Critical Review:
Effective Treatment Methods for Children with Selective Mutism

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This critical review examines optimal treatment methods for children with selective mutism (SM). Study designs include: case studies, and single group pre-post test. This review considers treatments including behavioural therapy, individual and family psychotherapy, pharmacotherapy and those geared specifically to teachers to invoke change. Anxiety has been recognized as a major factor in the development of this disorder and consequently this should be considered when developing treatment methods. Often times both behavioural and individual therapies are employed allowing for a change of behaviour while addressing underlying anxiety. Pharmacotherapy has been successful in achieving a decrease in inhibition in social situations.

Introduction

Formerly known as elective mutism, the disorder of selective mutism (SM) can be traced back to the end of the 19th century when Kussmaul first identified its features (Dow, Sonies, Scheib, Moss & Leonard, 1995). The DSM-IV recognizes the disorder as a failure to speak in one or more environments which lasts more than one month (Dow et al., 1995). Anxiety has been recognized as an important element in the onset and persistence of this disorder and should be considered when developing treatment (Dummit, Klein, Tancer, Asche, Martin &Fairbanks, 1997). In a study by Dummit et al. (1997) they determined that only 11% demonstrated additional speech and language concerns, therefore, it is important to recognize that anxiety is clearly a primary symptom that needs specific attention in treating SM whereas speech and language is less commonly a prominent factor in the development and persistence of SM. Zelenko & Shaw (2000) report that SM is quite rare occurring in less than 1 percent of the population with more girls affected than boys and usually is recognized upon entry into school. Kolvin and Fundudis (1981, as cited in Carr & Afnan, 1989) report that successful treatment of SM is quite rare with only 46% of cases showing improvement when treated cases were followed up five to ten years later.

Due to the fact that the disorder has been shown to be anxiety based, it is thought that effective treatment methods would address the underlying anxiety in order to invoke change. A number of researchers have implemented multiple treatment methods in cases of SM aimed at reducing anxiety and social inhibition (Carr et al., 1989; Rye & Ullman, 2000; Rosenberg & Lindblad, 2004; Zelenko et al., 2000). Most commonly behavioural therapy is combined with some form of psychotherapy. Because of the nature of the disorder some drugs have been trialed to treat more persistent cases. Another treatment involved changing how teachers respond and interact to students with SM.

Objectives

This paper will critically examine existing literature regarding the treatment of children with SM. Further, recommendations will be offered based on the evidence gathered regarding the specific types of treatment available for children with SM.

Methods

Search Strategy

Computerized databases, including PubMed, ProQuest, and Health Science: A sage full text collection, were searched using the following search strategy: ((Selective Mutism) OR (Elective Mutism)) AND ((treatment) OR (intervention)). A search was conducted using GoogleScholar using the same searching criteria. The searches were limited to English journal articles or reviews published before December 2008.

Selection Criteria

In order to be included in this critical review research papers were required to consider the treatment of SM in children. All participants held a diagnosis of SM and were children. No limits were set on the demographics other than age (i.e. gender, culture, race or socioeconomic status) of research participants.

Data Collection

The literature search resulted in the accumulation of the following types of articles: single group pre-post test (1), and case studies (6).

Results

Case Studies

Case studies are appropriate for relatively rare conditions such as SM. A drawback however is that manifestations of SM vary therefore it is difficult to report on one particular case and form this as a basis that is representative of all other cases. There is an inherent weakness in the study design as case studies tend to be very specific to the individual and may not generalize well to others with a particular disorder.

Behavioural and Psychotherapy

Carr et al. (1989) looked at the impact of both behavioural therapy and psychotherapy in the case of Jenny, a 6.5 year old girl with a 4 year history of SM. Behaviour therapy was conducted in the form of stimulus fading with reinforcement for vocal behaviours. Jenny also participated in 13 individual play therapy sessions and 6 family therapy sessions. The Child Behaviour Checklist was administered before implementing any therapy and again at the end of the study. Data regarding the amount of time crying and speaking was also collected during the last 10 minutes of each play therapy session.

The researchers presented adequate information regarding the case of Jenny considering both her previous history with the disorder and past treatment attempts. Although the time line of events was often unclear the researchers provided good detailed information regarding treatment methodologies and outcomes. Therapy was implemented in natural school and play environments which reflect the nature of the disorder and would help promote generalization. Another strength of the study, was that data was obtained through two domains including parent report and child observation.

Scores derived from the Child Behaviour Checklist were compared pre and post treatment and indicated clinically significant improvement. Her scores decreased from 59 to 45 and 67 to 58 on the internal and external scale respectively. During play therapy sessions crying behaviour was prominent during the first 7 sessions at which time it ceased and a steady increase in vocal behaviour was observed. It is unknown who collected this data and therefore a rater bias may exist. Researchers reported that carryover of this vocal behaviour occurred as by the end of therapy she was speaking to her teachers and all of her classmates.

These positive results need to be interpreted with caution, as they may not generalize to other individuals with SM. The therapy techniques utilized were appropriate for cases of SM and the procedures for analyzing improvement were appropriate. Overall the researchers have provided suggestive evidence that behavioural and psychotherapy are approaches that warrant consideration in cases of SM.

Rosenberg et al. (2004) described a case of SM in a 6.5 year old boy, Tony, who had refused to speak beginning upon entry into kindergarten. Initially, treatment involved Tony being confronted with situations organized in a hierarchy of 10 situations ranging from least anxiety provoking to most anxiety provoking. Four family therapy sessions were also conducted to help achieve family cohesion and communication. Tony became more comfortable with the therapist and generalized his speech to 4 people outside of the family. A behaviour modification programme was then implemented in the school setting. Tony was progressing well at 1.5 years later and family dynamics were much improved. Six years later it was reported that Tony successfully made the transition into high school and was adjusting well.

Each situation Tony was confronted with was described in detail in the article and could be replicated by other researchers or clinicians. However, they reported that a behaviour modification programme was to be implemented in the school setting but no information regarding the specific techniques and time frame of implementation was provided. Another weakness was that analysis was based strictly on observation of changed behaviour and parent reporting of new behaviour. Further, accuracy and consistency in the reporting of these behaviours is a notable concern. Although behavioural observation for such a condition is appropriate, analysis of the child's internal feelings regarding speaking in the school environment would have strengthened the results of the study. No baseline data was obtained and methods of collecting data were not systematic.

Numerous weaknesses exist within this poorly designed study resulting in concerns for its generalizability and validity for clinical application. As such, the results of this study need to be considered with some speculation and equivocal evidence exists that such techniques would be appropriate for other children with SM.

A persistent case of SM was discussed by Rye et al. (2000). This student was 13 years old and had shown symptoms of SM for 7.5 years. Baseline data was gathered regarding potential anxiety in the form of a subjective unit of distress (SUD) scale where he rated the level of his anxiety on a 10-point scale. Treatment was conducted over 63 sessions (20 to 60 min) over 1.5 years and involved systematic desensitization and

exposure to anxiety provoking situations. He also received training in social speaking skills. Baseline SUD was compared with his SUD rating at different points during the session and significant improvement was noted in all areas. A notable increase in the number of conversations per week and number of people and settings with which he interacted was reported. Number of absences from school were reported to have decreased notably also. One year post treatment he was answering questions in class and speaking freely to classmates and teachers.

The factors analyzed throughout the study were appropriate and complete and addressed the child's internal and external behaviour. The procedures of the study were explained clearly and could be replicated which is another strength of the study. The method of obtaining data was described inadequately and the data was collected by the senior author representing a rater bias.

These authors propose that there are three main components to successful treatment of SM including, decreasing anxiety, avoiding negative reinforcement of the undesired behaviour, and providing training in social speaking skills. Rye et al. (2000) designed a study that was well planned with few weaknesses providing suggestive evidence for factoring in the above components when implementing a treatment programme for an individual with SM.

Zelenko et al. (2000) examined the treatment of a 7 year old boy, who developed characteristics of SM 2.5 years earlier. Much stress was placed on his family due to financial and immigration issues. This case involved treatment occurring on a weekly basis over a period of 7 months in the form of 14 play therapy and 16 family therapy sessions. As changes occurred in the family dynamics, Jose's play behaviour also changed from aggressive themes to more give and take between the therapist and the child. Jose began to speak with strangers in the waiting room, his sister's friend and a classmate. One year after treatment he continued to improve and is speaking freely in school.

The authors provided good background about the family's history and what took place during therapy sessions; however, due the nature of this case, therapy was centered on the specific needs of the child and family. Therefore, this case does not provide specific procedures to use in cases of SM but simply a therapeutic process involving both child and family which could be replicated. A strength was that the researchers considered the family unit and stressed the importance of establishing a trusting relationship in order to make gains and include guidelines to follow when working with immigrant families.

No statistical analysis was conducted and results were not collected systematically. Results were based solely on observation and it was not indicated as to how this information was obtained. These are noteworthy disadvantages to the study design and significantly decrease its merit. Consequently, much caution should be taken when considering such an approach and equivocal evidence exists for the use of play and family therapy with this select population.

Teacher Behaviour

Kern et al. (2007) hypothesized that teacher behaviour played a role in maintaining SM in two students aged 11 and 13 years. In this case study the teachers systematically increased the number of questions posed to the students and the spontaneous or prompted vocal responses of the students were recorded. During baseline assessment the teachers asked no questions of the student with SM. During treatment the teachers asked questions with increasing frequency and complexity with an expectation of a vocal response, which resulted in the initiation and maintenance of the student's vocal behaviour. After one month, intervention effects were maintained indicating that changing the teacher's behaviour was effective in terminating the mutism in these students.

The procedures were explicitly stated and the method of obtaining data was also described well making replication an option. Good interobserver agreement existed when observing the students vocal behaviour. Due to the nature of the data collected no statistical analysis was conducted and results were based solely on observation of the student's vocalizations and what contexts preceded this response. The student and teachers rated the acceptability of the treatment by filling out the Treatment Acceptability Rating Form at the end of treatment. Monitoring the participant's perception of the treatment is a strength that was not offered in any of the other studies.

This is a unique approach to dealing with this disorder and had a positive impact on these children who had been living with this disorder for a significant amount of time. Although it is embedded in a weak research design it has much strength and is recognized as being suggestive evidence that this methodology is advantageous for this population.

Pharmacotherapy

Moclobemide is another drug which is commonly used in cases of adult social phobia and was examined in the case of SM in a 12 year old girl, by Maskey (2001).

Numerous behavioural and psychotherapy approaches were implemented before trialing this drug, none of which were successful. Moclobemide was administered beginning with 75 mgs twice daily and was increased 2 weeks later to 150 mgs twice daily. After the drug was introduced she demonstrated improvement in her verbal output including the frequency and the length of utterance. Further, she had a decrease in anxiety and improvement in her social interaction with her peers. However, a sudden reenrollment back into her old school, where the initial mutism was established, resulted in a resurgence of her past behaviour, seemingly eradicating any gains that had been made. Increasing the dosage of medication did not result in any improvement and was eventually stopped.

The circumstances of this study made it difficult to determine whether or not the use of this medication would have long lasting effects in cases of SM. The researchers obtained data regarding the number of words and utterances vocalized from admission to discharge, however, the methods by which this information was obtained was not explicitly stated. Outcomes of the use of moclobemide were compared using the Wilcoxon-Man-Whitney two-sample rank-sum test with regard to word and utterance frequency on and off moclobemide. This is appropriate as the data analyzed exhibited a similar distribution. However, this nonparametric test is less powerful than a parametric test as it only considers the ranks of the data omitting other pertinent information. The Liebowitz anxiety scale was administered 16 weeks after admission once moclobemide had already been initiated and again after 10 weeks on moclobemide. Her fear and avoidance scores changed from a severe rating to a moderate rating in this 10 week period. It is unclear as to why this test was not used as a baseline measure and administered before treatment began. The fact that the researchers examined both outward behaviour and internal perception of anxiety was a definite strength to the study.

Overall, this study has some definite flaws including a weak study design and it is difficult to draw any significant conclusions regarding the use of moclobemide with this population of children. The evidence projected is equivocal and a great deal of caution should be given when considering a method of treatment of this nature.

Single Group Pre-Post Test

This design offers a stronger level of evidence that case studies and is appropriate for the following study as the data gathered was obtained from a single group before and after the treatment was implemented. Ideally case controls would have been obtained but due to the nature of the disorder withholding treatment is unethical. Having the experimental design set up as a time series is optimal and would have allowed for evaluation of the treatment over a series of time rather than simply before and after treatment.

Dummit et al. (1996) performed a single group pre-post test to investigate the impact that Fluoxetine (a drug used in adult cases of social anxiety) has in reducing symptoms of SM. Twenty-one children diagnosed with SM, aged 5 to 14 years participated in the study. Each child completed questionnaires and standardized tests by certified child psychologists. As well, parents completed questionnaires with regard to their perception of their child's anxiety. Both parents and children reported about their perception of feelings of anxiety. Results indicated that children younger than 10 benefited from the fluoxetine treatment regimen over a 9 week period and experienced a decrease in social inhibition. Specifically, 76% of the participants experienced significant improvement as rated by the treating psychologist.

Although all participants had the same diagnosis they differed in age and therefore their life history with the disorder was dissimilar and other confounding diagnoses were noted in some cases. Considering age further, their reaction to the drug may differ as a result of this factor which may be indicated by the fact that the drug was not as successful with older children. Additionally, the researchers noted that a nine week trial may not have been adequate in determining the effectiveness of this drug with this population. One strength of the study was that Dummit et al. (2008) attempted to equalize the participants by ensuring that each had received at least some form of treatment prior to administering fluoxetine. Experimenters also monitored side effects weekly demonstrating ethical consideration for research participants. The experimenters study procedures were clearly defined including baseline analysis and methods of fluoxetine administration making replication plausible. Published questionnaires for use with this population were carried out before and after drug administration, which providing a measure of change resulting from the fluoxetine treatment. Child psychiatrists conducted interviews and gathered information from scales relevant to the disorder, from both the children and parents. It is unclear whether or not a collection bias exists.

No observation of behavioural change in the different settings where mutism occurs was collected. The social nature of the disorder lends itself to some form of behavioural analysis rather than strictly written questionnaire format. This is a definite drawback to the

study making it very subjective. It is possible that internally children felt less restricted socially however was this enough to change a pattern of behaviour that has been ongoing in some cases for several years? Statistical analysis consisted of a 2 tailed paired t-test which is appropriate for this type of study. Overall, this is a well conducted single group study with some weaknesses, providing suggestive evidence that fluoxetine treatment should be considered when embarking on such an approach. The authors have demonstrated that this is an effective method for this select population (i.e. children less than 10 years old).

Discussion

Each study reviewed implemented a treatment regimen which had a positive impact on the behaviour of the children examined. However, since the majority of the research designs were case studies the level of evidence was limited. At least some weaknesses existed for each of the studies so caution must be exhibited when considering certain approaches. There are definitely methodologies which demonstrated more strength with regard to reliability and validity. When considering design and specifics regarding procedures none of the articles reviews were overly compelling. The strongest evidence existed for the use of fluoxetine, behavioural therapy combined with psychotherapy, and altering teacher behaviour. However, since each child with SM is unique, special consideration must be made for the treatment of individual case. All research has indicated the prominent role that anxiety has in SM and therefore intervention should be geared to help alleviate the underlying anxiety. Other factors including familial issues or speech and language problems should be carefully considered and dealt with appropriately.

Future research is necessary to support or counter the current findings. The majority of studies considered in this review were case studies and it is recommended that efforts be made to employ stronger experimental designs with larger sample sizes, which may lead to stronger levels of evidence. It is also important to ensure methods of data collection and analysis are defined allowing for replication of study findings and implementation in therapeutic settings. However, it is possible that there is not one universal treatment for SM that is a cure all for anyone faced with this disorder. When considering SM it is possible that each individual case needs to be considered independently and could be guided with caution from studies representing a case of similar nature. Identifying a length of time the disorder has manifested and the specific treatment techniques which have proven successful would be helpful in understanding the relationship between treatment efficacy and age of implementation.

Clinical Implications

Due to the fact that SM is rooted in anxiety, intervention should address this anxiety in order to be successful. This critical review did not identify one treatment technique that was most effective for children with SM. This is likely due to the heterogeneity of this population and it is important to understand that children will respond differently to the treatment methods depending on other confounding factors and the duration of the diagnosis.

Suggestive evidence for treating children with SM included altering teacher behaviour, pharmacotherapy and behavioural therapy combined with psychotherapy (Kern et al., 2007; Dummit et al., 1996; Carr et al., 1989; Rye et al. 2000). Behavioural therapy on its own may not be as effective as it doesn't consider the prominent role that anxiety plays in the manifestation of the disorder, therefore, psychotherapy is an essential addition to any treatment regimen of this nature. Further, since speech and language concerns are often overemphasized in cases of SM careful assessment must be conducted to differentiate students where this is a factor (Dummit et al. 1997).

Overall, consideration of the child's specific situation (i.e., length of diagnosis, confounding factors, and family dynamics) and developing a good relationship with the family are important elements in working with a child with SM. With more knowledge regarding the causes and features associated with SM, more appropriate interventions have been developed to treat the core features and thus are more successful and long lasting.

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