, Likert Scare Scoring	119 Psychologists	Schizophrenia	Yes	1. Presence of 'mental retardation' label 2. Clinician experience with learning disability	1. Label elicits overshadowing 2. Behavioural orientation related to greater behavioural treatment recommendations
Garner, Strohmer, Langford, & Boas, 1994	Short Vignette, Likert Scale Scoring	89 Rehabilitation Counsellors	Multiple	Yes	1. Disability type (no disability, IQ = 65, traumatic brain injury, hearing impaired, epilepsy).	1. 'Mental retardation', traumatic brain injury, and epilepsy elicit overshadowing, compared to no disability and hearing impairment conditions
Levitan, 1983.	Interview	48 Psychologists	Multiple	No	1. Overshadowing across disorders (schizophrenia and depression). 2. Order and frequency with which clinicians requested diagnostic information	1. overshadowing was not found to differ over disorders 2. No differences in questioning order or frequency were found
Levitan & Reiss, 1983	Short Vignette, Likert Scale Scoring	76 Graduate Students	Agoraphobia	Yes	1. Clinical psychology vs. social work graduate training	1. Overshadowing occurred equally across conditions.
Reiss & Szyszko, 1983.	Short Vignette, Likert Scale Scoring	87 psychologists and graduate students	Schizophrenia	Yes	1. Professional experience 2. Experience with people with learning disabilities	1. Experience did not moderate findings (overshadowing occurred equally across all experience conditions).
Reiss, Levitan, & Szyszko, 1982	Short Vignette, Likert Scale Scoring	Study 1: 120 psychologists	Agoraphobia	Yes	1. Disorder type (no disorder, learning disability, alcoholism).	1. Single diagnosis coded more frequently than multiple diagnoses 2. neurotic, irrational, emotionally disturbed, and psychotic labels rated less likely for the 'mental retardation' condition than the other two conditions.

Reiss, Levitan, & Szyszko, 1982	Short Vignette, Likert Scale Scoring	Study 2: 60 psychologists	Multiple	Yes	1. Type of concomitant disorder (schizophrenia & avoidant personality disorder).	1. 'Mental retardation' condition was rated less likely to be examples of schizophrenia, psychosis, emotional disturbance, and more likely to be an example of a thought disorder compared to the average IQ condition.
Reidy, 1987.	Novel vignette and novel scoring	125 psychologists	Schizophrenia and agoraphobia	No	1. Use of objective (DSM-III-R) criteria vs. personal criteria.	1. Overshadowing was not found. 2. Use of DSM-III-R criteria made no difference in diagnostic accuracy across all conditions.
Seay, 1991.	Short Vignette, Likert Scale Scoring	116 psychologists	Major depression	Yes	1. Level of learning disability (mild/moderate) 2. Psychologists' workplace (private/ CMHT/ state facility)	1. Overshadowing occurred across both mild and moderate conditions 2. Workplace had no moderating effect on overshadowing.
Spengler & Strohmer, 1994.	Short Vignette, Likert Scale Scoring	119 counselling psychologists	Schizophrenia	Yes	1. Counsellor preference for working with clients with learning disabilities 2. Counsellor cognitive complexity	1. Counsellor preference did not moderate overshadowing 2. Increased counsellor cognitive complexity was related to less overshadowing
Spengler, Strohmer, & Prout, 1990.	Short Vignette, Likert Scale Scoring	109 psychologists	Schizophrenia	Yes	1. Order of diagnosis information in the vignette (IQ first vs. pathology first 2. Schizophrenia symptom severity (high vs. low)	1. Order of information did not affect overshadowing 2. High symptom condition led to more schizophrenia diagnoses, but overshadowing still occurred across all conditions.

Figure 1
Flow Sheet of Clinical Decision-Making (Rabinowitz, 1993)



Empirical Paper

A Comparison Of Methodologies In A Diagnostic Overshadowing Study: Clinical Impressions Of Short Case Presentations.

Richard Thomas

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Running head: A COMPARISON OF METHODOLOGIES IN A DIAGNOSTIC OVERSHADOWING STUDY

A Comparison Of Methodologies In A Diagnostic Overshadowing Study: Clinical Impressions Of Short Case Presentations.

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Keywords: diagnostic overshadowing, learning disability

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Abstract

The current study addressed some methodological shortcomings of previous research into the diagnostic overshadowing bias. The basic tenet of the diagnostic overshadowing bias is that the intellectual deficit in someone with a learning disability is such a salient feature that accompanying emotional and behavioural disturbances are 'overshadowed' in importance by its presence. This is believed to result in less accurate diagnosis of mental disorders in this population

Previous research into this hypothesised clinician cognitive bias has used an analogue methodology in which clinicians respond to short case descriptions with diagnostic and treatment recommendations. It has been repeatedly demonstrated that clinicians are less likely to suggest appropriate diagnostic and treatment options when the individual described has been labelled with a learning disability than when the individual is described as being of average intelligence.

A number of methodological issues may have implications for the validity of these results. The short case descriptions have been criticised for being too brief and ambiguous, and may differ markedly from the kind of assessment data gathered in clinical practice. The current study explored this issue and found that, in line with predictions from the decision-making literature, clinicians made more accurate decisions when all the necessary data were available to them. The current study also explored secondary questions of the impact of length of clinical experience on diagnostic recommendations, and of the use of standardised assessment tools.

A Comparison of Methodologies in a Diagnostic Overshadowing Study: Clinical Impressions of Short Case Presentations.

There has been growing concern over the failure to recognise and treat mental health problems in people with learning disabilities (Moss, 2001). It has been observed that people with learning disabilities do not receive psychotherapy, counselling, and other mental health services proportionate to their apparent need (Reiss, Levitan, & McNally, 1982). White et al. (1995) estimated that people with learning disabilities could expect about a 20 percent drop in diagnostic accuracy compared to individuals with comparable symptoms but no other disability. A lack of accuracy in assessment is likely to lead to a lack of appropriate treatment.

Individuals with learning disabilities, at all developmental levels, can and do display the range of disorders presented in DSM-IV (American Psychiatric Association, 1994) (Balthazar and Stevens, 1975; Eaton & Menolascino, 1982; Reiss, 1994; Sovner & Hurley, 1986; Szymanski & Tanguay, 1980). It is also likely that people with learning disabilities are more susceptible to concomitant mental illness than are individuals who do not have learning disabilities (Borthwick-Duffy, 1994; Reiss, 1994). Risk factors, such as impoverished social and physical environments, lack of choice, lack of resources, and emotional and physical abuse are more likely to be present. The prevalence of psychopathology in people with learning disabilities may therefore equal or even exceed rates found in the non-learning disabled population (Matson & Barrett, 1982; Reiss, 1994; Rojahn & Tasse, 1996).

Why are mental health problems less likely to be appropriately diagnosed and treated in people with learning disabilities? One general point is that people with learning disabilities constitute an undervalued, marginalised, and often ignored group. As a consequence, it might be expected that their needs in many areas of life will not be sufficiently met. It has been suggested that there are also more specific clinical and practical reasons for this short-coming. The diagnostic overshadowing bias has been proposed as one important reason, and is the subject of the current study.

The basic tenet of the diagnostic overshadowing bias is that the intellectual deficit in someone with a learning disability is such a salient feature that accompanying emotional and behavioural disturbances are 'overshadowed' in importance by its presence (Jopp & Keys, 2001). Reiss, Levitan, and Szyszko (1982) hypothesised that the presence of a learning disability decreased the significance of abnormal behaviour usually considered to be indicative of a psychological disorder. They also suggested that there was something about cognitive impairment in particular as compared to other impairments, such as physical disabilities, that played a unique role in eliciting the overshadowing phenomenon.

Reiss, Levitan, and Szyszko (1982) investigated diagnostic overshadowing in a series of studies. They asked clinicians to read identical short case vignettes (about 250 words in length) which suggested symptomatology consistent with a DSM-III (APA, 1980) diagnosis of schizophrenia (this is now referred to as the 'classic vignette' format). Half of the participants were told that the individual was of average intelligence, and the other half were told that the individual had a learning disability at the lower end of the mild range (with an IQ of about 60). Clinicians rated the

likelihood that the individual was suffering from a range of mental disorders, including schizophrenia. Clinicians who were told that the individual had a learning disability were less likely to suggest that the person was suffering from a mental disorder, even though the symptoms presented were identical in both cases.

Multiple studies have used this methodological approach, and the vast majority have supported the view that diagnostic overshadowing is a common clinician bias (Alford & Locke, 1984; Garner, Strohmer, Langford, & Boas, 1994; Levitan & Reiss, 1983; Reiss, Levitan, & Szyszko, 1982; Reiss & Szyszko, 1983; Seay, 1991; Spengler & Strohmer, 1994; Spengler, Strohmer, & Prout, 1990; White et al., 1995; Wittman, 1989). Clinicians from a range of backgrounds, including psychologists, psychiatrists, and rehabilitation counsellors, have exhibited the effect. Overall, there is little doubt about the existence of this effect, within the bounds of the methodological approach used to test it.

One fundamental issue, however, remains unclear. It is as yet unknown whether the overshadowing effect present in the empirical studies reflects biased assessment decisions and treatment recommendations in clinical practice. The validity of the findings can be questioned with reference to methodological issues, and also with reference to current standards of clinical practice.

Both of these areas will now be discussed more fully. Their implications for the central question of the validity of the findings to date will be explored.

Methodological issues:

The classic vignette format originally employed by Reiss, Levitan, and Szyszko (1982) has been modified and developed somewhat in later studies, but has remained essentially the same. Typically, groups of clinicians are asked to rate the likelihood that a number of diagnostic terms and treatment options apply to case descriptions that they have read. The case descriptions are identical for each group, except for the introductory information, which either implies or states directly that the person described is of average intelligence or has a learning disability.

Ten of the twelve studies reviewed by Jopp and Keys (2001) adhered closely to this design. All of these studies found empirical support for diagnostic overshadowing. Interestingly, the two studies that did not use this methodology did not find clear support for diagnostic overshadowing.

Both of these studies (Levitan, 1983, and Reidy, 1987, as cited in Jopp & Keys, 2001) used novel stimulus materials that introduced variations in the presentation of case information. Reidy presented participants with lengthier material more closely resembling that found in psychological reports and case files. Levitan gave clinicians vignettes and then allowed them to request further information during a simulated interview.

Clinicians were therefore presented with case information that differed significantly from that provided in the other studies. Firstly, they were given richer and more detailed case information than was possible using a 250-word vignette. Secondly, there was an attempt to create a more ecologically valid process of information

gathering (i.e. the use of a case report format and the option to request additional information). Both of these studies were designed with the intention of reflecting more of the clinical realities of the assessment process.

The reason for the lack of significant results in these two studies is not clear (Jopp & Keys, 2001). Both studies also required clinicians to respond with reference to diagnostic criteria, and were therefore provided with a framework to aid their interpretation of the assessment data. Clinicians in other studies were not given this opportunity. It is not clear to what extent either of these changes to the methodology might have affected the results.

Clinical assessment issues:

It can be argued that the classic vignette format does not provide the kind of detailed information that is now suggested as being essential for diagnosing a mental disorder in a person with a learning disability. Multiple commentators (e.g. Coelho & Saunders, 1996; Menolascino & Fleischer, 1993; Sovner & Hurley, 1986) state that because the presentation of mental illness in people with a learning disability can often be atypical, a certain amount of objective background information is required in order to make an accurate diagnosis. It is commonly agreed that information relating to the following categories is required for accurate diagnosis:

Pre-morbid functioning:

An understanding of the individual's pre-morbid level of functioning is crucial. An individual with a learning disability can usually be expected to function at his or her level of competence and behave rationally at that level (Coelho & Saunders, 1996).

A mental disorder, as defined by DSM-IV (APA, 1994), will commonly inhibit an individual's functioning. With the exception of personality disorders, mental disorders have periods of onset and represent deteriorations in behaviour from the premorbid state. A learning disabled individual with a mental disorder would therefore be expected to be functioning below his or her natural level.

In order to assess whether or not significant change has occurred, it is vitally important to have a baseline measure of the individual's previous performance. This kind of information can be acquired from a number of sources including medical records, previous assessments and reports, and from other people who know the individual well (such as family members, and employers). Recognising a consistent change in the individual's behaviour is essential. This might include out-of-character outbursts, changes in eating, sleeping, and other routines, or greater reactions to small changes in routine (Reiss, 1994).

Diagnostically relevant versus diagnostically irrelevant symptoms:

The separation of diagnostically relevant symptoms from other forms of maladaptive behaviour is also vital (Weissblatt, 1994). This requires sensitivity to environmentally dependent factors (such as failed attempts to communicate or aberrant behaviours that have been inadvertently reinforced) and environmentally independent factors (such as the person's stage of development). It has been suggested that a person with a learning disability may develop maladaptive behaviours that are 'non-specific' effects of developmental disabilities (i.e. they may be caused by limited communication skills or organic deficits) (Sovner & Hurley,

1986). If these behaviours can be differentiated from diagnostically relevant symptoms, more accurate diagnoses will be possible.

Information relating to both of these categories is, of course, also helpful in diagnosing mental disorders in people of average intelligence. The pervasive nature of a learning disability, however, further complicates the process and is likely to mean that these issues require more careful consideration.

One implication is that while there may be sufficient detail within the classic vignette format to suggest fairly strongly the presence of schizophrenia in someone of average intelligence, this may not be the case for someone with a learning disability. The detailed, objective data about premorbid functioning is simply not present, and it is therefore not possible to ascertain a sufficient account of premorbid functioning, or to discriminate between relevant and irrelevant diagnostic information with the same degree of certainty. Perhaps a mistaken assumption in development of the classic vignette format was that clinical assessment procedures were identical in both adult mental health and learning disability work. The clinical reality, however, appears to be more complex than this.

Secondary areas of investigation:

In addition to investigating the primary question of validity, the current study will also attempt to update and clarify some other methodological and clinical issues:

Clinician experience:

The level of experience of the assessing clinician as a moderating factor in diagnostic overshadowing has been investigated in a number of studies (Alford & Lock, 1984; Reiss & Szyszko, 1983; Spengler et al., 1990). It might seem reasonable to expect that clinicians with more experience of working with people with learning disabilities will have developed additional expertise in identifying the presence of mental disorders in this population. Results of studies addressing this issue have, however, been mixed. Spengler et al. (1990) suggested that prior research into this question had been limited by methodological and statistical problems. They suggested that the likelihood of finding a significant correlation between experience and an overshadowing effect was greatly reduced in previous studies because of methodological problems. Clinical experience as a variable had often been dichotomised (e.g. high versus low experience), when, in fact, level of clinical experience is a continuous variable. Dichotomisation of this variable reduces statistical power. Previous studies also assessed amount of clinical experience only by number of clients seen. There are, however, other ways to measure amount of clinical experience, such as length of time specialising in the field.

In analysing their data, Spengler et al. (1990) treated clinician experience as a continuous variable, and looked at both number of clients seen and length of time in the field as measures of experience. Their results suggested that experience (when measured as length of time of clinical contact with clients people with learning disabilities) did indeed interact with diagnostic overshadowing. They found that more experienced counsellors were less likely to recommend psychotherapy and

psychopharmacological treatment, but rated the person with a learning disability as more 'neurotic' than did less experienced counsellors.

Spengler et al. (1990) also discussed clinician experience with reference to psychological theories of stereotyping. One interpretation of this body of literature is that experience of working with people with learning disabilities should prevent the overshadowing bias. There is evidence to suggest that people appear to think in a more complex fashion about groups with whom they are involved and more stereotypically about groups with whom they have less involvement (Linville & Jones, 1980). Stereotypes have also been shown, however, to be highly resilient and to strengthen over time, even in the face of experience with stereotyped groups (Gurwitz, 1977). It is possible, therefore, that clinical experience might not reduce overshadowing, and that it might possibly be related to increased bias.

Spengler et al. (1990) interpreted their results as supporting the argument that stereotypes can become strengthened over time. Rehabilitation counsellors were asked to participate in their study, so the results may not necessarily generalise to other groups of clinicians. It is necessary to attempt to replicate these results with other groups of professionals, such as clinical psychologists and psychiatrists, who play a greater role in diagnosis and treatment decisions

Treatment bias:

Results from diagnostic overshadowing studies have suggested the presence of a treatment bias. Participants have generally rated individuals with learning disabilities as less likely to benefit from psychotherapy than those without a learning disability.

Some authors have suggested that diagnostic and treatment overshadowing biases are different but related phenomena. For example, in a study carried out by Garner et al. (1994), there was evidence for a diagnostic overshadowing bias, but treatment decisions were not affected by the presence of the learning disability label.

There are a number of reasons why treatment bias may differ from assessment bias. Firstly, biased beliefs may not necessarily translate into biased behaviours. Improved assessment and diagnostic procedures may act to reduce the impact of biased beliefs on treatment recommendations. Alternatively, some professionals may not see the value in treating persons with a learning disability or have mistaken beliefs about the effectiveness of treatments with this population. If service provision is poor, some treatments may not seem to be viable options because of practical or financial considerations. Whether or not these issues are relevant remains unclear.

Research into diagnostic overshadowing needs to focus more closely on the treatment bias. The response formats most commonly used in diagnostic overshadowing studies have only provided respondents with two treatment options: psychotherapy and medication. As treatment options for people with learning disabilities are developing, it is now necessary to provide participants with a greater range of responses in order to explore the treatment bias in greater depth.

Outdated terms and concepts.

More generally, response options in previous diagnostic overshadowing studies incorporated terms that are now out of date (such as 'neurotic'). It may also be

informative to include terms that have become increasingly prevalent over the last twenty years, such as Asperger's Syndrome.

Assessment tools:

Finally, assessment tools developed to aid diagnosis should have the effect of improving diagnostic accuracy. It has been argued that many of these tools have not been properly validated for use with people with learning disabilities (Kroese, Dewhurst, & Holmes, 2001; Sturmey, Reed, & Corbett, 1991). It has also been suggested that clinicians do not routinely use these tools, and follow formalised assessment procedures in idiosyncratic fashions (Garb, 1998). An investigation of clinicians' use of standardised assessment tools may be fruitful in increasing understanding of the overshadowing bias.

Aims:

The current study therefore aims to:

- develop the methodology used to assess the presence of the diagnostic overshadowing bias. The studies by Levitan (1983) and Reidy (1987) provided clinicians with increased levels of case detail and failed to find clear evidence of overshadowing. Current standards of clinical practice state that objective data relating to premorbid level of functioning are essential for accurate diagnosis of mental disorders in people with learning disabilities. The current study will therefore provide groups of clinicians with such information, and compare the

classic vignette format with an increased detail condition in order to assess the effect on the overshadowing bias.

- investigate the relationship between length of clinical experience and diagnostic and treatment decisions. Level of clinical experience will be treated as a continuous variable, in order to increase statistical power.

- examine more closely the treatment bias by providing participants with a greater range of response options, and examining correlations between treatment recommendations and length of clinical experience.

- provide alternatives to outdated response terms

- make an initial examination of the use of formalised assessment tools used in clinical practice.

Research Questions:

1. What is the effect on the diagnostic overshadowing bias of manipulating levels detail in case presentations?

2. Does clinical experience, measured by number of months of work in area of specialism, correlate with diagnostic or treatment decisions?

3. Which assessment tools are commonly used by clinicians specialising in learning disabilities?

Hypotheses:

1. The diagnostic overshadowing bias will be weaker in response to the high case detail condition.

2. Clinical experience, measured by number of months of work in area of specialism, will correlate with diagnostic and treatment ratings.

Method

Design:

A 2*2 mixed design was employed (see Figure 1).

Insert Figure 1 about here

Within-Subjects factor:

The two levels of case detail provided the two levels of the within-subjects factor. The classic vignette, first employed by Reiss, Levitan, and Szyszko (1982), provided the low detail condition. Some minor changes to language were made in order to suit U.K. rather than U.S. participants. The extended case description, developed for use in this study, provided the high detail condition.

Between-Subjects factor:

The presence or absence of a learning disability in the individual described in the case description provided the two levels of the between-subjects factor. The presence of a learning disability was indicated by the following introductory passage:

> "...diagnosed with a learning disability in the mild range, according to DSM-IV criteria (IQ in the range 55 – 70, significant limitations in adaptive functioning, and with an onset before the age of 18 years). He attended special classes at school, and left at the age of 16."

The presence of average intelligence was indicated by the following introductory passage:

> "... of average intelligence. He left school at the age of 16, having passed his GCSEs."

Participants:

Identification and Recruitment:

Ethical approval was sought and received from the Ethics Committee of the Psychology Department of the University of Southampton, and from the Eastern Multi-Regional Research Ethics Committee (see Appendix I).

Two groups, each with equal numbers of clinicians specialising in Learning Disability and Adult Mental Health, were required for this study. Potential participants were located from a number of sources:

1. The British Psychological Society's Directory of Chartered Psychologists (British Psychological Society, 2003).
2. Each Trust's directory of clinical psychologists
3. Psychiatrists associated with major hospital units and multidisciplinary teams throughout the three Trusts.

Examination of these sources suggested that there were in excess of 200 potential participants within the three Trusts. It was decided that a minimum of 40 participants was required in order to be in line with previous diagnostic overshadowing research and to achieve sufficient statistical power. Previous studies have achieved response rates of between 30 and 45% (e.g. Alford & Locke, 1984; Reiss et al., 1982; Spengler et al., 1990).

It was clear that there were considerably fewer clinicians specialising in Learning Disability than in Adult Mental Health, so these clinicians were identified and approached as early as possible in order to ensure a balance of specialist skills in both groups. Efforts to contact at least 120 potential participants from the clinicians identified were undertaken.

Potential participants were approached initially by post. This first contact included a covering letter inviting participation (Appendix II), the Information Sheet (Appendix

III) describing the purpose and aims of the study, the Consent Form, and a postage-paid envelope for the return of the consent form. Participants who returned the consent form were then sent two case descriptions, the response forms, and the assessment tools checklist. Once completed, these were returned by post.

It should be noted that ethics committee approval required a general statement about the purpose of the study in the Information Sheet. Clinicians were necessarily alerted to the fact that the validity of previous research using short case descriptions was under question. It is possible that this may have alerted participants to some of the ideas behind the study and influenced the results, but this is unlikely for two main reasons. Firstly, both case presentations were presented as relatively short in comparison to the amount of data that would be gathered in clinical assessment. Secondly, because of the design of the study, no single clinician would have been asked to comment on both and average intelligence case and a learning disability case, and so would not have known that two intelligence conditions were being compared.

Fifty-six clinicians expressed interest in taking part in the study. Forty-eight returned the consent form and agreed to participate. Forty-four fully completed responses were returned

Thirty-nine psychologists participated. Of these, 20 specialised in Adult Mental Health, and 19 specialised in Learning Disability. Five psychiatrists participated. Of these, 2 specialised in Adult Mental Health, and 3 specialised in Learning Disability.

It is important to bear in mind that this sample was, to some degree, self-selecting. Differences between participants who chose to participate and those who declined are not clear. This issue is also relevant to previous diagnostic overshadowing studies, so results will be interpreted in that context.

Stimulus Materials:

Classic vignette:

The classic vignette was identical to that first used by Reiss et al. (1982), and subsequently in several other studies (e.g. Garner et al., 1994; Reiss & Szyszko, 1983; Spengler & Strohmer, 1994; Spengler et al., 1990). Some minor changes to language were made in order to suit U.K. rather than U.S. participants. The full text is available in Appendix IV.

Extended case description:

The extended case description was developed especially for use in this study, and is available in Appendix V. The nature of the repeated measures component of the design meant that each participant was presented with two case descriptions (the short vignette and the extended case description). A possible cumulative confound would have been introduced if the two case descriptions were believed to have been about the same individual, so it was important that each participant viewed their case descriptions as relating to two different people.

It was therefore necessary to introduce biographical and situational variations between the two individuals described. It was also important to ensure that these biographical and situational variations did not somehow alter the perceived severity

of the symptomatology described (i.e. that working for a supermarket is not perceived as being inherently more 'schizophrenic' than working in a restaurant).

A number of steps were taken to ensure that the two cases were different enough to avoid the cumulative confound, and at the same time, were equally suggestive of a DSM-IV (APA, 1994) diagnosis of schizophrenia. The full process of development of the extended case description is available in Appendix VI, and is summarised below.

Firstly, the classic vignette was analysed for biographical information and for information about symptomatology. This information was then used as a template for the construction of a similar case. Care was taken to ensure equivalence of length, and that biographical details were comparable (similar age, employment, and personal history). Care was also taken to ensure that details relating to symptomatology were comparable and equally consistent with a DSM-IV (APA, 1994) diagnosis of schizophrenia. For both cases, an equal number of similar characteristic symptoms were present (Criterion A), social/occupational dysfunction (Criterion B) was present, and duration (Criterion C) was comparable.

Secondly, the two cases were compared in a small pilot study. Independent samples t-tests and descriptive statistics were used to assess whether or not there were any significant differences between the two cases. There were no significant differences between groups on any of the 16 items.

Given the careful development of the second case vignette based on diagnostic criteria, the results of the pilot study, and informal discussions with participants and supervisors, it was concluded that the two case descriptions did not differ significantly in terms of the degree to which they suggested pathology.

Given that the two individuals appeared to be comparable, the new case was developed further into the extended case description. The case information was developed in order to meet the following criteria:

- Symptomatology clearly consistent with a DSM-IV diagnosis of schizophrenia
- Objective data relating to symptomatology
- Objective data relating to pre-morbid functioning

Measures:

Response forms:

The diagnostic overshadowing measure employed the same format as that used in the majority of previous studies (e.g. Reiss & Szyszko, 1983; Seay, 1991; Spengler et al., 1990) (see Appendix VII). Participants completed the response form having read the relevant case description. The response form was used to record both diagnostic and treatment responses.

Participants rated the likelihood that each of ten diagnostic terms was applicable to the individual described. They then rated the likelihood that the individual described would benefit from each of six possible treatments.

Participants responded using a 7-point Likert scale to rate the likelihood that each of the diagnostic options was applicable. They then rated the likelihood that the individual would benefit from each of the treatment options. Likelihood ratings increased from 1 to 7, and included the following statements: Extremely Unlikely; Very Unlikely; Somewhat Unlikely; 50:50 (chance); Somewhat Likely; Very Likely; Extremely Likely.

The sixteen response options included eleven terms that appeared in previous research, and five additional terms, as follows:

Insert Table 1 about here

The first item (learning disability) was included to ensure that the learning disability case presentations adequately suggested the presence of a learning disability, and that the average intelligence conditions adequately suggested average intelligence.

The original treatment terms in this response form have been used in the majority of the research into diagnostic overshadowing. The validity and reliability of this measure is difficult to assess. A number of the diagnostic and treatment terms are relatively well-defined diagnostic labels, and should not be open to much interpretation. Other items, such as 'non-assertive' and 'psychotherapy' may well

mean different things to different clinicians. The new diagnostic and treatment terms are generally more specific, and relate to more narrowly defined diagnoses and forms of treatment.

From the point of view of the comparability of the results with previous studies, it was considered to be important to adhere closely to the original response options (the shortcomings of this are discussed more fully below).

It should be noted that the use of a prepared response form could lead participants to consider diagnostic and treatment options that they would not otherwise have considered. This is a possible criticism of all research adhering to this format (other formats, such as the use of a semi-structured interview, may overcome this problem, but would make comparability of results difficult).

Assessment Tool Checklist:

Two versions of the assessment tool checklist were produced, and are available in Appendix VIII. One version was for use by clinicians specialising in Adult Mental Health, and the other was for clinicians specialising in Learning Disabilities. The checklists contained the names of assessment tools commonly used in clinical practice. The list was developed with the help of a number of clinicians working in these areas of specialisation, and with reference to the tools kept by a number of local psychology departments. Participants were also prompted to add any assessment tools they used that did not appear on the list.

Procedure:

Participation was carried out via mail, following the process described above. All participants responded to two case descriptions (one classic vignette and one extended case description). For each participant, both case descriptions described individuals with equivalent intellectual functioning (i.e. both were of average intelligence or both had a learning disability).

Each participant was assigned to one of two equal groups. It may perhaps have been preferable to have had four matched groups, one for each condition, but this was not deemed to be possible given the constraints on time and scale of this study. Splitting the sample into two groups and using a repeated measures design was seen as a powerful alternative. Statistically, a repeated measures design was desirable. In addition, interpretation of the results would be easier if each clinician could be given the opportunity to respond to two different levels of case detail. Each participant would see only cases of the same type (i.e. both learning disability or both average intelligence) and so would not be alerted to the fact that the two were being compared.

Each of the two groups therefore had 11 clinicians specialising in Adult Mental Health, and 11 specialising in Learning Disability.

Group 1 responded to the Average Intelligence case descriptions, and consisted of 20 psychologists and 2 psychiatrists, equally distributed across areas of specialism. The mean length of experience was 156 months (*sd* = 109.2 months, range = 24 – 360 months).

Group 2 responded to the Learning Disability case descriptions, and consisted of 19 psychologists and 3 psychiatrists. Ten psychologists and one psychiatrist specialised in Adult Mental Health. Nine psychologists and 2 psychiatrists specialised in learning disability. The mean length of experience was 115 months (*sd* = 107.1 months, range = 4 – 300 months).

The order of presentation of the case descriptions was reversed for half of the participants in each condition to account for any order effect.

Data Analysis:

SPSS (version 9.0) was used for all data analysis.

Manipulation check:

Responses to the 'Learning Disability' response item were assessed to ensure that average intelligence or learning disability were appropriately suggested in each condition. T-tests were used to compare groups of responses.

Diagnostic overshadowing:

Ratings for the eight individual diagnostic terms were analysed using a mixed analysis of variance. Following Spengler & Strohmer (1994), the mean of the eight original diagnostic terms was used to give each participant an aggregate 'diagnosis score'. This was then analysed using the same procedure.

The presence of significant interactions of response group by level of case detail was assessed. In the case of significant interactions, post-hoc t-tests were conducted to explore this interaction more fully.

Treatment overshadowing:

Ratings for the two original and four new treatment terms were analysed individually using a mixed analysis of variance, as above.

Experience:

Pearson's *r* was used to explore correlations between clinicians' responses on each diagnostic and treatment item and number of months of experience in the field of specialism.

Assessment tools:

Descriptive statistics were used to analyse the number and kind of assessment tools used by respondents.

The high number of dependent variables meant that a large number of analyses were undertaken. This has implications for chance significance and this issue should be borne in mind in interpretation. The mixed ANOVA analyses, especially those involving aggregate scores, are relatively robust analyses (Brace, Kemp, & Snelgar, 2000). The correlations undertaken were intended to show the presence of possible relationships, and would benefit from further examination using larger samples and more powerful forms of analysis, such as regression analysis.

Results

Normality of distribution and homogeneity of sample:

The diagnostic and treatment rating data were assessed for normality of distribution using One-Sample Kolmogorov-Smirnov tests. All response data for both groups in the classic vignette conditions were normally distributed. The same was true for data in the extended case description conditions with two exceptions (the 'non-assertive' and 'depressed' response items). Parametric tests were therefore used for analysis of all response items with the exception of these two.

Responses were also analysed for significant differences between participants' treatment and diagnostic ratings based on area of specialism (Adult Mental Health or Learning Disabilities). T-tests showed no significant differences on any diagnostic or treatment response item.

Manipulation check:

Examination of responses to the learning disability response item (Q1) demonstrated that learning disability and average intelligence were significantly suggested in their respective conditions in both the classic vignette and the extended case description.

Means and standard deviations of ratings for Q1 for learning disability and average intelligence conditions in both case descriptions were as follows:

Insert Table 2 about here

There was a significant difference between the mean ratings in the classic vignette condition ($t = 8.28$, $df = 42$, $p < .01$, two-tailed).

There was also a significant difference between the mean ratings in the extended case description condition ($t = 12.65$, $df = 42$, $p < .01$, two-tailed).

Diagnostic options:

The following bar chart displays mean diagnostic ratings of the classic vignettes from both groups:

Insert Figure 2 about here

The following bar chart displays mean diagnostic ratings of the extended case descriptions from both groups:

Insert Figure 3 about here

Hypothesis 1:

The diagnostic overshadowing bias will be weaker in response to the extended case description than in response to the classic vignette.

In order to test this hypothesis, responses were analysed for significant interactions of group by detail. Significant interactions were found for the following response items:

Schizophrenia:

The case description by group interaction was significant, $F(1,43) = 6.55$, $p < .05$. Post-hoc tests showed a significant difference between groups on the classic vignette ($t = 3.927$, $df = 42$, $p < .01$) but not between groups in the extended case description ($t = 0.892$, $df = 42$, $p = .37$). The interaction is displayed in the graph below:

Insert Figure 4 about here

Psychosis:

The case description by group interaction was significant, $F(1,43) = 8.63$, $p < .01$. Post-hoc tests showed a significant difference between groups on the classic vignette ($t = 3.463$, $df = 42$, $p < .01$) but not between groups in the extended case description (the means are identical to three decimal places).

Insert Figure 5 about here

Asperger's Syndrome:

The case description by group interaction was significant, $F(1,43) = 4.80$, $p < .05$. Post-hoc tests showed a significant difference between groups on the classic vignette ($t = 2.172$, $df = 42$, $p < .05$) but not between groups in the extended case description ($t = 0.948$, $df = 42$, $p = .349$). The interaction is displayed in the graph below:

Insert Figure 6 about here

Aggregate Diagnostic Score:

The case description by group interaction was significant, $F(1,43) = 5.29$, $p < .05$. Post-hoc tests showed a significant difference between groups on the classic vignette ($t = 3.297$, $df = 42$, $p < .01$) but not between groups in the extended case description ($t = 1.186$, $df = 42$, $p = .242$). The interaction is displayed in the graph below:

Insert Figure 7 about here

Treatment options:

The following bar chart displays mean treatment ratings of the classic vignettes from both groups:

Insert Figure 8 about here

The following bar chart displays mean treatment ratings of the extended case description from both groups:

Insert Figure 9 about here

The two-way mixed ANOVA showed significant interactions of case description by group on the following treatment options:

Drug Therapy:

The case description by group interaction was significant, $F(1,43) = 6.67$, $p < .05$. Post-hoc tests showed a significant difference between groups on the classic vignette ($t = 2.906$, $df = 42$, $p < .01$) but not between groups in the extended case description ($t = 0.324$, $df = 42$, $p = .748$). The interaction is displayed in the graph below:

Insert Figure 10 about here

Behavioural Intervention:

The case description by group interaction was significant, $F(1,43) = 6.07$, $p < .05$. Post-hoc tests showed a significant difference between groups on the classic vignette

($t = 3.12$, $df = 42$, $p < .01$) but not between groups in the extended case description ($t = 0.512$, $df = 42$, $p = .61$). The interaction is displayed in the graph below:

Insert Figure 11 about here

Mean ratings and standard deviations for all response options are available in Appendix IX

Hypothesis 2:

Clinical experience, measured by number of months of work in area of specialism, will moderate diagnosis and treatment ratings.

Experience of clinician:

Correlations between length of clinical experience and clinicians' ratings for each diagnostic and treatment item were undertaken for clinicians in Group 2 using Pearson's *r*. Correlations were examined between length of clinical experience and the mean responses of practitioners from both areas of specialisation together and individually. A number of significant correlations were found, and are displayed in the table below:

Insert Table 3 about here

In order to aid interpretation, the presence of correlations between length of clinical experience and ratings on all response items were also undertaken with participants in Group 1. Fewer significant correlations were present, and are displayed in the table below:

Insert Table 4 about here

Scatterplots of some significant correlations were also examined. These are available in Appendix X.

Research question 3:

Which assessment tools are commonly used by clinicians specialising in learning disabilities?

Descriptive statistics were used to analyse responses from the assessment tool checklist. Disappointingly, only 12 (all psychologists) participants completed the checklist (reasons for this are discussed below). Of these, eight specialised in Learning Disabilities. For these eight, the mean number of assessment tools used was 10.3 (range = 1-21). The assessment tools used were placed into one of three categories: Cognitive Assessment, Behavioural/ Functional Assessments, and Assessments of Mental Disorders.

The following graph displays the number of tests in each category used by each participant, and the percentage of all tests used that were developed for use with people with learning disabilities (or which had been normed with this population).

Insert Figure 12 about here

The mean number of assessment tools used by the five clinicians specialising in Adult Mental Health was 11.4 (range = 7-18). The number and kind of assessment tools used by each clinician are displayed in the graph below:

Insert Figure 13 about here

Discussion

Research Question 1:

The first research question related to the effect on the diagnostic overshadowing bias of manipulating levels of diagnostically relevant case information. It was hypothesised that the overshadowing bias would be less apparent when clinicians were responding to the extended case description than when responding to the classic vignette. The results of this study support this hypothesis.

The level of detail contained within the two kinds of case descriptions interacted significantly with clinicians' ratings on four of the diagnosis options, including the two most relevant options for this case description (schizophrenia and psychosis), and the aggregate diagnostic score. For these response options, as has been the case in previous research, significant differences between groups were found for the classic vignette condition. These differences were not significant, however, in response to the extended case description.

There was also a significant interaction of case detail by response group in two of the treatment options. Clinicians in Group 1 (Average Intelligence) in the classic vignette condition rated the likelihood of benefit from drug therapy as higher than did the clinicians in Group 2 (Learning Disability). In response to the extended case description, however, there was no significant difference between the two groups' mean responses. The same is true of ratings for the behavioural intervention option, except that in the classic vignette condition this option was seen by Group 2 as more applicable than

by Group 1. It should be noted that psychologists, who made up the vast majority of both groups, are not qualified to prescribe medication, and may not therefore be the most appropriate group of clinicians to comment on the likely benefits of drug treatment. It is the case, however, that many psychologists, especially perhaps those who specialise in learning disability, will be familiar with the kinds of medication that are commonly prescribed and their likely effects.

Clinicians in Group 2 seem to have modified their decisions about appropriate diagnoses and treatments in response to the additional detail contained within the extended case description. There are a variety of possible reasons why this might have occurred. The view supported here is that the additional relevant case information provided clinicians in Group 2 with more of the necessary means for making accurate diagnostic and treatment decisions. The classic vignettes have been criticised for being brief and ambiguous. It has been shown within the decision-making literature that ambiguous and incomplete information can result in poor decisions (Arkes, 1991). The extended case descriptions were designed to address this shortcoming and provide clinicians with much clearer accounts of symptomatology consistent with a diagnosis of schizophrenia. Indeed, the extended case description was developed with reference to current beliefs about what kind of data are required to make accurate diagnostic decisions for clients with learning disabilities. It was interesting to note that in the classic vignette condition, 6 clinicians in Group 2 (learning disability) made written comments on their response forms to the effect that there was insufficient detail for them to make a good quality judgement.

In the development of the extended case description, care was taken to ensure that number, type, and severity of symptomatology were equivalent to that in the classic vignette. That this goal was achieved is supported by the observation that clinicians' responses to the classic vignette and to the extended case description in Group 1 (Average Intelligence) did not appear to differ significantly on the most relevant diagnostic response options (schizophrenia and psychosis). It is also true that mean responses in both response groups for both classic vignette and extended case descriptions were generally well below the maximum rating of 7. These two observations suggest that it is unlikely that a ceiling effect was responsible for the observed interactions.

Research question 2:

The second research question addressed the issue of the relationship between clinician experience and overshadowing biases. It was hypothesised that clinical experience, measured by number of months of work in area of specialism, would correlate with diagnostic and treatment ratings. The results from this study showed a number of significant correlations.

These results can be considered in a number of ways. One observation was that the degree to which some response items correlated with clinician experience depended on the level of case detail presented to clinicians. With regard to the Learning Disability clinicians in Group 2, the two most appropriate diagnostic terms ('Schizophrenia' and 'Psychosis') correlated negatively with length of clinical experience in the classic vignette condition. Neither of these correlations was

present, however, when the same clinicians responded to the extended case description.

In addition, all of the correlations observed in the classic vignette condition were negative. Increased length of clinical experience was associated with lower diagnosis and treatment responses. These results may be seen as supportive of a strengthening of stereotypes with increased experience, although these data are purely correlational, and causality cannot be assumed. It is also true that correlations in the extended case description were of both directions for diagnosis and treatment response options, which further complicates interpretation.

Some response options that showed significant correlations for both levels of case detail. Ratings of two treatment options correlated negatively with length of clinical experience in both the classic vignette and extended case description conditions. Clinicians with greater experience were more likely to rate both psychotherapy and psychoanalysis as less appropriate than more newly qualified clinicians in both conditions.

It might be argued that these correlations between length of experience and treatment recommendations are in some way more 'robust' because they are present at both levels of case detail. This might reflect a difference between diagnostic overshadowing and treatment overshadowing. It is possible that clinicians' views regarding the appropriateness of certain treatments might be more fixed and less responsive to additional assessment detail than their opinions regarding appropriateness of diagnostic labels.

The next observation is that there were far fewer significant correlations for clinicians in Group 1 (Average Intelligence) than there were for clinicians in Groups 2 (Learning Disability). The clinicians in both groups were relatively well matched in terms of professional background and area of specialisation. There was a mean difference of about 3.5 years experience between the two groups which, when considered in terms of the total length of experience of many clinicians in both groups, probably does not account for this difference. Data regarding other potential differences between the groups were not gathered, and it is therefore difficult to interpret this result further.

Possibly related to this is that in the classic vignette condition, practitioners specialising in Learning Disabilities tended to show relationships between ratings and length of experience where clinicians specialising in Adult Mental Health did not. This might be seen as supportive of the hypothesis that increased experience with a certain group can strengthen stereotypes (since the AMH clinicians are not likely to have had as much experience with people with learning disabilities). Alternatively, clinicians with greater experience with people with learning disabilities might simply have been more confident in their analysis of the brief case details than those with less experience. Again, this relationship was more complex in response to the extended case description. Clinicians specialising in Adult Mental Health showed significant correlations, especially in terms of treatment recommendations.

Overall, these results suggest that there are in fact relationships between length of clinical experience and diagnostic and treatment recommendations. The fact that level of case detail interacts with these relationships is probably important. In situations of greater uncertainty (such as the low detail condition), clinicians with experience with people with learning disabilities may depend more on clinical experience and may also depend more on stereotyped views of this group. Those with greater experience may be reluctant to hypothesise the presence of mental disorders if they have worked for a period of time in services that are more geared towards behavioural and systemic interventions, with reduced emphasis on mental disorders.

In situations of greater certainty (the high detail condition), reliance on clinical experience or stereotypes may diminish, and a more objective analysis of the assessment data may occur. The persistence of correlations between some treatment options and length of experience in the high and low detail conditions may reflect more persistent views about the appropriateness, effectiveness, availability, or viability of certain forms of treatment. That 'Psychotherapy' as a treatment showed correlations in both conditions may reflect real differences of opinion based on clinical practice at time of training. It is only more recently that forms of psychotherapy have been developed and modified for use with people with learning disabilities. The correlations between experience and 'Psychoanalysis' are probably not so relevant, since psychoanalysis was primarily developed for use with people of average intelligence.

In attempting to interpret these correlations, it is important to note that the sample sizes are fairly small (11-22 clinicians), and that direction of causality is uncertain. These results would benefit greatly from replication and development in order to explore some of the possibilities outlined above.

Research Question 3:

The validity and reliability of assessment tools used by clinicians working with people with learning disabilities has been called into question (Sturmey, 1991). The main criticism has been that many of the commonly used tools have not been developed for use with people with learning disabilities, and have not been appropriately normed. One implication of research into diagnostic overshadowing, and something that is supported by the results of this study, is that careful and thorough assessment procedures are of enormous importance if diagnostic errors are to be avoided. Can this goal be achieved by the assessment tools that are commonly used?

This study attempted to make a first step in exploring this issue in relation to diagnostic overshadowing. Unfortunately, the majority of participants chose not to give information about their use of these tools in their own practice. The primary focus of this study was on a methodological issue. Several participants commented that requesting data about individual practice seemed to contradict this, and this is likely to be the main reason why only a minority of participants responded to this section of the study.

The data that were gathered were nonetheless interesting. Clinicians working in Learning Disabilities seemed on average to use about the same number of assessment tools as their colleagues in Adult Mental Health. A greater proportion was directed at cognitive assessment, as might be expected when level of intellectual functioning determines which services an individual accesses. Clinicians working in Learning Disabilities did seem to use a significant number of tests that were geared towards identifying mental disorders in their clients. For several clinicians, however, only about half or less of the assessment tools used had been developed for, or normed with, people with learning disabilities.

It is of course possible that this was a biased sample, and that those clinicians who did respond may have been those who commonly used a greater number of assessment tools. It would be useful to explore this question in greater detail with a larger sample. The appropriate use of well-developed assessment tools is likely to reduce ambiguity in assessment, which in turn may well reduce the likelihood that clinicians' cognitive biases will have a significant effect on the diagnostic process.

Research implications:

The results of this study have implications for the understanding of the nature of the diagnostic overshadowing bias. The diagnostic overshadowing bias has generally been regarded as a fairly robust effect (Jopp & Keys, 2001). The fact that the same sample of clinicians largely failed to exhibit the effect on a number of crucial diagnostic options when a more detailed case presentation was used, however, brings this assumption into question.

If the diagnostic overshadowing bias can be shown to be sensitive to modifications in methodology such as the ones undertaken here, then the validity of the concept is increasingly open to question. It is possible to argue that a clinician bias that has a significant effect on clinical practice would be likely to be observable not only in response to the classic vignette, but also in response to a more detailed case description.

It has been demonstrated here that methodological issues in this area of research require greater attention. Further development of the links between the decision-making literature and the diagnostic overshadowing literature may well be highly informative. When clinical diagnosis and treatment are viewed as decision-making situations, then the experimental approach used here, even with the modifications that have been developed for this study, has a great many differences from decision-making in clinical practice. It has been demonstrated (Arkes, 1991) that the consequences of a decision can influence the quality of the decision-making strategies that an individual employs. The consequences of the decisions differ greatly between the experimental situation and the clinical situation.

A great number of other factors will also differ between the clinical and the experimental situation. There is potentially much richer information available in clinical practice. Interviews with families, employers, and day service providers, and direct contact with the individual concerned can potentially yield good quality, objective information. The information provided in the extended case description provides only a fraction of what is possible. As has been demonstrated (Arkes, 1991), decisions that are based on more complete information are likely to be better.

This is not to say that the diagnostic overshadowing bias is not relevant to clinical practice. There have been a number of experimental demonstrations that clinicians are not necessarily consistent or thorough in clinical assessment, and that hypotheses can be formed quickly before all relevant data are gathered, and are not modified in response to contradictory information (Garb, 1998 summarises this research). What this study demonstrates is that the diagnostic overshadowing bias is more likely to be evident in situations of uncertainty. Thorough and objective assessment will remove much uncertainty, but poor quality or brief assessments will not remove uncertainty. It is therefore quite possible that the bias will operate where actual clinical practice falls short of standards of good practice. Diagnostic and treatment decisions occurring in services in which clinicians are overstretched and under-resourced may therefore be characterised by the overshadowing bias.

This research has also demonstrated that there are relationships between length of clinicians' experience and diagnosis and treatment decisions, at least within the methodology used here. Spengler et al.'s (1990) approach to analysing these data has been successfully replicated, and this approach seems to be a promising way of exploring this issue in the future.

Clinical implications:

The results of this study support the ability of clinicians to use relevant assessment data to make accurate diagnostic decisions. Some of the previous research into diagnostic overshadowing has been rather more pessimistic about the abilities of clinicians. The need for gathering objective data that are as complete as possible in

clinical assessment is probably the main clinical implication of this study. If assessments data are incomplete then the diagnostic overshadowing bias may be more likely to come into effect.

The significant relationships between length of clinical experience and diagnostic and treatment decisions, especially in relation to low levels of case detail, also have clinical implications. Although richness of clinical experience may have many benefits, it may also be useful for clinicians to be aware of potential limitations. It is unclear in this study why increased experience was associated with generally lower diagnostic and treatment ratings. One possibility, which has been put forward elsewhere (Garb, 1998) is that increased experience can result in overconfidence in a hypothesis before all data are properly considered. Arkes (1991) suggests that increasing awareness of ones own decision-making processes is one of the best ways of avoiding bias.

Although the data relating to this sample's use of clinical assessment tools were incomplete, some interesting trends were suggested. The clinicians who responded generally used a wide range of assessment tools. Many had been developed especially for use with people with learning disabilities, and many were also directed at assessing the presence of mental disorders, such as anxiety, depression, and psychosis. It was also clear, however, that some assessment tools being used were not developed for use with people with learning disabilities, so their validity may be questionable. These practitioners seemed to be interested in assessment tools to measure a range of possible difficulties, and are open to a variety of explanations for an individual's difficulties. With the development and use of properly validated

tools, clinician cognitive biases, such as the diagnostic overshadowing bias, will be likely to be reduced.

Strengths of current study:

This study represents a first attempt to manipulate levels of diagnostic information within same study. This was important because of the discrepancies in results of other studies that have diverged from the classic vignette format. This study has attempted to retain aspects of the classic vignette format so as to ensure comparability of results, and has also attempted to introduce systematic variations based on theoretical and clinical knowledge. The simplicity of the design and the consequent clarity of results (at least in relation to first research question) are seen as strengths of this study. The within-groups aspect of the design is seen as particularly successful, because the same group of clinicians have demonstrated an ability to respond with greater accuracy when presented with more complete diagnostic information.

A second area of strength is the role of the participants in the diagnostic and treatment process. In contrast to some other studies, this research has incorporated participants who play a central role in treatment and diagnosis. This must add to the relevance of the results to clinical practice. The consideration of the decision-making literature in relation to the design of this study was beneficial. This area of literature is being seen as increasingly relevant to clinical assessment and treatment, and it provided a good framework in which to consider the results of this and previous studies.

This study has also successfully updated some aspects of the methodology. The initial examination of use of assessment tools was also seen as a strength, and is potentially a useful avenue for further examination.

The investigation of the relationship between clinician experience and diagnosis and treatment decisions following the suggestions made by Spengler et al (1990) is a strength of this study. The fact that these relationships could be examined not only in relation to the classic vignette, but also in relation to the extended case description was a benefit of this design.

Areas for improvement:

Some aspects of the sample of clinicians participating may be seen as problematic. Fewer psychiatrists participated than had been hoped, and it might perhaps have been better to have focused efforts to recruit participants solely on clinical psychologists. This would have resulted in a more homogenous sample, and conclusions could have been framed specifically in relation to clinical psychologists.

The operational definition of some response terms was unclear (this is also a criticism of previous diagnostic overshadowing studies). Clinicians may have had different understandings of what it is to be 'emotionally disturbed', or what constitutes 'psychotherapy'. This criticism is applicable primarily to some of the original diagnostic terms that were included for comparability with other studies and for use in the aggregate diagnosis score. It is also true that there was some overlap between some of the treatment terms.

This study is still based on the analogue methodology. Although important and necessary developments were made to the case presentations, this experimental study is still far removed from actual clinical practice. It was possible to make judgements about implications for clinical practice because responses to two levels of case detail could be compared. This research can still be criticised for its distance from clinical realities. As suggested by Jopp and Keys (2001), research into the diagnostic overshadowing bias must move into clinical environments. The results of this study only support the necessity of this development.

The lack of data collected regarding assessment tools was disappointing. Comments from some clinicians suggested that they were uncomfortable about giving information relating to their own clinical practice. This piece of research was an investigation about methodology and was necessarily presented as such. It seemed that asking for information about individual clinical practice seemed contradictory to this goal to some participants. This sensitivity was also reflected in the treatment of the research proposal by the Multi-Regional Research Ethics Committee, who initially conveyed surprisingly strong reservations about a project which did not involve any client contact or any risk of harm whatsoever. Individual clinical practice must be considered in the context of the entire system of mental health care provision. Research into possible clinician cognitive biases, such as the diagnostic overshadowing bias, should therefore avoid implications of individual blame. Conclusions should be directed at making improvements at an organisational and service level.

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Table 1
Original and new response terms

Original diagnostic terms	**New diagnostic terms**
learning disability (mental retardation) schizophrenia personality disorder pychoticism neurotic disorder emotionally disturbed depressed non-assertive thought disorder	Asperger's syndrome
Original treatment terms	**New treatment terms**
needs psychotherapy needs drug therapy.	would benefit from CBT would benefit from psychoanalysis would benefit from a behavioural intervention would benefit from a systemic intervention (e.g. family input, occupational support, etc.)

Table 2

Manipulation Check Response Item: Means and Standard Deviations

	Classic Vignette	Extended Case Description
Average Intelligence	Mean = 2.55 SD = 1.22	Mean = 2.27 SD = 1.03
Learning disability	Mean = 5.68 SD = 1.23	Mean = 5.91 SD = 0.87

Table 3

Group 2: Correlations Between Experience and Diagnostic and Treatment Ratings

Classic Vignette		**Extended Case Description**	
Response Item	**r**	**Response item**	**r**
Schizophrenia • LD practitioners only	 -.611*		
Psychosis • LD practitioners only	 -.645*		
		Emotionally disturbed • AMH & LD practitioners • LD practitioners	 .477* .603*
Psychotherapy • AMH & LD practitioners • LD practitioners	 -.520* -.625*	Psychotherapy • AMH & LD practitioners • LD practitioners	 -.565** -.708*
Psychoanalysis • LD Practitioners	 -.741**	Psychoanalysis • AMH & LD practitioners • LD practitioners • AMH practitioners	 -.654* -.643* -.677*
		Behavioural Intervention • LD practitioners • AMH practitioners	 .705* -.739*

Note. *correlation is significant at the .05 level (two-tailed)
**correlation is significant at the .01 level (two-tailed)

Table 4

Group 1: Correlations Between Experience and Diagnostic and Treatment Ratings

Classic Vignette		Extended Case Description	
Response Item	R	Response item	R
Asperger's • AMH & LD Practitioners	.526*		
Behavioural Intervention • AMH Practitioners Only	-.619*	Behavioural Intervention • AMH & LD Practitioners • AMH Practitioners Only	-.499* -.812**

Note. *correlation is significant at the .05 level (two-tailed)
**correlation is significant at the .01 level (two-tailed)

Figure 1
Study Design

		Within Subjects Factor	
		Classic vignette (low detail)	**Extended case description** (high detail)
Between Subjects Factor	**LD case**	LD practitioners (group A, n=11) AMH practitioners (group A, n=11)	LD practitioners (group A, n=11) AMH practitioners (group A, n=11)
	Average intelligence case	LD practitioners (group B, n=11) AMH practitioners (group B, n=11)	LD practitioners (group B, n=11) AMH practitioners (group B, n=11)

Figure 2
Classic Vignette: Mean Diagnostic Ratings

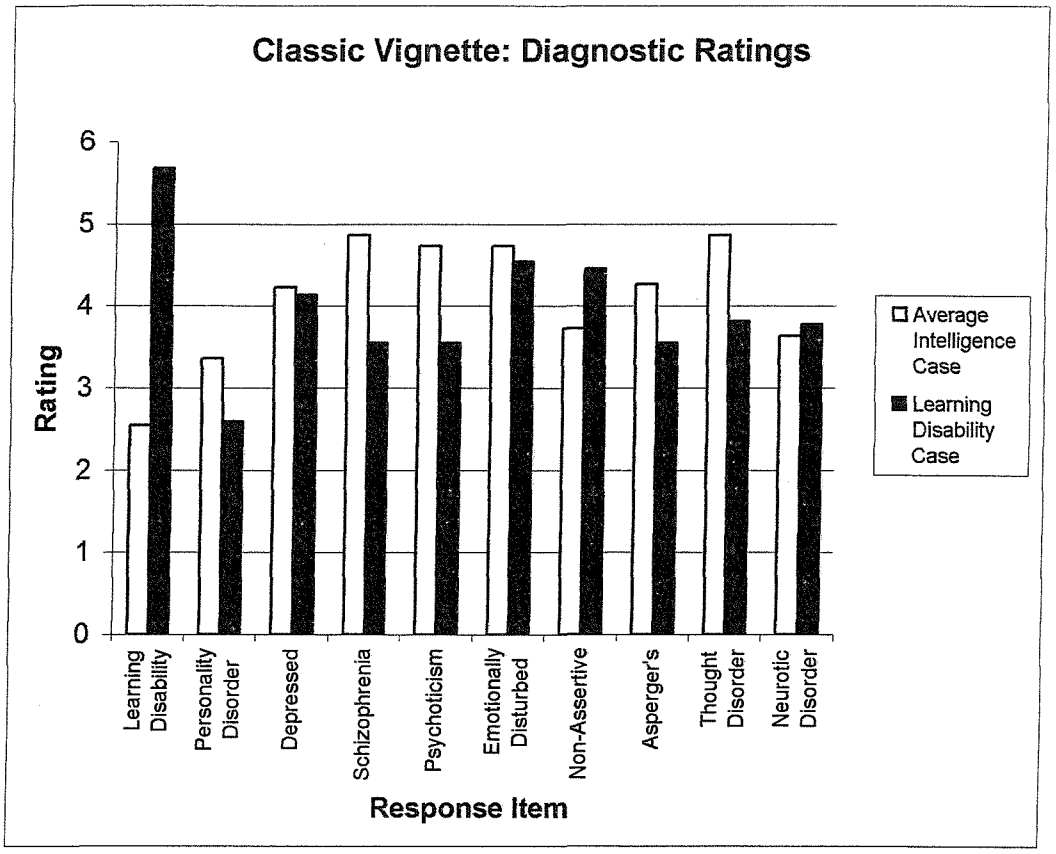


Figure 3

Extended Case Description: Mean Diagnostic Ratings

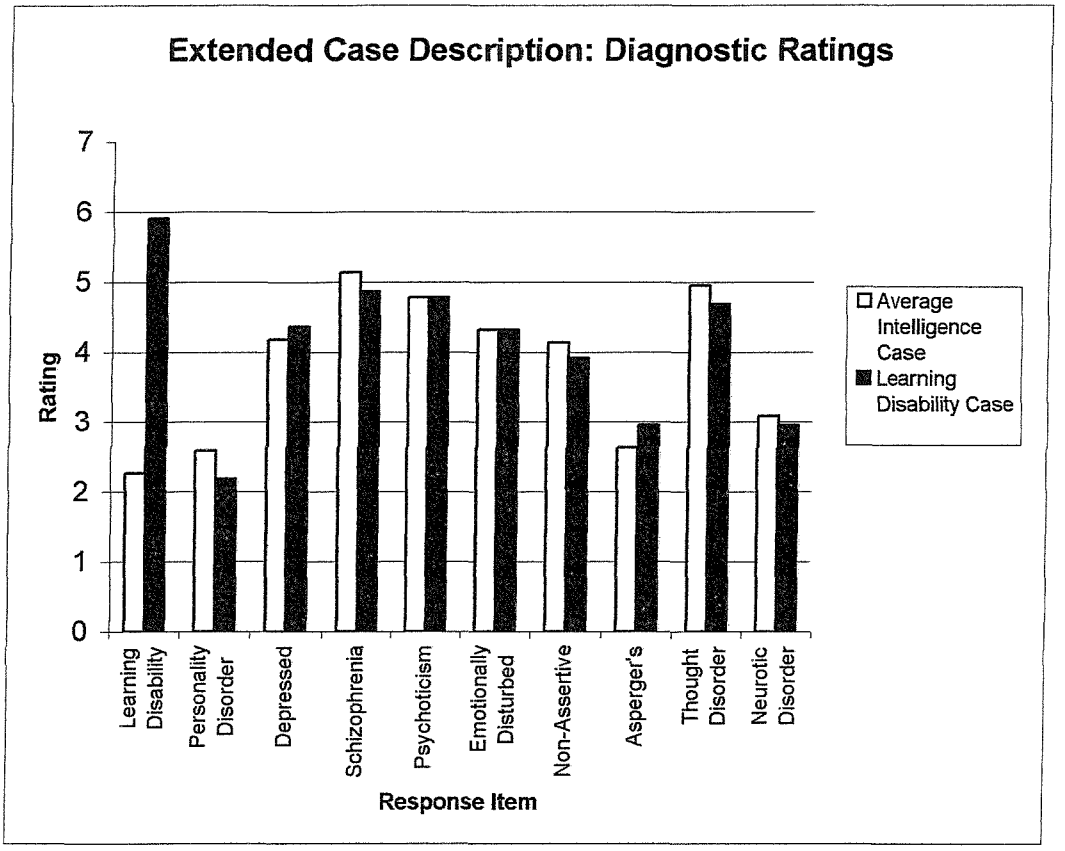


Figure 4

Schizophrenia Response Item: Interaction of Group by Case Detail

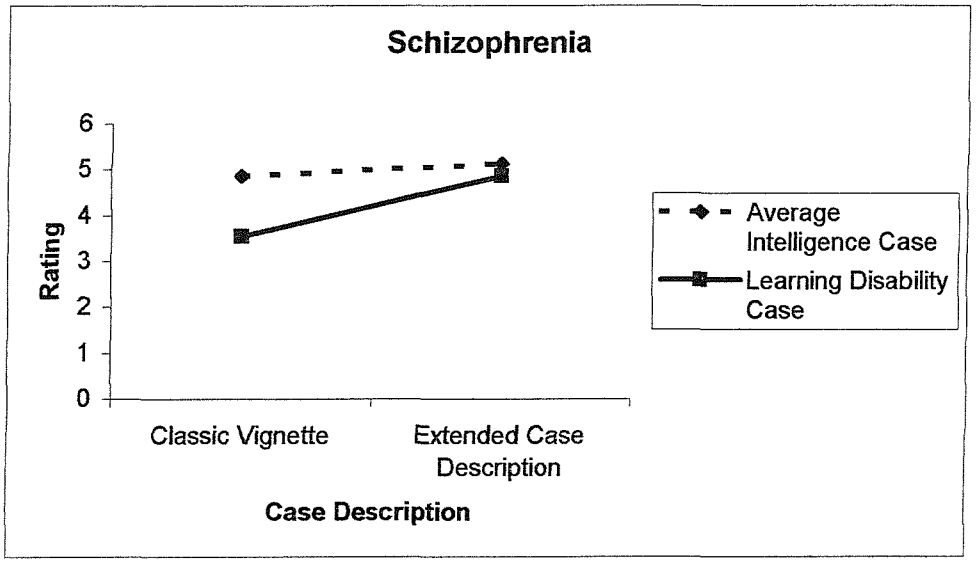


Figure 5
Psychosis Response Item: Interaction of Group by Case Detail

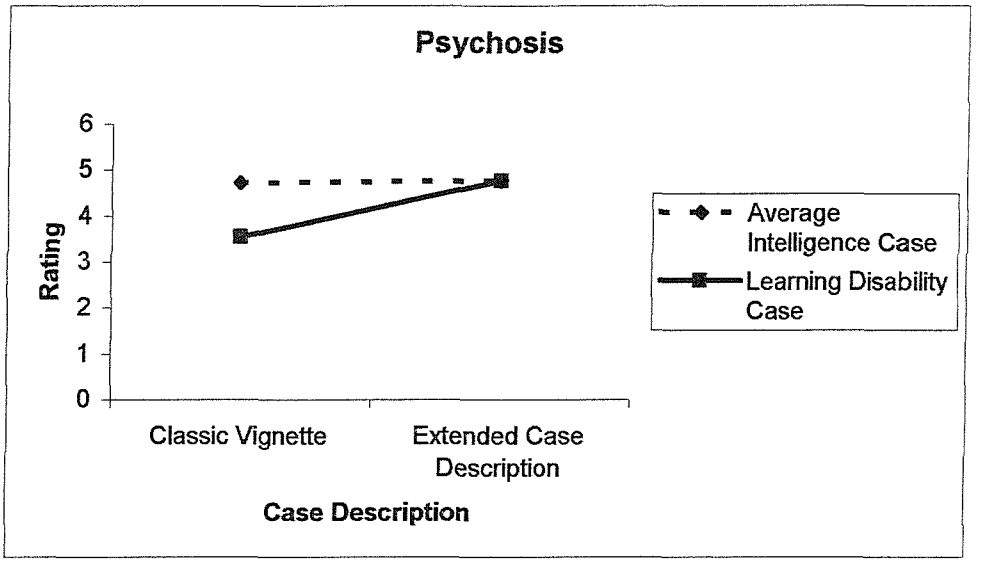


Figure 6

Asperger's Syndrome Response Item: Interaction of Group by Case Detail

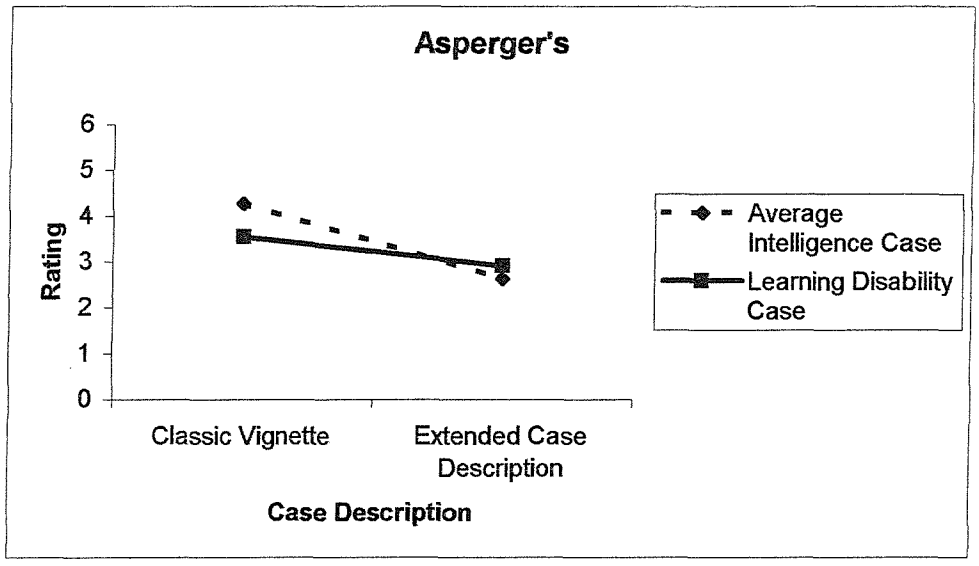


Figure 7

Aggregate Rating Score: Interaction of Group by Case Detail

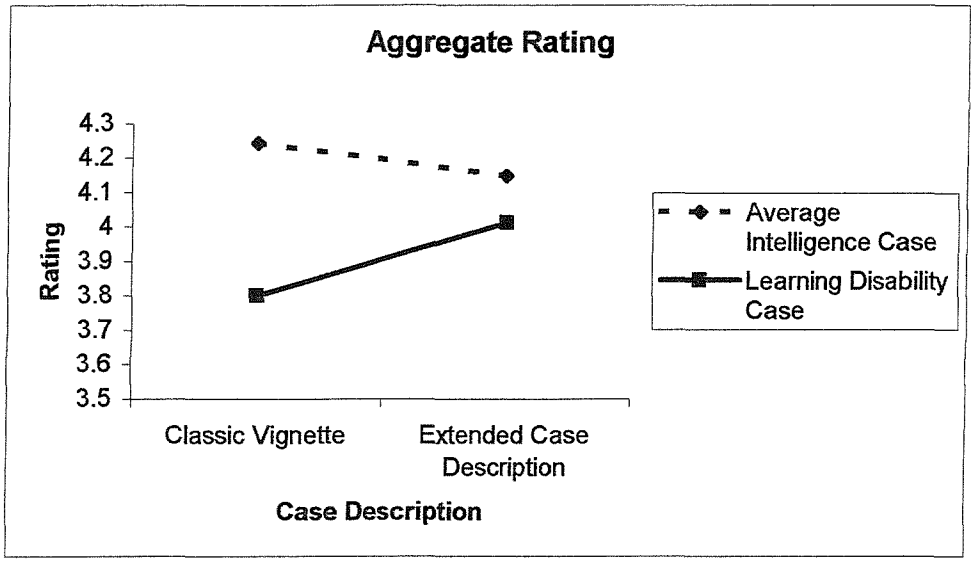


Figure 8
Classic Vignette: Mean Treatment Ratings

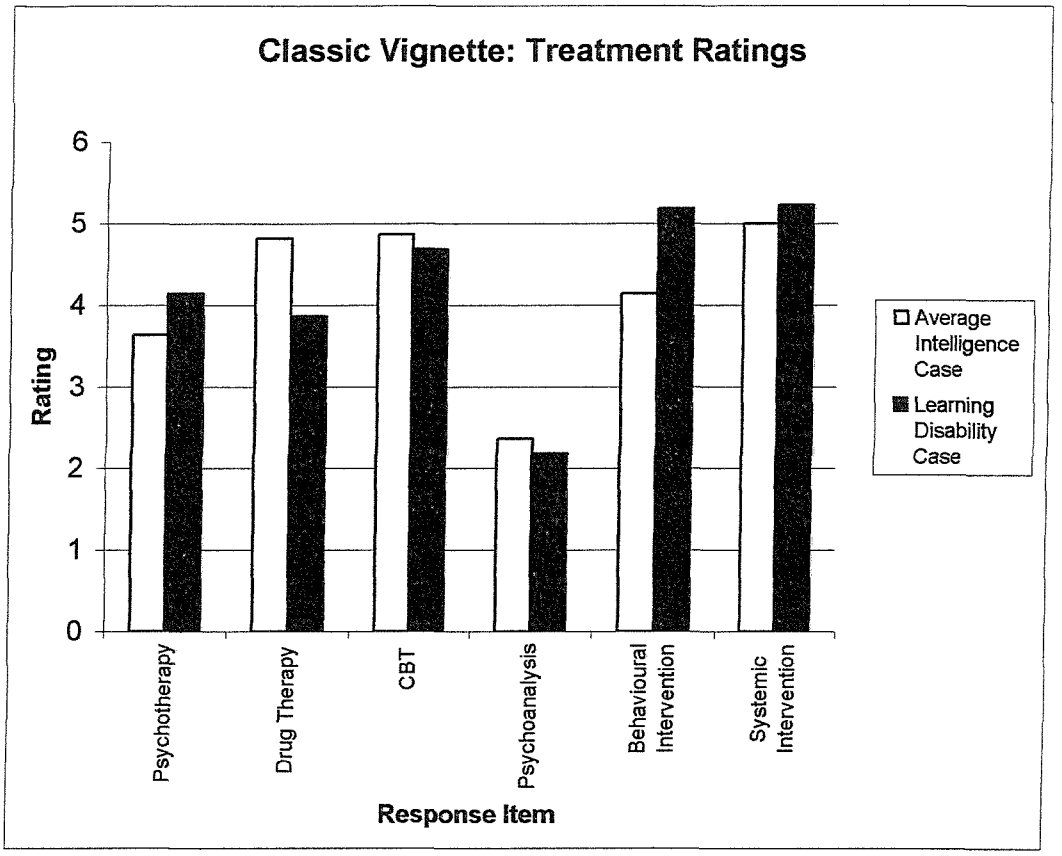


Figure 9

Extended Case Description: Mean Treatment Ratings

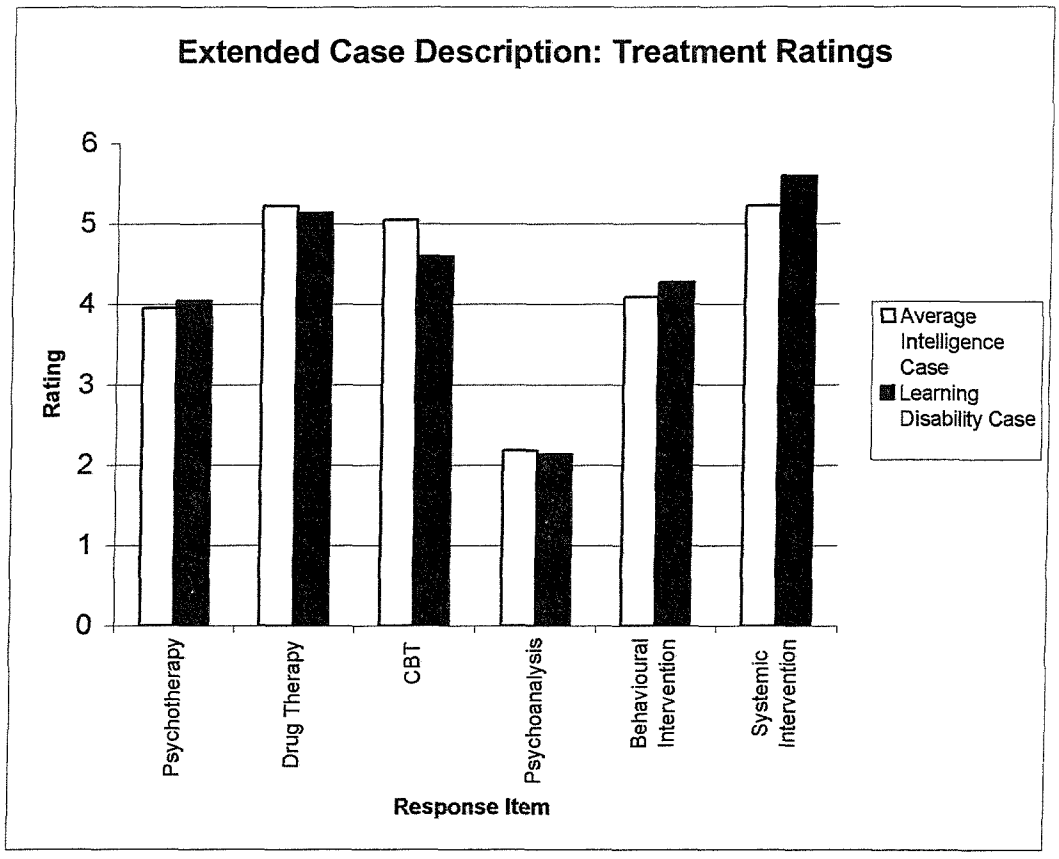


Figure 10

Drug Therapy Response Item: Interaction of Group by Case Detail

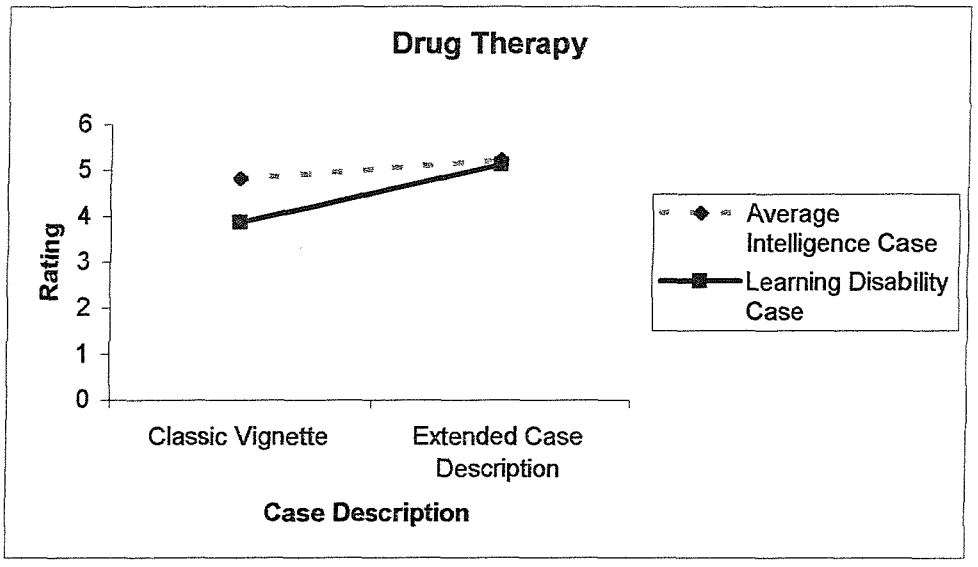


Figure 11

Behavioural Intervention Response Item: Interaction of Group by Case Detail

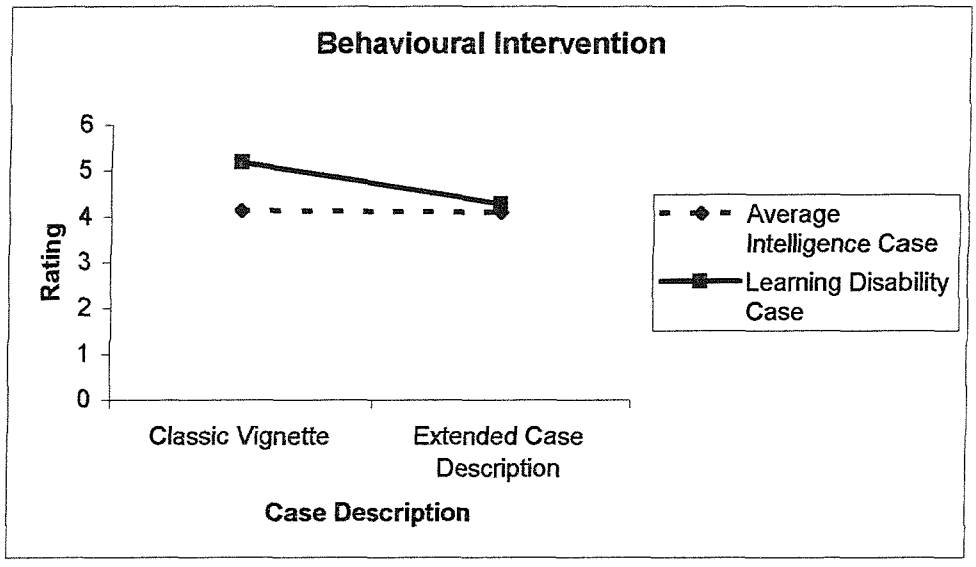


Figure 12

LD Practitioners' Use of Assessment Tools

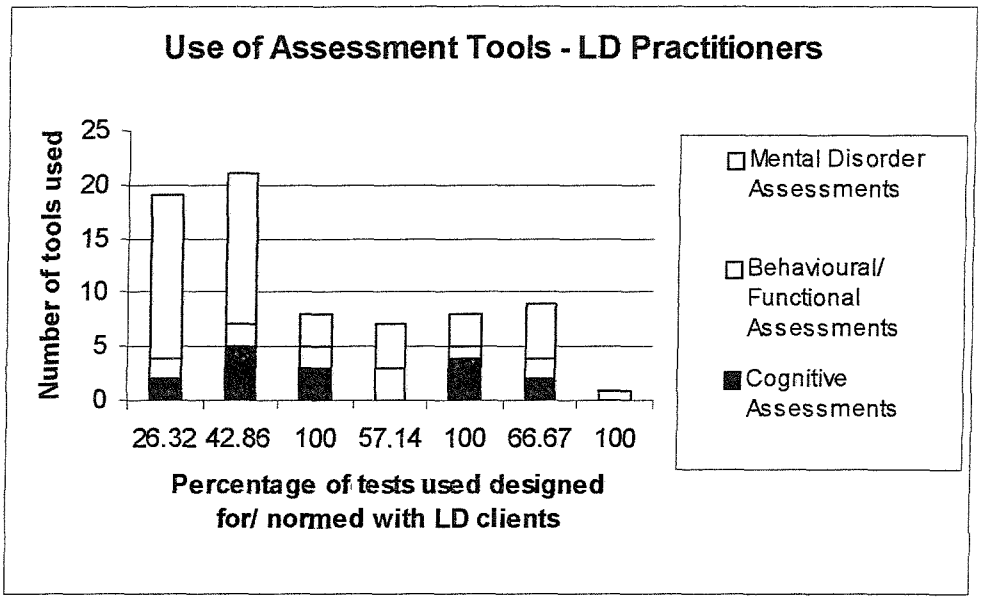
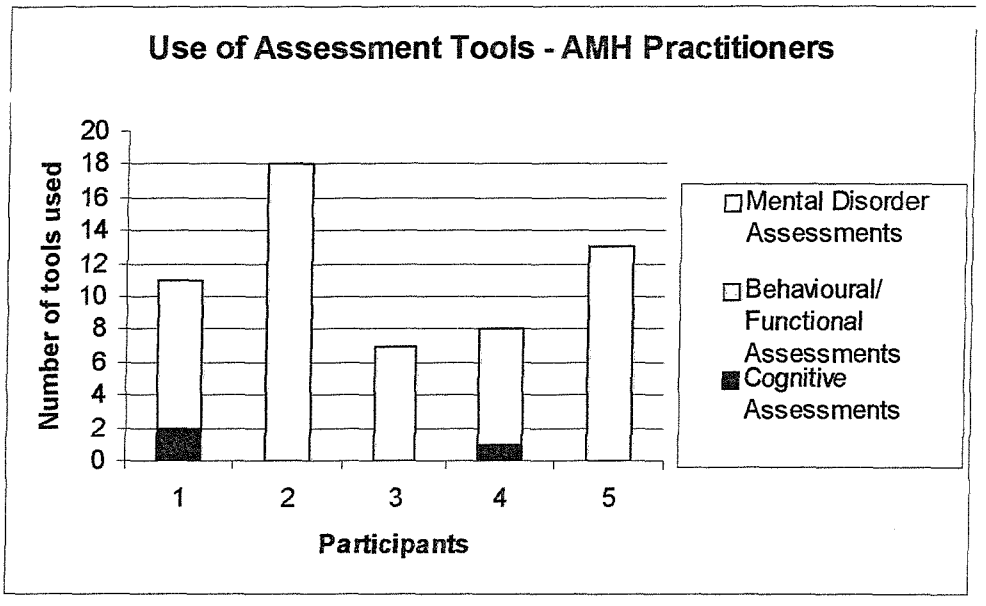


Figure 13

AMH Practitioners' Use of Assessment Tools



APPENDICES

Contents

Appendix I
Ethical Approval (University and MREC)

University of Southampton

Department of Psychology

University of Southampton
Highfield
Southampton
SO17 1BJ
United Kingdom

Telephone +44 (0)23 8059 5000
Fax +44 (0)23 8059 4597
Email

31 July 2002

Richard Thomas
37 Fellows Road
Cowes
Isle of Wight
PO31 7JN

Dear Richard,

Re: A comparison of methodologies in a Diagnostic Overshadowing Study

The above titled application - which was recently submitted to the departmental ethics committee, has now been given approval.

Should you require any further information, please do not hesitate in contacting me on 023 8059 3995. Please quote reference CLIN/2002/23.

Yours sincerely,

Kathryn Smith
Ethical Secretary

cc. Janet Turner

Dr S Evans - Chairman **Dr M Wilkinson - Vice Chairman**
Eastern MREC
All correspondence to:
Anne Burnley
House No.1
Papworth Hospital NHS Trust
Papworth Everard, Cambridge, CB3 8RE
Tel: 01480 364757
Fax 01480 364887
Email: EasternMREC@aol.com

Our ref: catD/035011caapril03

9th April 2003

Mr R Thomas
3 Margaret Close
Bognor Regis
West Sussex
PO21 3AA

Dear Mr Thomas

Research Protocol: 03/5/011
Proposal Title: clinical impression of short case presentations

USE YOUR MREC REFERENCE ON ALL CORRESPONDENCE AND QUOTE IT WHEN MAKING TELEPHONE ENQUIRIES

The Chairman and lead members agreed that there is no objection on ethical grounds to the proposed study. I am, therefore, happy to give you our approval on the understanding that you will follow the conditions of approval set down below. A record of the review undertaken by the MREC is contained in the attached MREC response form. The project must be started within three years of the date on which MREC approval is given.

While undertaking the review of your application the MREC noted the research involves the establishment of a new disease or patient database for research purposes/the use of an existing database collected for previous research or other purposes with subsequent patient contact. **For this reason you are asked to read carefully the sections concerning LREC involvement and local NHS management set out below as there are specific requirement involved when undertaking such research.**

MREC Conditions of Approval.

- The protocol approved by the MREC is followed and any changes to the protocol are undertaken only after MREC approval.
- If projects are approved before funding is received, the MREC must see, and approve any major changes made by the funding body. The MREC would expect to see a copy of the final questionnaire before it is used.
- You must complete and return to the MREC the annual report form (progress of study) that is enclosed, and the final report form when your research is completed. (use the progress of study report form for the annual and final report).
    - You must promptly inform the MREC of:

(i) any changes that increase the risk to subjects and/or affect significantly the conduct of the research;

(ii) any new information that may affect adversely the safety or welfare of the subjects or the conduct of the trial.

    - You must complete and return to the MREC the enclosed annual review form once a year, and when your research is completed.

LREC involvement

When undertaking the review of your project the MREC observed that there is/ limited patient contact by a local clinician who is performing technical procedures or additional data collection as described in the MREC approved protocol/ initial contact by a local clinician for purposes of recruitment. It is felt that these tasks appear well within his/her routine professional competence and adequate facilities for such procedure are available as part of his/her normal professional practice.

For this reason you are asked to only inform the appropriate LREC of the project by sending a copy of this letter and also **giving the name and contact details of the local clinician involved**. If (unusually) the LREC has any reason to doubt that the local clinician is competent to carry out the tasks required, it will inform the clinician and the MREC that gave ethical approval giving full reasons.

You are not required to wait for confirmation from the LREC before starting your research.

Local NHS Management

The local clinician must inform his/her NHS organisation of their co-operation in the research project and the nature of their involvement. Care should be taken to ensure with the NHS organisation that local indemnity arrangements are adequate.

Legal and Regulatory Requirements

It remains your responsibility to ensure in the subsequent collection, storage or use of data or research sample you are not contravening the legal or regulatory requirements of any part of the UK in which the research material is collected, stored or used. If data is transferred outside the UK you should be aware of the requirements of the Data Protection Act 1998.

ICH GCP Compliance

The MRECs are fully compliant with the International Conference on Harmonisation/Good Clinical Practice (ICH GCP) Guidelines for the Conduct of Trials Involving the Participation of Human Subjects as they relate to the responsibilities, composition, function, operations and records of an Independent Ethics Committee/Independent Review Board. To this end it undertakes to adhere as far as is consistent with its Constitution, to the relevant clauses of the ICH Harmonised Tripartite Guideline for Good Clinical Practice, adopted by the Commission of the European Union on 17 January 1997. The Standing Orders and Statement of Compliance are available with the application form and guidelines for researchers and on the Internet at www.corec.org.uk.

Yours sincerely

Anne M Burnley
MREC,

Enc. Response form
Progress of study form

Appendix II
Introductory letter to potential participants

Email: rmt300@soton.ac.uk

26.2.03

Dear,

I am a trainee clinical psychologist on the Doctoral Programme in Clinical Psychology at the University of Southampton. I am in the third year and am carrying out my dissertation project. I would like to invite you to take part in this research.

I have enclosed an information sheet describing the aims of the project and what is involved for participants. Briefly, I am looking at a methodological issue related to research and training practices. Mental health practitioners are occasionally asked to respond to hypothetical case information with initial formulations and diagnoses, as part of research or training. Conclusions about clinical practice are often drawn from these artificial exercises. I am investigating the validity of this practice.

As described in the Information Sheet, participation will only take fifteen to twenty minutes. I would like your initial reactions to two short case descriptions that differ in a number of ways. I would like to emphasise that in no way am I going to be assessing the quality or accuracy of your initial impressions. I am simply going to be looking for patterns in groups of responses that might be related to the different kinds of information presented in the case descriptions.

I wonder whether you would read the enclosed Information Sheet, which provides more information about the project? I do hope that you decide to participate. If you do, please would complete and return the attached consent form in the envelope provided? I will then send you the case descriptions and response forms. I can be contacted by email (see above), at the above address, or by telephone.

Thank you very much for your attention.

Yours sincerely,

Richard Thomas
Trainee Clinical Psychologist

Appendix III
Information sheet and consent form

PARTICIPANT INFORMATION SHEET & CONSENT FORM

Study title: Clinical Impressions of Short Case Presentations

What is the purpose of the study?
Mental health practitioners are occasionally asked to comment on hypothetical case descriptions. This occurs most commonly in training sessions, and is intended to aid skills development. It is also an approach used fairly commonly in research.

A number of research studies into clinical decision-making have analysed clinicians' responses to hypothetical case descriptions, and have drawn conclusions about clinical practice based on these responses. Questions about the validity of this method of research have been raised. Some commentators have argued that it might not be appropriate to make generalizations about clinical practice which are based on responses to short case descriptions.

The purpose of this study is to examine this methodological issue more closely. It has been suggested that it is important to bear in mind the type and quality of information given to clinicians when asking them to respond to hypothetical case descriptions.

I would therefore like to present you with two selected case descriptions that differ in a number of ways. I would like to ask you for your initial responses to these case descriptions. It is important to point out that **in no way am I going to be assessing the quality or accuracy of your initial impressions.** I am simply going to be looking for patterns in groups of responses that might be related to the different kinds of information presented in the case descriptions. As stated above, I am interested purely in a question about the methodology of research of this kind.

Why have I chosen to approach you for participation?
I have approached you because you are a Psychologist working in this area. I am approaching about 60 Psychologists and Psychiatrists for participation in this study in this and neighbouring areas.

Is participation voluntary?
Taking part in this research is entirely voluntary. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you do participate, you are still free to withdraw at any time and without giving a reason.

What will be involved?
If you decide to take part, I will send you the two case descriptions that I would like you to read and to which I would like you to respond. I will enclose a rating form for each case description. This form consists of several questions, with responses to be made on a sliding scale from 1 to 7 for each question.

Responding to both case descriptions will probably not take you more than fifteen to twenty minutes. Once you have completed your responses, I would like you to return your response sheets to me in the envelope provided (the postage is already paid).

I will be sending the same case descriptions as you will receive to about 30 other clinicians. To another group of 30, I will be sending two different case descriptions. The allocation of case descriptions to clinicians will be carried out at random.

I will not be approaching you for any further involvement once you have returned your response sheets. I will be comparing clinicians' responses to the four different case descriptions in order to explore the methodological question I outlined above.

I will be very happy to provide you with a summary of any findings. I expect to complete the project by July 31st, 2003.

Will my taking part in this study be kept confidential?
All data received from clinicians will be anonymous. You will not be asked to put your name on the response sheets. All information which is collected during the course of the research will be kept strictly confidential. Names of prospective participants, and those who have agreed to participate will also be kept strictly confidential.

Response sheets will contain a reference number, which will match the reference number on this Information Sheet and on the consent form. If you fill in the response sheet and later decide that you do not want to participate, your data can be removed from the analysis by providing me with your code number (code numbers will not be associated with names of participating clinicians).

I will be carrying out the analysis of the data in conjunction with my supervisor, who is a member of the course team (Clinical Doctorate in Psychology, University of Southampton). The handling, storage, and destruction of data are compliant with the Data Protection Act 1998.

I am an employee of the Taunton & Somerset NHS Trust, and am indemnified under the terms and conditions of my employment. In the event of a complaint, please contact my employers on this number: (01823 333444).

What will happen to the results of the research study?
The results will be contained in the dissertation report that I will submit as part of my doctoral course. Clinicians who participate will not be identified by name or employing Trust.

Who is organising and funding the research?
The research is carried out as part of the Doctoral Programme in Clinical Psychology, University of Southampton. I am employed by the Taunton and Somerset NHS Trust, who fund the course and all expenses involved.

Who has reviewed the study?
The study has been reviewed and approved by the Ethics Committee of the Psychology Department at the University of Southampton, and by the Eastern Multi-Centre Research Ethics Committee (MREC).

Contact for Further Information
If you would like any further information, please contact me by email or at the above address.

Thank you very much for your time.

Yours sincerely,

Richard Thomas
Trainee Clinical Psychologist

Version Number: 2.0
Date: 16.12.02

Ref.

CONSENT FORM

Title of Project: Clinical Impressions of Short Case Presentations
Name of Researcher: Richard Thomas

Please initial each box:

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐
3. I have been informed that the handling, storage, and destruction of data (at the end or withdrawal from the study) is compliant with the data protection act, and I consent to these arrangements. ☐
4. I agree to take part in the above study. ☐

Name of Participant: _____

Signature: _____
Date:_____

Name of Researcher: _____

Signature:_____ Date: _____

Version Number: 2.0
Date: 16.12.02

Appendix IV
Classic Vignette

Introduction
Doug is a 19 year-old man from London, of average intelligence. He left school at the age of 16, having passed his GCSEs.

OR

Doug is a 19 year-old man from London. He has been diagnosed with a learning disability in the mild range, according to DSM-IV criteria (IQ in the range 55 – 70, significant limitations in adaptive functioning, and with an onset before the age of 18 years). He attended special classes at school, and left at the age of 16.

Case Description
Doug recently lost his job in a restaurant, where he had been working for two years. His responsibilities consisted of washing up and clearing customers' tables after they had finished their meals. Doug lost his job following recent incidents in which he had been observed telling customers to finish all of their food and not to be wasteful.

Doug had few friends at school. He went out on one date while he was at school, but the relationship did not develop. When he is in the company of others, Doug will often sit and stare blankly. His parents have also noticed him doing this when he is alone, and have found it difficult to get him interested in anything. At other times, his parents have noticed him smiling, laughing, or muttering to himself phrases such as "Bad boy" and "Doug, don't do that."

Doug's parents are annoyed that Doug is not interested in presenting himself well, and does not always bathe, comb his hair, or clean his teeth in the morning. He often dresses inappropriately for the weather. He also has a habit of stuffing unwanted food into his pockets, and his parents became frustrated when they discovered that he was storing food in his wardrobe. Doug's parents also commented that he talks a lot about God and told them that God punishes people who do not save food.

Appendix V
Extended case description

Introduction:
Joe is a 21 years-old man of average intelligence. He left school at the age of 16, having passed his GCSEs.

OR

Joe is 21 years-old. He has been diagnosed with a learning disability in the mild range, according to DSM-IV criteria (IQ in the range 55 – 70, significant limitations in adaptive functioning, and with an onset before the age of 18 years). He received special educational support at school and left at sixteen.

You have checked his medical records and there is no mention of previous psychological/psychiatric referrals.

This is a summary of the information you have managed to gather so far:

Over the last 6 months, Joe has been experiencing problems at his job in a supermarket. Prior to this difficult period, he had been working successfully at the supermarket for over 18 months. Joe's main responsibilities had been to help customers with their bags and to collect trolleys. He had received praise from his manager and from customers for being hardworking and helpful.

About 5 months ago, Joe's manager told Joe that he was no longer allowed to work with customers, and that he had to work at the back of the store, unpacking stock and clearing up.

You have been able to talk to Joe's manager and some of his colleagues at work:

Joe's manager said that he had been sorry to 'demote' Joe, because Joe had been a reliable and hard-working employee for about two years. He said that the reason why Joe could no longer work with customers was that he had received complaints from customers about Joe's behaviour.

Customers had said that Joe had been telling them to address him as 'Sir Joe' and had been talking about having been knighted by the Queen. Joe's manager was very surprised by the customers' complaints, and did not really believe them, because behaviour like that seemed very out of character for Joe. He then, however, experienced Joe's behaviour first-hand. Joe had been quite adamant that he had been knighted, and eventually, Joe's manager had to send him home early for the day. Joe's manager said that the Joe he knew was pleasant and non-confrontational. He also commented that Joe was in danger of losing his job if he did not sort himself out soon.

Joe's co-workers expressed concern for Joe and said that in the last 6 months he had changed a lot. They said that Joe had been a fairly quiet

person and only really talked much to a couple of other workers. They said that before his problems started, Joe had been reliable and good to work with. The had been surprised to see Joe come into work late several times in the last few weeks, as he was usually the first there. They also remembered laughing when Joe arrived in shorts and a t-shirt one day last week, instead of in his work clothes. On several occasions Joe had also told them to call him 'Sir Joe', and they said that in the last few months he had been talking more and more about serving the Queen.

Joe has continued to live with his parents since leaving school. You visited the family home to talk to Joe and his parents. Joe refused to speak to you and remained upstairs. Joe's parents gave you the following information:

Joe's parents commented that they were puzzled by Joe's recent problems. They said that Joe had seemed happy at work, and that his employers had seemed happy with him. They were also aware of Joe talking about the Queen and being knighted, and stated that they remembered this first occurring about 5 or 6 months ago.

Joe's parents seemed more concerned with other changes in Joe's behaviour at home. Joe's mother said that he had always had a close relationship with his grandparents, but since his troubles at work began, he has been unwilling to spend time with them. She said that in the last half year Joe had seemed uninterested in doing anything other than sit and stare at the TV. She noticed that even when the TV was switched off, Joe would sometimes sit very rigidly and stare into the distance, sometimes for half and hour or so. Joe's mother also talked about noticing that Joe seemed less able to organize himself properly, especially in the morning. She said that all last week Joe had put his work clothes in the rubbish bin at the end of the day. She shouted at Joe for doing this, but she said she did not get any response from him.

Joe's father said that Joe has always been fairly quiet around most people, but that he used to open up at home with his parents. Now, they both found it very difficult to get Joe to talk to them. He said that Joe does not seem to be interested in any of the things he used to be interested in, and does not look forward to watching any of his favourite programmes, such as Eastenders and Star Trek. Joe's father also said that he gets really annoyed with Joe sometimes. On several occasions in the last few months when he has tried to make conversation with Joe, Joe has just copied what is said to him instead of answering the question. Joe's father thinks that Joe is trying to annoy him.

Joe's parents also talked about Joe's earlier years. They said that at school, Joe had never been very sociable, but had managed well enough. The most puzzling part for them was that he had never got into trouble with teachers or people in authority before, and had seemed to cope adequately with his work. They did not recall Joe displaying any other unusual behaviours when growing up, and commented that he had always been a straightforward and down-to-earth kind of person.

Appendix VI
Development of Extended Case Description

Pilot Study: The nature of the repeated measures component of the design meant that each participant was presented with two case descriptions (the short vignette and the extended case description). A possible cumulative confound would have been introduced if the two case descriptions were believed to have been about the same individual. In other words, it was important that each participant viewed their case descriptions as relating to two different people.

It was therefore necessary to introduce biographical and situational variations between the two individuals described. It was also important to ensure that these biographical and situational variations did not somehow alter the perceived severity of the symptomatology described (i.e. that working for a supermarket is not perceived as being inherently more 'schizophrenic' than working for a restaurant).

A number of steps were taken to ensure that the two cases were different enough to avoid the cumulative confound, and at the same time, were equally suggestive of a DSM-IV diagnosis of schizophrenia. This was achieved as follows:

1. *Analysis of classic vignette and construction of a comparable vignette*: two kinds of information were contained within the classic case vignette: biographical information about Doug and his life (e.g. age, employment, personal history, etc.) and information describing symptomatology (e.g. lack of personal hygiene, suggestions of delusion and catatonia). Obviously, there was some overlap between these two kinds of information, and some sections of the vignette were relevant to both categories (e.g. the loss of Doug's job).

   The classic vignette was used as a template for the development of a comparable vignette. Information from both categories described above was highlighted and replaced with comparable information relating to another individual, Joe. Care was taken to ensure equivalence of length, and that biographical details were comparable (similar age, employment, and personal history). Care was also taken to ensure that details relating to symptomatology were comparable and equally consistent with a DSM-IV diagnosis of schizophrenia. For both cases, an equal number of similar characteristic symptoms were present (Criterion A), social/occupational dysfunction (Criterion B) was present, and duration (Criterion C) was comparable.

   DSM-IV symptomatology schizophrenia for Doug and Joe were as follows:
   Doug:
   A. Characteristic symptoms: (Two or more of the following, each present for a significant portion of time during a one-month period of time)
      i. Delusions: ***God punishing wasteful people***
      ii. Hallucinations
      iii. Disorganised speech
      iv. Grossly disorganised or catatonic behaviour: ***Sits and stares blankly when with others or alone, laughs, smiles, & mutters to self, dresses inappropriately for weather, hording & keeping food in pockets***

v. Negative symptoms (i.e. affective flattening, alogia, or avolition): ***Avolition (poor personal hygiene: bathe, comb hair, clean teeth), flat affect (uninterested)***

B. Social/ Occupational dysfunction: ***Loss of job (rude to customers), unsociable***

C. Duration: not explicit, although clear that a degeneration in functioning has occurred

Joe:

A. Characteristic symptoms: (Two or more of the following, each present for a significant portion of time during a one-month period of time)

vi. Delusions: ***delusions of grandeur (knighthood)***

vii. Hallucinations

viii. Disorganised speech

ix. Grossly disorganised or catatonic behaviour: ***rigid posture, echolalia, throwing work clothes away, dressing inappropriately***

x. Negative symptoms (i.e. affective flattening, alogia, or avolition): ***flat affect (uninterested), avolition (getting up late,)***

B. Social/ Occupational dysfunction: ***'demoted' at work – not allowed contact with customers, not socialising with friends or family***

C. Duration: not explicit, although clear that a degeneration in functioning has occurred

2. *Comparison of both vignettes in pilot study:* the classic vignette and the newly developed case vignette were then compared using a sample of eight clinical and trainee psychologists (four of each). It is acknowledged that some members of this pilot sample were not members of the target sample for the main study. All participants had, however, gained experience working in Adult Mental Health settings, and all had received training in mental disorders. The aim of the pilot study was to ensure that the two short case presentations that were equivalent in the degree to which they suggested symptomatology consistent with a DSM-IV diagnosis of schizophrenia, and that the changes in biographical details had not confounded this. Qualified and trainee psychologists were distributed evenly between the two groups.

   Independent samples t-tests and descriptive statistics were used to assess whether or not there were any significant differences between the two cases. There were no significant differences between groups on any of the 16 response items.

   Given the careful development of the second case vignette, the use of DSM-IV criteria, statistical analysis, and informal discussions with participants and supervisors, it was concluded that the two case descriptions did not differ significantly in terms of the degree to which they suggested pathology.

3. *Development of extended case description:* given that the two individuals appeared to be comparable, the newly developed case was developed into the extended case description. The case information was developed in order to meet the following criteria:

   - Symptomatology clearly consistent with a DSM-IV diagnosis
   - Objective data relating to symptomatology
   - Objective data relating to pre-morbid functioning

Appendix VII
Response form (Note that names were changes as appropriate)

Clinical Impressions of Short Case Examples
Response Form 1.

Job title:

Number of years of experience in current area of specialism:

Having read the case example, please circle the number that corresponds with your initial impressions:

1. How likely is it that Doug has a learning disability?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

2. How likely is it that Doug has a personality disorder?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

3. How likely is it that Doug is depressed?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

4. How likely is it that Doug has schizophrenia?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

5. How likely is it that Doug suffers from psychoticism?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

6. How likely is it that Doug is emotionally disturbed?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

7. How likely is it that Doug is non-assertive?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

8. How likely is it that Doug has Asperger's Syndrome?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

9. How likely is it that Doug has a thought disorder?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

10. How likely is it that Doug has a neurotic disorder?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

11. How likely is it that Doug needs psychotherapy?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

12. How likely is it that Doug needs drug therapy?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

13. How likely is it that Doug would benefit from CBT?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

14. How likely is it that Doug would benefit from psychoanalysis?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

15. How likely is it that Doug would benefit from a behavioural intervention?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

16. How likely is it that Doug would benefit from a systemic intervention (e.g. family input, occupational support, etc.)?

1	2	3	4	5	6	7
Extremely unlikely	Very unlikely	Somewhat unlikely	50:50 (chance)	Somewhat likely	Very likely	Extremely likely

Appendix VIII
Assessment tool checklists

A) Clinicians Specialising in Learning Disabilities

____The Psychopathology Instrument for Mentally Retarded Adults (PIMRA) (Matson et al. 1984).

____The Mini-Mental State (Folstein et al., 1975).

____Beck Depression Inventory (BDI) (Beck et al., 1961).

____Beck Anxiety Inventory (BAI) (Beck et al, 1993).

____Hamilton Rating Scale for Depression (Hamilton, 1960).

____Hospital Anxiety and Depression Scale (HADS)

____British Ability Scales (BAS)

____Delusion Rating Scale

____Brief Symptom Inventory

____PIMRA – D (Psychopathology Instrument for Mentally Retarded Adults – Depression Scale) (Senatore et al., 1985).

____Cognitive Assessment of Voices Interview Schedule

____Fear Survey Schedule (FSS) (Duff et al., 1981).

____Standardised Assessment of Personality (SAP) (Mann et al., 1981).

____Vineland Adaptive Behaviour Scale (Sparrow et al., 1994).

____PAS-ADD (Moss et al., 1998).

____Dementia Questionnaire for Persons with Mental Retardation (DMR) (Evenhuis, 1996).

____Beck Hopelessness Scale

____Symptom Checklist (e.g. SCL-90-R)

____General Health Questionnaire (GHQ)

____Anxiety Control Questionnaire

____Mood and Anxiety Symptom Questionnaire

____The Health Anxiety Questionnaire

____*The Schizotypal Personality* Questionnaire

____Rorschach Schizophrenia Index

____Clinical Anxiety Scale

____British Ability Scales (BAS)

Please list any other assessment instruments you use that are not shown above:

B) Clinicians working in Adult Mental Health

Which of these assessment tools, if any, do you use in your clinical practice when working with adults with mental health problems (please tick as appropriate)?

____The Mini-Mental State Examination

____Beck Depression Inventory (BDI)

____Beck Anxiety Inventory (BAI)

____Hamilton Rating Scale for Depression

____Fear Survey Schedule (FSS)

____Standardised Assessment of Personality (SAP)

____Hospital Anxiety and Depression Questionnaire

____General Health Questionnaire

____Anxiety Control Questionnaire

____Mood and Anxiety Symptom Questionnaire

____The Health Anxiety Questionnaire

____The Schizotypal Personality Questionnaire

____Rorschach Schizophrenia Index

____Symptom Checklist (e.g. SCL-90-R)

____Clinical Anxiety Scale

____British Ability Scales (BAS)

____Delusion Rating Scale

____Brief Symptom Inventory

____Cognitive Assessment of Voices Interview Schedule

____Beck Hopelessness Scale

Please list any other assessment instruments you use in clinical practice:

Appendix IX
Sample means and standard deviations

Mean diagnostic ratings and SDs

	Case Descriptions			
	Classic Vignettes		Extended Case Description	
	Average Intelligence	Learning Disability	Average Intelligence	Learning Disability
	Mean (SD)	**Mean** (SD)	**Mean** (SD)	**Mean** (SD)
Personality Disorder	**3.36** (0.90)	**2.59** (1.05)	**2.59** (1.05)	**2.18** (0.80)
Depression	**4.23** (1.02)	**4.14** (1.17)	**4.18** (0.80)	**4.36** (1.00)
Schizophrenia*	**4.86** (0.89)	**3.55** (1.30)	**5.14** (1.04)	**4.86** (0.99)
Psychoticism*	**4.73** (0.88)	**3.55** (1.34)	**4.77** (1.11)	**4.77** (0.87)
Emotionally Disturbed	**4.73** (0.70)	**4.55** (0.91)	**4.32** (0.95)	**4.32** 0.99
Non-Assertive	**3.73** (0.94)	**4.45** (1.18)	**4.14** (0.71)	**3.91** (1.44)
Asperger's*	**4.27** (1.0)	**3.55** (1.22)	**2.64** (1.14)	**2.95** (1.09)
Thought Disorder	**4.86** (0.94)	**3.82** (1.10)	**4.95** (0.90)	**4.68** (0.99)
Neurotic Disorder	**3.64** (1.05)	**3.77** (0.81)	**3.09** (0.81)	**2.95** (0.79)
Aggregate Rating*	**4.24** (0.49)	**3.80** (0.41)	**4.15** (0.37)	**4.01** (0.40)

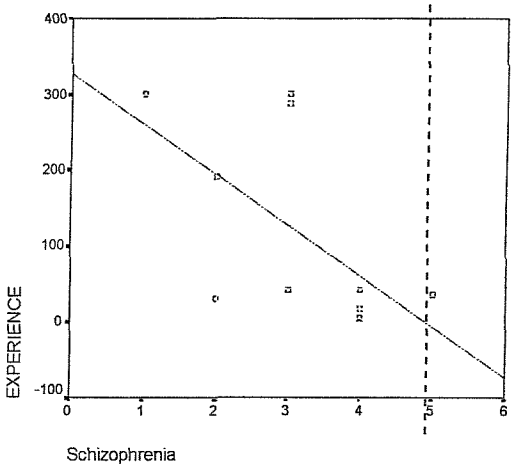
Treatment ratings and SDs

	Case Descriptions			
	Classic Vignettes		Extended Case Description	
	Average Intelligence **Mean** (SD)	Learning Disability **Mean** (SD)	Average Intelligence **Mean** (SD)	Learning Disability **Mean** (SD)
Psychotherapy	**3.64** (1.14)	**4.14** (1.46)	**3.95** (1.21)	**4.05** (1.33)
Drug Therapy	**4.82** (1.05)	**3.86** (1.13)	**5.23** (0.81)	**5.14** (1.04)
CBT	**4.86** (1.17)	**4.68** (0.84)	**5.05** (0.95)	**4.59** (1.18)
Psychoanalysis	**2.36** (1.22)	**2.18** (1.05)	**2.18** (1.14)	**2.14** (0.94)
Behavioural	**4.14** (1.21)	**5.18** (1.01)	**4.09** (1.27)	**4.27** (1.08)
Systemic	**5.00** (0.87)	**5.23** (1.31)	**5.23** (0.69)	**5.59** (1.14)

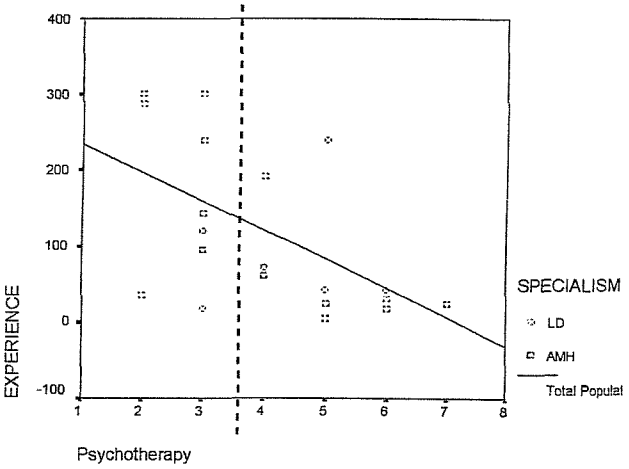
Appendix X

Scatterplots of significant correlations (Group 1 Means are identified by the dotted line):

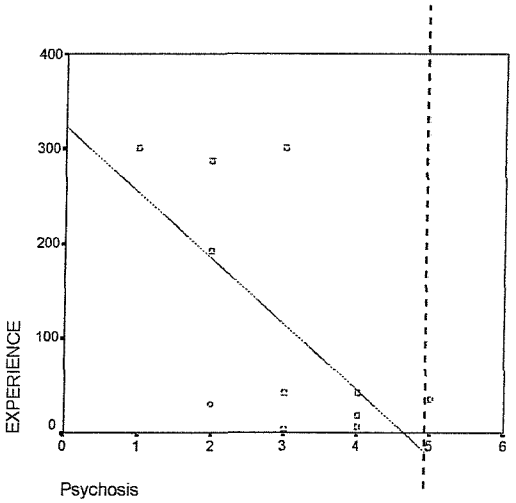
Group 2, Learning Disabilities Practitioners: Classic vignette (schizophrenia response item)



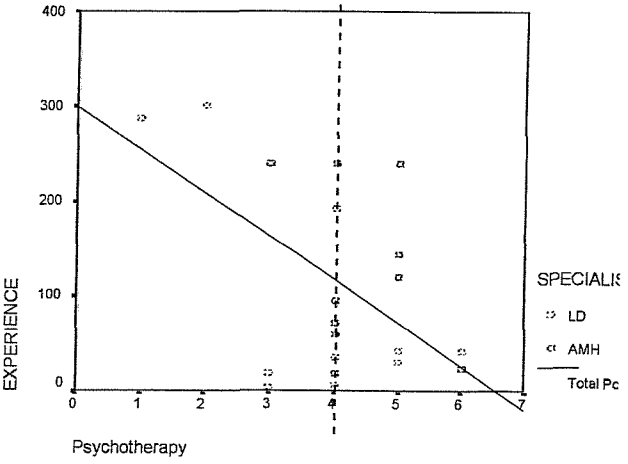
Group 2, LD and AMH Practitioners: Classic Vignette: (psychotherapy response item):



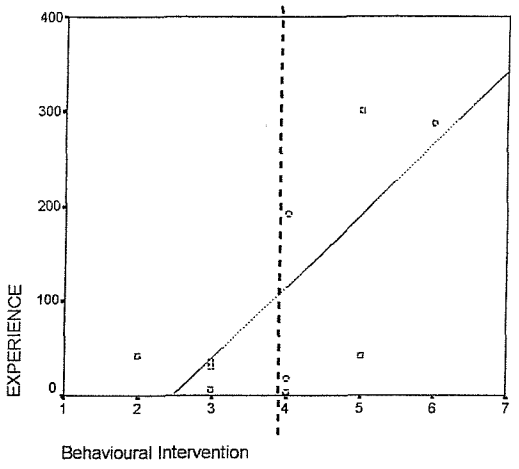
Group 2, Learning Disabilities Practitioners: Classic vignette (psychosis response item)



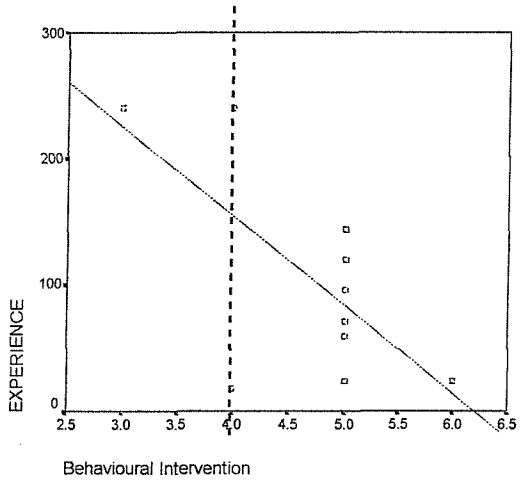
Group 2, LD and AMH Practitioners: Extended Case Description (psychotherapy response item).



Group 2, LD Practitioners, Extended Case Description (behavioural intervention):



Group 2, AMH Practitioners, Extended Case Description (behavioural intervention):



Appendix XI
American Journal on Mental Retardation: Notes to Authors

Information for Authors

Manuscript Submission

Four quality copies of manuscripts should be sent to William E. MacLean Jr., PO Box 3415, Department of Psychology, University of Wyoming, Laramie, WY 82071. The editor may also be contacted via phone, 307-766-5433; fax, 307-766-5432; or e-mail, maclean@uwyo.edu. The street address (for express mail delivery) is Shipping & Receiving, University of Wyoming, 16th and Gibbon Sts., Laramie, WY 82071. The cover sheet should include title, authors, affiliations, and the address of the author to whom correspondence should be directed as well as a running head of forty characters or less. If the manuscript has been prepared for blind review, an additional cover sheet should also be included that contains a running head rather than the author's name on each page of the manuscript; other identifying material should be removed. All manuscripts are sent out for peer review by knowlegdeable colleagues. The initial review process ordinarily requires from 6 to 12 weeks, and revisions are often requested.

Manuscripts should be prepared in accordance with the *Publication Manual of the American Psychological Association* (5th ed.). The instructions given there for preparing tables, figures, references, metrics, and abstracts should be followed. Regular articles are to include an abstract containing a maximum of 120 words. The editor is responsible for obtaining reviews and deciding on the disposition of all manuscripts (acceptance, rejection, or requests for revision). Once a manuscript is accepted for publication, the remainder of the production process is coordinated by the Senior Editor, Yvette Taylor, 10886 Ravel Ct., Boca Raton, FL 33498; e-mail, ytaamr@aol.com; phone, 561-482-0341. For this purpose, a PC-compatible electronic version of the accepted manuscript must be provided, in WordPerfect or Word, on a 3.5 inch diskette. Contact her if you have any technical questions.

Ethical Standards.
All investigations using human participants must have been approved by the human subjects review committee of the author's institution. Submission of a manuscript to *AJMR* while that paper is under review by another journal is unacceptable. Presentation of a manuscript in electronic form on the Internet is considered to constitute publication and may be grounds for rejection of the paper by this journal.

Form.
All sections of the manuscript (including quotations, references, tables, and footnotes) should be double-spaced on 8 by 11-inch paper with at least a 1-inch margin on all sides. Authors should retain the original. Copies will not usually be returned. The preferred length of manuscripts is 20 typed pages or less, but somewhat greater length may be accepted depending on the complexity and importance of the research reported.

Abbreviations and Terminology.
Abbreviations should be held to a minimum. The names of groups or experimental conditions should usually not be abbreviated. The full names of tests should be given when they are first mentioned, with the common shortened form in parentheses.

When context makes it clear whether an author is referring to people with mental retardation or when it is otherwise unnecessary to refer to intellectual level or diagnostic category, authors should use the most descriptive generic terms, such as children, students, or persons, without using qualifiers such as "with mental retardation," "with handicaps," or "with developmental disabilities." Under no circumstances should *retarded* be used as a noun. Prepositional constructions such as "students with mental retardation," or "individuals who have mental retardation' are preferred over adjectival constructions such as "mentally retarded people," except when clear communication dictates occasional use of adjectival designations. Because *normal* has multiple meanings and may inappropriately imply *abnormal* where it is not applied, this word should not be used. Instead, more operationally descriptive terms such as "intellectually average pupils" should be used.

Numerical and Illustrative Presentations and References.
The metric system should be used for all expressions of linear measures, weight, and volume. Tables and figures should be kept to a minimum. Information should be presented only once – whether in the text or in a table or figure. For this reason, short tables may be deleted or combined into larger ones during the copy-editing process. Lines should not be typed or inked within tables, and all columns should be provided with headings. Glossy prints or original line drawings of figures may be kept by the author until the Senior Editor requests them after acceptance of a manuscript. Figure captions should be typed on a separate sheet, but other types of lettering may appear on the figures themselves. All such lettering must be of professional quality and large enough to withstand a reduction of approximately 50%. Release forms (signed, dated, witnessed, and notarized) must accompany photographs of human subjects. Care should be taken to conceal the identity of persons in such photographs. Authors must also secure permission to use any copyrighted tables or figures. References should conform to the American Psychological Association style. Content footnotes are not used.

Footnotes.
These should be kept to a minimum, for example those (a) acknowledging grant support or help in carrying out the research or in preparation of the manuscript, (b) noting change in affiliation of an author, or (d) stating the availability of supplementary information.

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