

The relationship between ADHD diagnoses in children and parental attitudes towards trialing treatment

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Abstract

The aim of this study was to investigate the attitudes of parents with ADHD diagnosed children and observe how certain attitudes influence parental decisions and opinion with regards ADHD medication. This study was a quantitative design questionnaire comprising correlational elements. Participants consisted of eleven males (n=11) and thirty-six females (n=36). Two respondents did not specify sex (n=2), total number of participants amounted to forty-nine (n=49). Participant's mental health was investigated using the General Health Questionnaire (GHQ12 – Goldberg, 1992). Attitudes towards treatment were explored using the Questionnaire on Attitudes Towards Treatment (QATT – Ferrín, 2010). Data was analysed using t-tests, ANOVAs, regressions and Pearson correlations. Overall, the study found that while respondents' own mental health was quite good, their attitude towards treatment was more negative. A significant difference with regards attitudes was found between older and younger parents. In addition to this, respondents whose children were diagnosed more recently had more positive attitudes. Attitudes towards treatment and acceptance of an ADHD diagnosis were more positive in participants who had greater knowledge of treatment.

1. Introduction

1.1 ADHD – a broad overview

What is ADHD? The DSM 5 website states that Attention Deficit/Hyperactivity Disorder is “characterized by a pattern of behaviour, present in multiple settings (e.g. school and home), that can result in performance issues in social, educational, or work settings”. It conveys that in order to receive a diagnosis a child must have at least six symptoms from either (or both) groups (inattention, hyperactivity and impulsivity), for children aged seventeen and older the necessary criteria drop to five symptoms. A persistent pattern of inattention includes such things as being easily distracted, being forgetful and experiencing a level of difficulty in organising tasks, whereas a persistent pattern of hyperactivity-impulsivity involves criteria such as fidgeting, a difficulty with engaging in activities quietly and a difficulty in awaiting ones turn, among others. The ICD-10 discusses ADHD as a hyperkinetic disorder and uses a much narrower diagnostic category. A study by Tripp et al. into correlates of ADHD and hyperkinetic disorder found that the DSM-IV criteria identified a larger range of children than the ICD-10 but that said, there was a “substantial overlap between the groups formed with these different criteria” (Tripp et al., 1999, p. 156). It would appear that differences in classifications between these two diagnostic manuals, even as far back as 1999, are becoming increasingly smaller.

As is the case with the majority of mental illnesses, the causes of ADHD are most likely a complex interplay between a number of factors, biological factors (namely genetics) being the more prominent and widely accepted factor with environmental factors occasionally being implicated but to a much lesser degree. A recent study from Lasky-Su et

al. (2008) suggests that “using the age at onset of ADHD as a phenotype can be informative for genetic association studies and that environmental exposures outside of the womb were less likely to be important contributors to the development of the very early onset form of the disorder” (Lasky-Su et al., 2008, p. 1356). As the research was conducted via retrospective, a limitation of the study includes the researchers trust in parents with regards an accurate reporting of the age of onset in their child/children; despite this, the study provides invaluable information concerning the associations found within particular genes (e.g. SLC9A9) which makes a significant case for further genome research. In Krain and Castellanos’ study they maintain that brain development plays a major role in ADHD onset. They advocate on behalf of what they deem “consistent evidence” that the brains of ADHD children are significantly smaller than healthy children (Krain & Castellanos, 2008). This trend is not only seen in childhood but is present throughout adolescence also. When thirty ADHD boys were compared to their unaffected siblings it was found that the ADHD children had a reduction in intracranial volume of 4% (Durston et al., 2004). Other brain structures focused on in Krain and Castellanos’ research include the frontal cortex: decreased left occipital gray and white matter volumes (Durston et al., 2004), asymmetry in the prefrontal cortex due to a decrease in right prefrontal regions (Castellanos et al., 1996), cortical surface (Sowell et al., 2003); the basal ganglia: abnormalities to the caudate nucleus and the putamen (Giedd et al., 1996); and the cerebellum (Castellanos & Tannock, 2002).

Further biological causes of ADHD implicate neurotransmitters and executive functioning. Biederman et al. conducted research into executive function deficits coupled with ADHD, and the impact this combination has on academic performance. The authors found that executive function deficits had significant effects on academic achievement along

with learning disabilities and led to an increased risk for grade retention (Biederman et al., 2004). Clinical practice generally recommends different variations of therapy as the first line treatment for children presenting with ADHD symptoms. Therapy for ADHD patients exist in many forms: cognitive behaviour therapy, social skills training, psychotherapy, education programmes or sometimes a combination of these therapies are suggested prior (or in addition) to medication in most cases. For example, The Incredible Years® Series for children, parents and teachers is now being delivered in over twenty-four countries. It is recommended that the programme be delivered with as much fidelity as is possible in order to obtain optimum results. The programme has been awarded numerous awards but most importantly, much research has been conducted into its positive efficacy (Axberg et al., 2007; Hutchings et al., 2012). Webster-Stratton and Reid looked at tailoring the Incredible Years®, stating that research into the behavioural treatment of preschoolers was not extensive but that parent training research has provided a strong basis for further research due to its positive outcomes (Webster-Stratton & Reid, 2014). The recommendation of therapy such as The Incredible Years® as a first line intervention however is a trend that tends to vary depending where in the world an ADHD diagnosis is given. “There is substantial evidence of huge variation in both the treated prevalence of ADHD and treatment practices for individuals with this condition” (Hinshaw, 2011, p. 459). Hinshaw and his colleagues’ research states that cultural stigma can greatly affect the choice of treatment. Faraone et al. (2003) in their appropriately titled research dispelled the question ‘the worldwide prevalence of ADHD: is it an American condition?’ the idea for this research had to stem from somewhere, the view that American social and cultural factors contribute vastly to cases of ADHD is one held by more than a few. In her 2012 article Mather claims that “The United States, more than the rest of the world, is using broader diagnostic criteria-socially constructed-and is seeing these behaviors as indicators of disease” (Mather, 2012, p. 20).

Attitudes towards ADHD in children tend to place a lot of blame on anything but biological factors. As Faraone states, the misconception of ADHD being an American condition is partly due to the vast amount of American based research that goes into the disorder. Faraone and his colleagues' research goals aimed to enable the masses to recognise ADHD as a disorder that doesn't necessarily subscribe to social/cultural factors. By doing this they hoped to improve persons understanding of the disorder itself and progress the psychiatric and psychological care of ADHD children worldwide. Attitudes towards medicating children is usually one of two extremes, there tend to be few persons falling in the middle. "According to a 2001 article in the American Academy of Pediatrics' journal Pediatrics, the use of stimulant medications in preschool children between two and four years of age has tripled" (Haber, 2003, p. 3). It is understandable how published information like this can be worrying, however there exists a large amount of research and statistics on stimulant medications efficacy also. Recent research conducted by Hébert, Polotskaia, Joober and Grisenko (2013) concluded that when parents' awareness of the psychosocial benefits that came about from the use of psychostimulant medication was improved, there was in conjunction, an increase in the adherence to the medication (Hébert et al., 2013). Mick and fellow researchers led a study into the genome-wide response of ADHD children in relation to treatment with methylphenidate. Although the most statistically significant association did not warrant the title of 'genome-wide significant association' the researchers involved urge their results to be considered until the study can be replicated using a larger, more controlled sample (Mick, 2008).

1.2 The ‘medicalizing modality’

Causes, both biological and other aside, what this research wishes to look at are attitudes towards treatment in the case of ADHD, namely medication and the potential reasons as to why these attitudes develop and how they can affect decisions concerning treatment. It might seem hard to believe but ADHD is not the ‘recent phenomenon’ a large amount of the world’s population claim it to be. Similar characteristics of the mental disorder were first described as far back as 1798, so why over two-hundred years later are there still extreme views towards its being an ‘excuse for bad behaviour’? Sir Alexander Crichton’s 1798 book described a ‘mental restlessness’ in the chapter on attention. He stated that “when people are affected in this manner, which they very frequently are, they have a particular name for the state of their nerves, which is expressive enough of their feelings. They say they have the fidgets” (Crichton, 2008, p. 272). More recent even were the observations of Sir George Frederic Still, he described a “defect of moral control as a morbid manifestation, without general impairment of intellect and without physical disease” (Still, 1902, p. 1079). In 1976 Conrad’s *Identifying Hyperactive Children* was published, in this he looked at “the process by which medical professionals problematize childhood deviance” (Rafalovich, 2001, p. 95). It is around this time that the history of ADHD becomes particularly relevant to this research project – the issues surrounding its treatment. In 1937 Charles Bradley became the first known healthcare professional to use stimulant medication as a treatment for children with behaviour disorders. The positive results of this treatment were supposedly a chance finding, Bradley subsequently carried out a number of trials whereby the “most spectacular change in behaviour brought about by the use of Bensedrine was the remarkably improved school performance of approximately half the children” (Bradley, 1937, p. 582). It was in the late 1950’s/early 1960’s that the stimulant

methylphenidate (also known as Ritalin when synthesised) first became available. To this day, Ritalin (and its subsequent alternative names) is one of the most prescribed medications for ADHD. Summarising his 2001 article, Rafalovich states that:

“It is inadequate to say that the increasing diagnoses of ADHD and consequent increase in the prescriptions for Ritalin, Cylert, and Adderall in school-age children are a result of pharmaceutical corporations, an out-of-control mental health apparatus, or a pill popping sensibility. ADHD, comprised by the plethora of medical discourses that have objectified it are a product, not only of the current era, but also of the discourses that continue to strategize for its ownership. The medical discussion of encephalitis lethargica, for example, demonstrated neurology’s interest in medicalizing the morality of the young. The current position of psychiatry towards ADHD exemplifies this century-old medicalizing modality” (Rafalovich, 2001, p. 113).

This ‘medicalizing modality’ Rafalovich speaks of is a potential reason for the developing of negative attitudes towards medicating ADHD and appears to be a view held across the humanities. In Ritzer and Ryan’s encyclopedia of sociology, a chapter on deviance deals with the social consequences brought about by medicalisation in general. McGann and Conrad claim that being classed into a category, even one so simple as ‘sick’, provides untold excuses for deviance and encourages the reduction of individual responsibility (both in one prescribing and one being prescribed to). McGann and Conrad propose a scenario where as more biological and genetic causes are put forward, ‘blame’ switches from the person themselves to that person’s body and therefore their expressed behaviour cannot be helped,

and responsibility is once more displaced (McGann & Conrad, 2011). Studies focusing on the medicalisation of ADHD in children are not recent ones, in 1998 Searight and McLaren honed in on the medicalisation of misbehaviour. Their research aims were to critically examine both ADHD diagnoses and its treatment. There was growing concern even then regarding applications of the diagnosis and the use of stimulant medication to verify it (Searight & McLaren, 1998). Over fifteen years later, even after research such as this brought the matter to the fore, the same concerns are still present. It seems plausible that maybe not everyone is given the same information regarding the disorder, its causes and treatment options. Perhaps we need universal knowledge regarding these aspects. If all affected persons and their families were 'reading from the same book', different attitudes would not be due to a lack or excess of conflicting information, but due to personal preference and perhaps influences from said persons environment.

1.3 Attitudes towards treatment

Unfortunately for ADHD sufferers, as with many other mental disorders, there exists stigmatisation. A large part of accepting a child's ADHD diagnosis involves ignoring this stigma as it can taint ones understanding and decisions concerning treatment, leading to potentially fatal attitude formations. Recently, in Bussing and Mehta's 2013 review they state that in order to employ successful ADHD management, both diagnosed children and their families must be aware of its stigma and the negative influence it may have on treatment initiation and continuation, they also add that there needs to be more measures to combat the stigma (Bussing & Mehta, 2013). "The authors [Mueller, Fuermaier, Koerts & Tucha] suggest that public uncertainty about the reliability and validity of an ADHD diagnosis, combined with skepticism towards the use of ADHD medications, enhance the stigma for this

disorder, and caution that unaddressed stigma represents a risk factor with negative implications for treatment access, adherence, and outcomes” (Bussing & Mehta, 2013, p. 17). Bussing and Mehta acknowledge that despite ADHDs high prevalence there is little research that addresses its stigma. With this being the case in America, there is even less research regarding ADHD stigma and its effects across Europe, and so through attitudes this is something this research project wishes to address along with arguing the need for further studies concerning ADHD attitudes in general. Fear of stigmatisation due to agreeing with medication for ADHD can often be a concern experienced. As a study by Link, Struening, Neese-Todd, Asmussen and Phelan conveys, the consequences of stigma for the self-esteem of people with mental illnesses are harmful and eventually detrimental towards their treatment (Link et al., 2001). Parents, being the ones that ultimately make the decision to trial medication when it comes to mental disorders in their children, are at risk of falling victim to the negative perception of others. The undesirable effects of stigmatisation is something that can be potentially overcome through levels of confidence and so this study has included self-confidence of the participant as a predictor.

In Mather’s 2012 article she integrates previous research in social construct theory and the medicalisation of ADHD in an attempt to improve the way in which society views those with ADHD (Mather, 2012). Social construct theory believes that aspects of life are the result of social and institutional agreement rather than objective reality, Mather debates around person’s views that ADHD might be a potential social construction as the DSM has and continues to influence multiple social behaviours. With regards the medicalisation of ADHD, Mather suggests that as the United States holds (by far) the highest percentages for the consumption of methylphenidate, this reflects “medical doctors defending the medical

model from which they practice” (Mather, 2012, p. 20) and displays a readier social acceptance to treat ADHD in children from a pharmacological perspective. Mather proposes that society should alter its views of ADHD from a ‘disorder’ to a ‘difference’ in an attempt to reduce the stigma associated with an ADHD diagnosis.

While little research has been conducted into the changing attitudes of ADHD down through the years, McLeod and his colleagues’ research found that older populations (along with men and non-white minority groups) have less specific knowledge about the disorder and suggest that future efforts should be made to enhance their knowledge surrounding it. Participants in the research came from the National Stigma Study (Children), the study found that there was a real scepticism with regards medication treatments, predominantly from older participants and those with less knowledge of the disorder (McLeod et al., 2007). This idea, that older people would have less knowledge concerning ADHD inspired a hypotheses concerning parental age.

ADHD is frequently diagnosed more in males than in females, this study speculates as to whether the sex of a diagnosed child plays a part in attitudes towards ADHD and medication. Recent research from Skogli, Teicher, Andersen, Hovik and Øie focuses on the gender differences seen in co-existing symptoms. The study concluded that ADHD females could be easily distinguished from healthy female controls due to the presence of co-existing symptoms. In contrast to this, executive function impairments were better when it came to distinguishing ADHD males from healthy male controls (Skogli et al., 2013). If there exists a difference in successful indicating symptoms between ADHD males and female children, are

there differences in attitudes towards the diagnoses of the two sexes? Are attitudes towards trialing treatment equal regardless of sex?

1.4 Knowledge surrounding ADHD

With regards the relationship between healthcare professionals and those in their charge, how might this affect outcome measures such as knowledge of ADHD, self-confidence and belief in treatment efficacy? Trust has always been a consistently popular research topic, with much of the current research focusing on the role trust in health care plays at a societal level (Gilson, 2003; Mohseni et al., 2007). A current article published in the *European Journal of Public Health* by Rowe and Calnan focuses on trust relations within health care. Trust enables a sense of security and comfortableness when disclosing medically relevant information. Rowe and Calnan state that low levels of trust and even distrust may have outcomes such as lower levels of treatment adherence and the slower adoption of new medical innovations. The authors state that there has been a shift over recent years where patients are more informed regarding diagnoses and are more willing to participate in the decision-making process, this has led to trust becoming more conditional and often dependent of the provision of information (Rowe & Calnan, 2006). This research project wishes to look at how levels of trust in healthcare figures may influence decisions regarding treatment. Recent research from Krain, Kendall and Power found that parental ratings of medication acceptability were predictors in the pursuit of medication, whereas their ratings of behaviour therapy acceptability were not predictors in the pursuit of medication. The research also found that the parental ratings of medication was much higher in Caucasian's than in non-Caucasian's. From this research, Krain states that gathering parental ratings of medication can be particularly useful in identifying the parents that are unlikely to trial medication and

states that these parents could be candidates for interventions which provide accurate information regarding potential medications (Krain, Kendall & Power, 2005).

In 2001, Schachter, Pham, King, Langford and Moher conducted a meta-analysis into ‘how efficacious and safe is short-acting methylphenidate for the treatment of attention-deficit disorder in children and adolescents?’ The researchers analysed all randomised controlled trials that had compared methylphenidate with a placebo, and reviewed the behavioural evidence for all. 62 randomised trials published between the years of 1981 and 1999 involving 2,897 participants in total were included. Schachter et al. stated that the supposed beneficial effects reported by both teachers and parents were questionable due to the strong publication biases, they also highlighted the lack of long-term randomised trial evidence. Due to the extensive use of methylphenidate when treating ADHD the researchers comment on how the lack of longer term research is unequivocally unacceptable. (Schachter et al., 2001). If the families of ADHD diagnosed children had instant access to articles such as this, a plethora of articles containing the good, bad and ambiguous their knowledge surrounding the disorder and certain treatment trials would be increased. This research project considers whether more knowledge leads to a higher likelihood of medication acceptance and adherence. In 1996 Bennett, Power, Rostain and Carr conducted research into parent acceptability and feasibility of ADHD interventions finding that parents who view their child as disruptive and aggressive were more likely to pursue treatment options such as counselling, but not medication. Bennet et al. found that parents who had been better educated about ADHD had a better understanding of the benefits but also the limitations of medication and were more likely to pursue it as an option. The researchers prompt for future

studies with regards the relationship between knowledge and medication acceptability (Bennet et al., 1996).

The question is often asked: how young is too young to be diagnosing ADHD and prescribing medication for it? A recent report from the American Academy of Pediatrics suggests that children as young as four can develop ADHD. The 2011 document replaces two previously published guidelines stating that there is now emerging evidence that proposes the age range for a diagnosis include 4-18 years of age. However the guideline also admits that despite evidence for ADHD being present in younger ages, there have been limited studies regarding the experience and effects that stimulant medication have in young children (4-5 years of age), (American Academy of Pediatrics, 2011). These clinical guidelines support what Fewell and Deutscher were saying in their 2002 article. They state that the need to observe ADHD in very young children has been around a while, but that healthcare professionals have been reluctant to refer and subsequently diagnose. They further comment on the need for more measures that aid in diagnosing ADHD amongst very young children and suggested a short term observation scale – Attention Deficit Hyperactivity Disorder-Observation Rating Scale. This scale is comprised of twelve items, each item is scored on a five point Likert scale ranging from ‘not present’ to ‘excessive behaviour’ for a child of that age (Fewell & Deutscher, 2002). This research project postulated as to whether the age at diagnosis contributed to attitude formation and so has included a hypotheses relating to child’s age and the decision to trial medication. Often time’s parents are considered reluctant to have a child so young on medication, however a study conducted by Rowland et al. found that in reality this may not be the case. 71% of the diagnosed children in their study were currently taking medication for ADHD, rates varied amongst sex, ethnicity and grade (within

elementary school). The study was based on the parents of 6,099 children who answered a questionnaire on their child's diagnosis and current medication treatment. 607 children (10% of sample) had received an ADHD diagnosis while 434 of the children were receiving medication for ADHD (7% of sample) (Rowland et al., 2002). Participants for this study were recruited between 1997 and 1999 and involved only participants from elementary schools in North Carolina. The staggering figures seen here would now potentially be even higher if the study was replicated using the same schools or even adapted and carried out in a different state/country due to an increase in diagnoses and prescriptions since then.

1.5 Gaps in existing literature and future research needs

This introduction has mentioned a number of gaps in the literature concerning attitudes towards ADHD and its medication. But there are far more than what has been discussed. There is limited research as to the medication adherence of ADHD children and adolescents. Of the parents who agree to trial ADHD medication how many persevere with it and for how long? As a child progresses into adolescence, their persistence with treatment declines rapidly (Miller et al., 2004). Charach believes that poor medication adherence in ADHD children may stem from parents' initial hesitancy to have their child treated with psychostimulants (Charach, 2006). Charach proposes four models that she believes contributes to levels of medication adherence in ADHD diagnosed children and adolescents. The Health Beliefs Model (HBM) deals with a family's perception of risk and potential benefits, the decrease or eradication of certain ADHD symptoms may sway a family towards the benefits medication may offer whereas concern regarding the side effects of medication may do the opposite (Charach, 2011). Theory of reasoned action and planned behaviour (TRAPB) emphasises a patients intentions to follow treatment and the reality. Both the HBM

and TRAPB are rooted in the present, whereas the Trans-theoretical model of change and Network episode model deal with changes over time. The Trans-theoretical model of change is a biopsychosocial theory that can be applied to a vast number of populations and behaviours. The stages of change in the model begin at precontemplation, contemplation, preparation, action and end at maintenance. From an ADHD medication adherence point of view, a family's level of motivation (prior to and during treatment) should be evaluated (Charach, 2011). Finally, the Network episode model focuses on how individuals first notice and respond to health problems, it emphasises the changing relationships between patient and extended family, friends, community etc. The relationships between a medication using ADHD child, their family and others often changes due to disapproval (Pescosolido et al., 2007).

Gaynes et al.'s 2012 document discussed potential future research areas for ADHD by identifying persistent gaps and prioritising research needs. The study concluded that there were eight 'highest-priority' research needs concerning ADHD that involved those aged under six, those above six and all ages. The themes seen within these were as follows: "the need for improved measurement tools, more generalizable study populations and settings, longer follow-up periods, more understanding of patient-level predictors of response, and more comparative evaluation of psychopharmacologic, psychosocial, and combination interventions across age ranges" (Gaynes et al., 2012, p. 31). Comparative efficacy and effectiveness of pharmacological treatments both on their own and in addition to psychosocial treatments was a reoccurring trend among the eight. (Gaynes et al. 2012). The lack of longer-follow-up periods is something Schachter et. al had mentioned in their aforementioned research (Schachter et al., 2001), while the need for research regarding those

diagnosed under the age of six is not a surprising idea either as the 2011 clinical practice guidelines mentioned previously stated there were a limited number of studies focusing on the effects of stimulant medication in young children (American Academy of Pediatrics, 2011).

Much research on ADHD concerns the disorders causes and treatments, but there is little research to date focusing on the attitudes of those affected (children, their parents and often times' siblings and extended family). What does exist attitude wise is primarily relevant to residents of the United States, there is a real need to address this issue from a European point of view, specifically Ireland as attitudes vary from country to country. It's vital to understand the reasoning behind parental decisions to trial/decline medication (and other treatments) concerning their ADHD diagnosed children. What still needs to be known is how parental decisions (including the acceptance/denial of a diagnosis and acceptance of subsequent treatment options) are influenced by personal attitudes and those of others. Europe's attitudes towards ADHD are extremely uneven depending on geographical proximity as prevalence rates fluctuate. Polanczyk et al. conducted a study that attempted to determine possible causes of ADHD in various countries and introduce a 'world-wide pooled' prevalence. Their study found significant variability differences between North America, Africa and the Middle East, but none between Europe and North America. A systematic review of ADHD prevalence research was conducted via online databases, specialised textbooks, reference lists of all retrieved articles and direct contact with the authors and experts. The pooled, worldwide prevalence of ADHD amounted to 5.29% in total. The authors admit that due to certain limitations (not including age, gender and characteristics of the countries studied) the study should be understood in a limitative context.

Overall the research concluded that geographic location plays only a partial role in the variability of ADHD prevalence estimates globally (Polanczyk et al., 2007). Although this may be the case for prevalence, worldwide attitudes towards ADHD may see different results location depending?

1.6 The study rationale

Research on attitudes relating to ADHD is more of a recent notion and so previous generations dealing with ADHD are often exempt from existing ADHD attitude research. Ignoring the attitudes of older generations is potentially fatal as ADHD often runs in families and attitudes towards the disorder may have been influenced by a parent's personal attitudes. That said, this research has chosen to focus only on participants with children diagnosed between 2000 and 2014 due to time constraints, a lack of face to face interaction and uncertainty surrounding participants recall as diagnoses given before 2000 are almost fifteen years ago now. Attitudes are formed from experience and observation, they can often be influenced by social roles and norms which explains how different countries view ADHD in different lights. Attitudes are stronger when a person is more knowledgeable on a certain topic, in order to be more knowledgeable a person must have a deal of information on the topic, this information comes from direct experience. The order of information-knowledge-attitude is present in almost all of life's aspects and ADHD is not immune. Should we make the assumption that those gathering negative information concerning ADHD form equally negative attitudes and vice versa? Attitudes must be looked at further in order to generate future hypotheses surrounding this. Bussing and Mehta summarise their review by suggesting that accurate information needs to be increased in order to combat negative connotations associated with ADHD. As Pescosolido et al. prompt "unless systematically addressed, the

public's lack of knowledge, skepticism, and misinformed beliefs signal continuing problems for providers, as well as for caregivers and children seeking treatment" (Pescosolido et al., 2008, p. 339).

This research hopes to identify potential attitudes (and eliminate others) that influence parental decisions concerning ADHD medication and understand how these attitudes formed. It will contribute to the ever growing database of ADHD information but will deal with an important topic that has not yet been expansively focused on. This is essential because it will have real life practical implications for both those suggesting treatment and those who require it. As parents/guardians are the final decision makers when it comes to treating children, this research relates specifically to them. It is conducted with their help and for the benefit of future parents.

The hypotheses accompanying this research state that:

Hypothesis 1: The age of parent will have a bearing on whether or not their child is currently taking ADHD medication. It is hypothesised that as age increases the likelihood of a respondent's child being on medication will decrease.

Hypothesis 2: This research believes that the age and sex of the child will not have a bearing as to whether they are currently taking ADHD medication.

Hypothesis 3: This research believes that the year in which the diagnosis was given will be an indicator as to whether the child is currently taking medication. It is hypothesised that less agreements were made in support of medication in the past than in more recent years.

Hypothesis 4: This research believes that if a parent has more knowledge about treatment their child is more likely to be taking medication.

Hypothesis 5: It is hypothesised that a high level of knowledge surrounding treatment will lead to a greater acceptance surrounding an ADHD diagnosis.

Hypothesis 6: It is hypothesised that respondents exhibiting higher levels of confidence will have more positive attitudes towards medication.

Hypothesis 7: It is hypothesised a greater level of trust in healthcare figures will have a bearing on whether or not a child is currently taking ADHD medication.

2. Method

2.1 Participants

The participants in this study were initially recruited via psychology research participant groups but as there was a strict criteria for participating respondents the numbers of appropriate contributors were low. A number of paper based questionnaires were administered but the majority of respondents were subsequently drawn from a number of ADHD support groups and online forums. Criteria for inclusion was as follows: each respondent had to have an ADHD diagnosed child that was diagnosed between the years of 2000 and 2014 and under eighteen at the time of diagnosis. As stated previously a decision was made to disregard diagnoses from before 2000 in order to avoid potentially inaccurate recall. The year 2000 marked the millennium, with more resources and a lengthier preparation time this project would consider looking at potential attitude changes towards ADHD coinciding with the commencement of the noughties. The number of participants who completed the questionnaire amounted to fifty-five. Of this number only forty-nine (eleven males, $n=11$ 22.4%, thirty six females, $n=36$ 73.5% and two, $n=2$ 4.1% that did not specify) were eligible for inclusion, the reasons for the exclusion of six respondents was due to the impossibility of their answers (E.G. a 100 year old participant having a 100 year old child diagnosed in the year 10 etc.).

Age was not divided into specific categories within the questionnaire. The age range of participants was 26-62. Mean age was calculated as 43.33 and the standard deviation was 9.852.

The age range of participants' children (at the time of the study) was 7-27. Mean age was 15.22 and standard deviation 5.145.

The gender split in respondents was predominately female (n=36, 73.5%), however the opposite was seen in the gender of respondents' children, the majority of which were male (n=33, 67.3%).

All questionnaires were completed anonymously and participation in the study was on a voluntary basis.

2.2 Design

This study was a quantitative design questionnaire comprising correlational elements. Predictor variables included the age and sex of the respondent, the age and sex of their child and the year of diagnosis. Data generated from both the General Health Questionnaire (GHQ) and Questionnaire on Attitudes Towards Treatment (QATT) served as predictor variables also in some cases. T-tests, ANOVAs, regressions and Pearson correlations tests were conducted to explore differences and relationships between variables.

Through evaluating the research discussed in the introduction this research project chose a number of predictor variables it deemed relative to parental decisions regarding medication and overall attitude towards ADHD – attitudes towards medication, acceptance surrounding diagnosis, level of trust in healthcare figures, level of knowledge surrounding treatment and level of self-confidence. These predictors were measured using a selection of questions from the General Health Questionnaire (GHQ) (Goldberg, 1978) and a selection from the Questionnaire on Attitudes Towards Treatment – Parents Version (QATT) (Ferrín, 2010). Criterion variables differed between hypotheses and included acceptance, overall attitudes and whether or not a respondent's child was currently taking ADHD medication.

2.3 Materials

An online questionnaire was used with the majority of respondents. The link to the questionnaire appeared on a number of ADHD support groups and online forums along with numerous psychology research participant groups. A small number of self-administered paper based questionnaires (See Appendix 6.3) were used in the case of a few participants. The questionnaire included a section before selected GHQ (General Health Questionnaire) and QATT (Questionnaire on Attitudes Towards Treatment) questions that gathered demographic information (sex, age, year of diagnosis etc.).

The General Health Questionnaire (GHQ) developed by Goldberg (1978) was used to assess the general mental health of the respondents. The questionnaire consisted of twelve likert style questions using a four point scale. Answer options included: 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. This answer format was worded slightly differently in certain questions to remain in keeping with the question. An example of a question in the GHQ is "have you recently been losing confidence in yourself"? This question was of particular importance to the hypothesis regarding respondents' levels of confidence as it was included in the confidence subscale. Justification for using this subscale stemmed from wanting to look at a loss or increase of confidence in relation to a variety of ADHD attitudes. In included questions 'not at all' and 'no more than usual' were deemed confident by this study in contrast to 'rather more than usual' and 'much more than usual' which were deemed not confident. Total scores for the GHQ can range from 0-36. The closer the score to 0 the better a respondents mental health, the closer to 36 the worse. Option answers were scored from 0-3 respectively (missing values were scored as -9). When assessed by Cronbach's alpha the GHQ was found to have an internal consistency range between 0.82 and 0.90 (Goldberg, 1992). Recent research from Smith et al. found that

although the GHQ-12 is a multidimensional instrument, negatively worded questions revealed greater variance (Smith et al., 2010), this should be taken into account as many of the questions included for overall confidence are negatively worded.

The Questionnaire on Attitudes Towards Treatment – Parents Version (QATT) developed by Ferrín (2010) was used to assess attitudes towards treatment from a parental point of view. Two forms of validity were obtained when using the complete questionnaire: face validity (eight expert and non-expert clinicians) and content validity (four experts in Child Psychiatry and Child Pharmacology & Paediatrics) (Ferrín, 2010). Fourteen statement questions were selected for inclusion in this study from the thirty-four initial questions of the QATT - Parents Version. An example of a selected statement question was “I am worried about my child being on medication”. There are five option answers that range from: ‘always true’ to ‘always false’. When gathering data this study scored items from 1 (most positive attitudes) to 5 (most negative attitudes), these were then recoded back to the original scoring from 0 (most positive attitudes) to 4 (most negative attitudes). Total scores for selected questions ranged from 0-56 with lower scores representing a more favourable attitude towards treatment. -9 was assigned to missing values. The fourteen statement questions selected for inclusion were chosen based on a number of specific variables this study research project wished to look at. Subscales were self-created in an attempt to adapt the original questionnaire making it more relevant to what the study wished to investigate. Subscales included a variety of single-item responses in order to multi-item scales, by doing so measurement error and misinterpretation were avoided. To the author’s knowledge, there were no previous studies using the QATT – parent’s version that looked at parental acceptance of an ADHD diagnosis and so as a result a decision was made to create a subscale that specifically dealt with this. Certain subscales produced favourable reliability results

(acceptance – ‘I know everything about my child’s illness’, ‘my child has psychological difficulties’ and ‘my child needs some help to deal with his/her problems’, subscale score 0-12), others the author would have liked to be higher (knowledge and trust, both with a subscale score of 0-12) and so should be kept in mind throughout the results and discussion.

After all questionnaires had been completed and a suitable number of respondents reached, the generated data was inputted into Statistical Package for Social Sciences (IBM SPSS21) for analysis and interpretation.

2.4 Procedure

Ethical approval for the study was granted in mid-November 2013 following the submission of a research proposal. An online questionnaire was structured and launched in late January 2014. Participants were advised prior to the study that they must have an ADHD diagnosed child (male or female) diagnosed between the years of 2000 and 2014. There were no stipulations as to the age or sex of respondents. Respondents were informed that participation was both voluntary and anonymous. The above population were targeted through a number of online ADHD support groups, forums and psychology research participant groups. Of the 49 included questionnaires, three were completed outside Ireland (United States of America and Great Britain). Respondents were fully briefed as to the objectives and aims of the study prior to participation. Paper based questionnaires were accompanied by a participation information sheet (See Appendix 6.1) and a participant consent form (See Appendix 6.2), while the online version of the questionnaire was preceded by a consent form that had to be ‘accepted’ in order to continue to the questionnaire. It took approximately 2 – 3 minutes to complete the questionnaire that was created on

'kwiksurveys.com'. Responses answers were transferred to an excel document and then imported into SPSS21.

3. Results

This section will report the results of the study in two parts, firstly the descriptive statistics of respondents along with descriptive statistics of the General Health Questionnaire (GHQ) and Questionnaire on Attitudes Towards Treatment – Parents Version (QATT). Secondly, this section will detail the inferential statistics generated from participants' answers. Results of independent t-tests, ANOVAs, regressions and Pearson correlations between variables will be described.

3.1 Descriptive Statistics

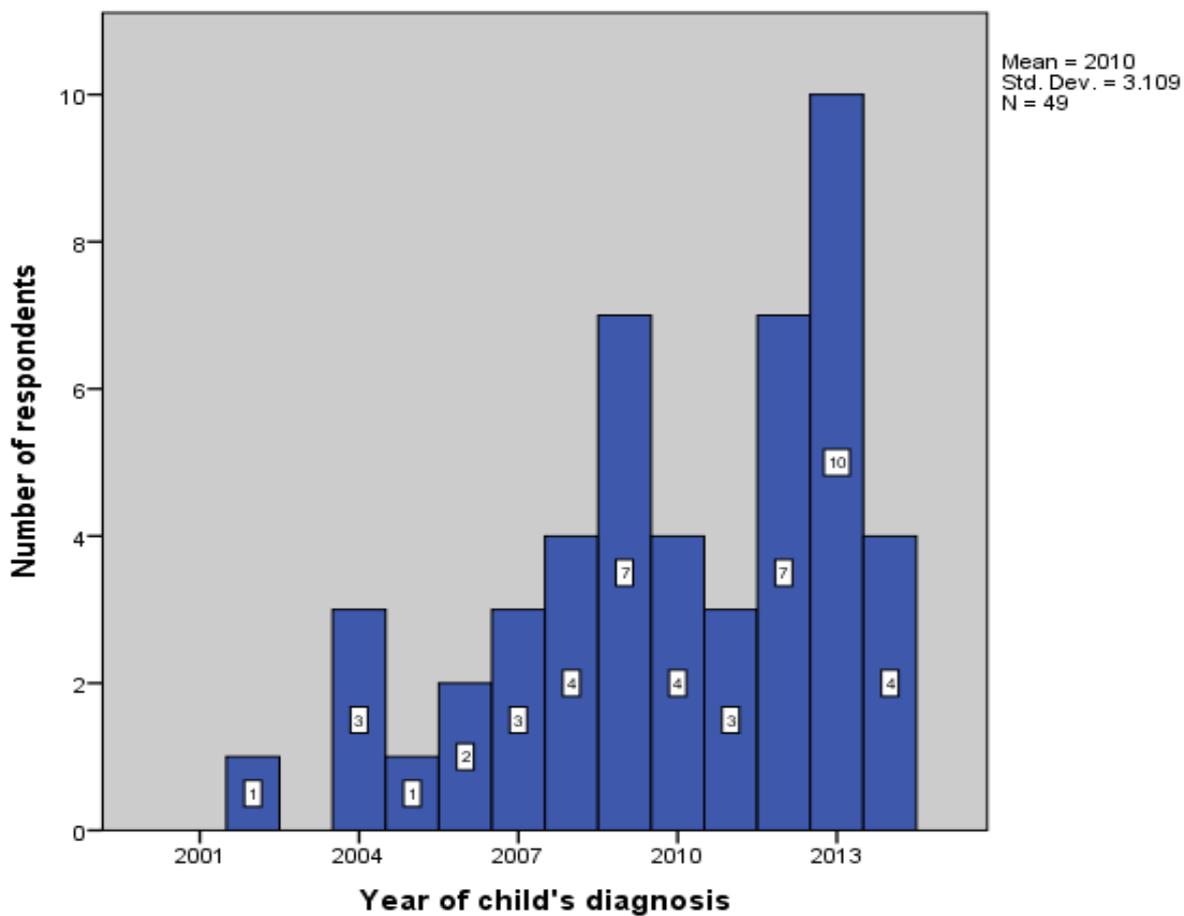


Figure 1 *Year in which respondents' children were diagnosed*

The above graph (see Figure 1) provides an overview of the year in which respondent's children received an ADHD diagnosis. Of the forty-nine respondents, the most frequent year for an ADHD diagnosis was 2013 (10 respondents), this was followed by both 2009 and 2012 with seven respondents in each year. From these results it would appear as though ADHD diagnoses on the whole are rising. However another explanation could be that those respondents with children diagnosed in earlier years are now less active in support groups and online forums. They may have been coping successfully for some time, their children are generally older and therefore respondents may have less of an active online presence.

Table 1 *Descriptive statistics of GHQ and QATT*

Variable	Mean	Standard deviation
GHQ	12.96	5.439
QATT	33.31	4.533

The average score for participants on the GHQ was 12.96 (SD = 5.44) out of a total score of 36 (see Table 1).

The average score for participants on the QATT was 33.31 (SD = 4.53) out of a total score of 56 (see Table 1).

These scores indicate that respondents' overall mental health was quite good. Contrasting with this, QATT scores would indicate that respondents' attitudes towards treatment were more negative than positive.

Table 2 *Descriptive statistics of QATT variables*

Variable	Mean	Standard deviation
I am worried about my child being on medication.	2.22	1.476
I think medications can be addictive	2.76	1.011
I am worried that medication can change my child's personality.	2.35	1.217
I know everything about my child's illness	2.06	.922
My child has psychological difficulties	2.69	.962
My child needs some help to deal with his/her problems.	3.06	.922
My child is happy with the way he/she is	2.80	.790
My child would feel embarrassed if he/she has to take medication in front of friends.	1.56	1.219
I get on well with my child's doctor	3.04	.706
I think doctors prescribe pills for everything	2.67	1.231
I trust doctors and nurses a lot	2.45	.765
My child can stop this treatment as soon as he/she feels better.	2.10	1.016
My child is the only person responsible for his/her treatments.	1.71	1.155
I know everything about this treatment	1.94	.988

The most favourable attitude scores were obtained from QATT statements 8, 13 and 14. 'My child would feel embarrassed if he/she has to take medication in front of friends', 'my child is the only person responsible for his/her treatment' and 'I know everything about this treatment' respectively. From these results (see Table 2) we observe that the majority of participants felt their child would not be embarrassed by having to take medication in front of

their peers and thus that variable was a weak contributor to more negative attitudes towards treatment. Respondents also disagreed largely with the statement ‘my child is the only person responsible for his/her treatment’, this is worthy to note as it shows a willingness of participants to also be accountable for their child’s/children’s treatment. The mean average for the statement ‘I know everything about this treatment’ was 1.94 (SD = .988), this shows that a large number of participants do not feel they know everything about this treatment.

A specific statement from the QATT was ‘I am worried about my child being on medication’, participants responses are displayed in the figure below (see Figure 2).

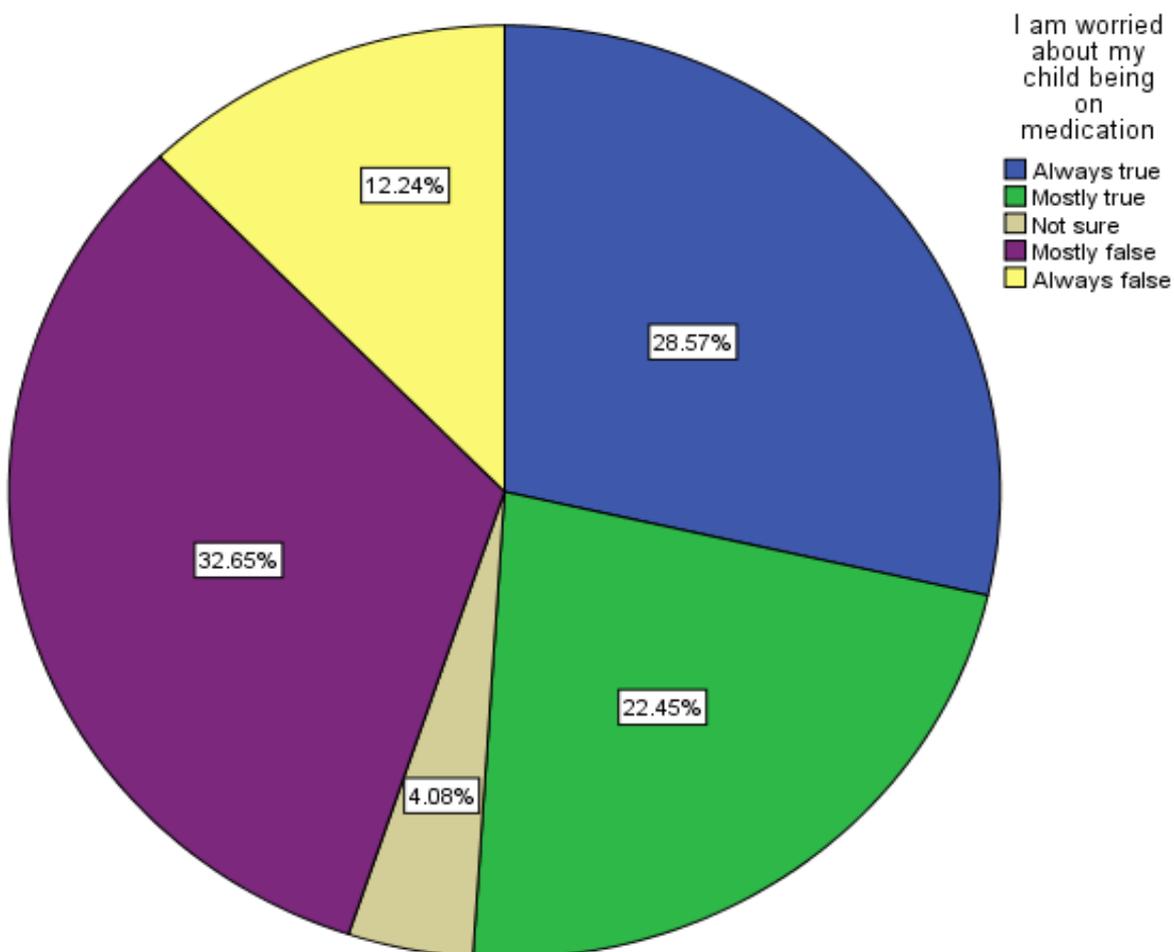


Figure 2 Respondents' agreement with the statement 'I am worried about my child being on medication'

Respondents' answers show that just over half (51.02%) were worried about their child being on medication (always true, mostly true). 44.89% of respondents stated that they were not worried about their child being on medication (always false, mostly false). The most interesting statistic here is the 4.08% of respondents who haven't yet fully determined an opinion with regards their child being on medication.

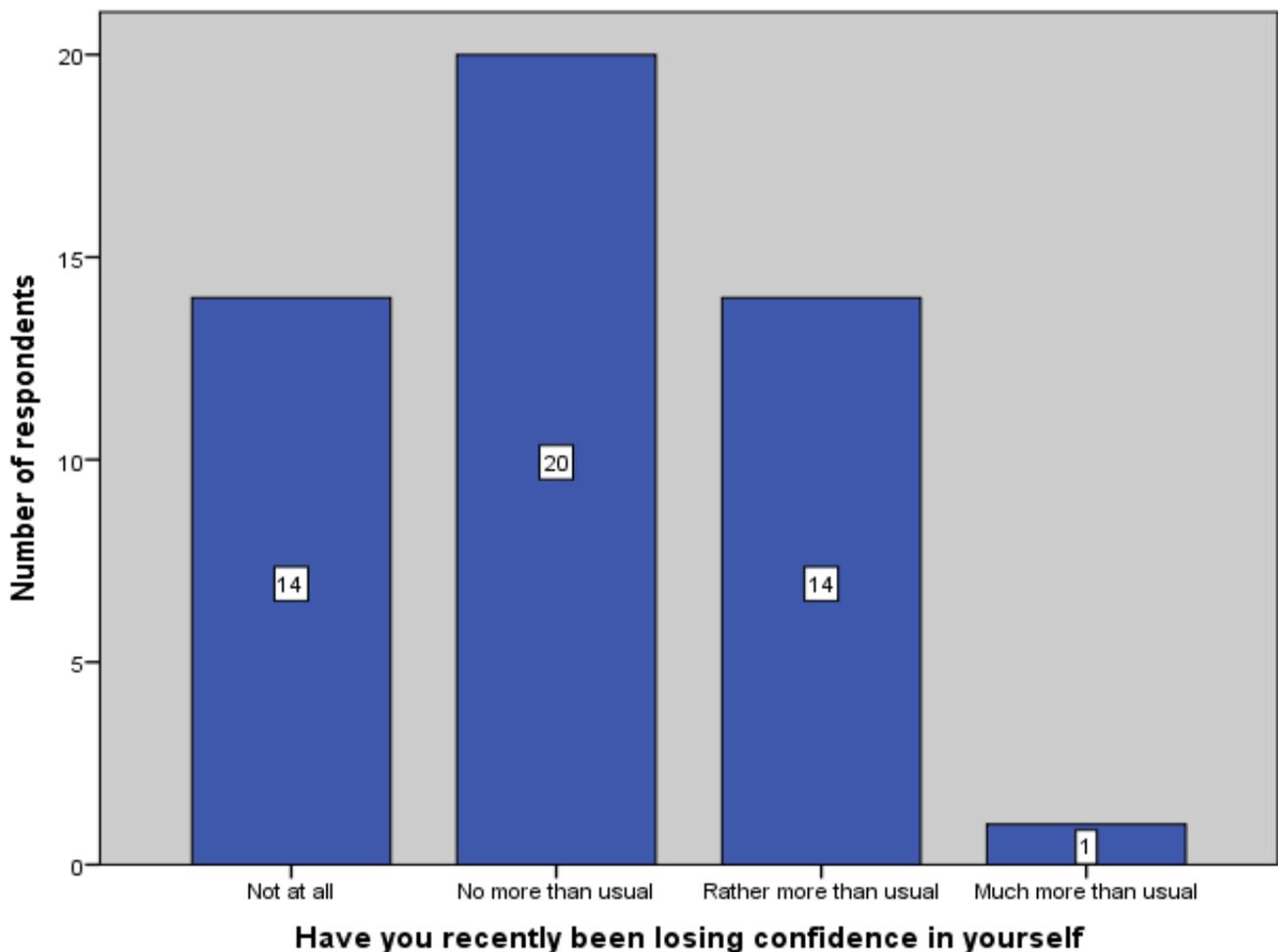


Figure 3 Respondents' answers to GHQ question 10

Figure 3 (see Figure 3 above) details participants' answers to GHQ question 10: have you recently been losing confidence in yourself? Out of 49 respondents, 34 replied with 'not at all' or 'no more than usual'. However 14 responded with 'rather more than usual' and 1

with ‘much more than usual’. Unfortunately this study did not ascertain the precise reasons as to why respondents felt this way. This limitation will be discussed further in the discussion.

3.2 Inferential Statistics

A series of t-tests, ANOVAs, regressions and correlations were applied to test the study’s hypotheses. Table 3 (see Table 3 below) displays the differences on GHQ and QATT scores between respondents whose children were taking ADHD medication at the time of the study and those whose children were not.

Table 3 *Independent Samples T-test table displaying differences between GHQ and QATT scores for respondents (children taking medication) and respondents (children not taking medication)*

Variables	Groups	Mean	SD	T	Df	P
GHQ	Taking medication	10.37	4.552	-5.211	47	.00
	Not taking medication	17.05	4.075	-	-	-
QATT	Taking medication	31.77	4.576	-3.276	47	.002
	Not taking medication	35.74	3.297	-	-	-

Table 4 *Mean age average of respondents with regards whether or not their child was taking ADHD medication at the time of the study*

Age of participant			
Is your child currently taking medication for ADHD	Mean	N	SD
Yes	40.50	30	7.904
No	47.79	19	11.128
Total	43.33	49	9.852

Hypothesis 1 stated ‘the age of parent will have a bearing on whether or not their child is currently taking ADHD medication. It is hypothesised that as age increases the likelihood of a respondent’s child being on medication will decrease’. As shown above (see Table 4) the mean age average for respondents whose children were taking ADHD medication was 40.50, compared with a mean age of 47.79 for those whose children were not taking ADHD medication at the time of the study. Equal variances were assumed and the 95% confidence limits shows that the mean difference of the variables lies between -12.758 and -1.820. An independent samples t-test showed that there was a **statistically significant difference** between respondents ages and whether or not their child was currently taking ADHD medication ($t(47) = -2.681, p = .010$). Therefore, the **null hypothesis was rejected**.

Hypothesis 2 stated ‘this research believes that the age and sex of the child will not have a bearing as to whether they are currently taking ADHD medication’. A two-way ANOVA was conducted to examine the effect of sex and age (of a respondents child) on whether or not they were currently taking ADHD medication. **No statistically significant interaction** was found between the effects of sex coupled with age. Age on its own however did have a statistically significant interaction ($p = .018$) with whether or not a child was currently taking ADHD medication. This hypothesis was rejected and the **null accepted**. A graphic representation of the two-way ANOVA is shown below (see Figure 4).

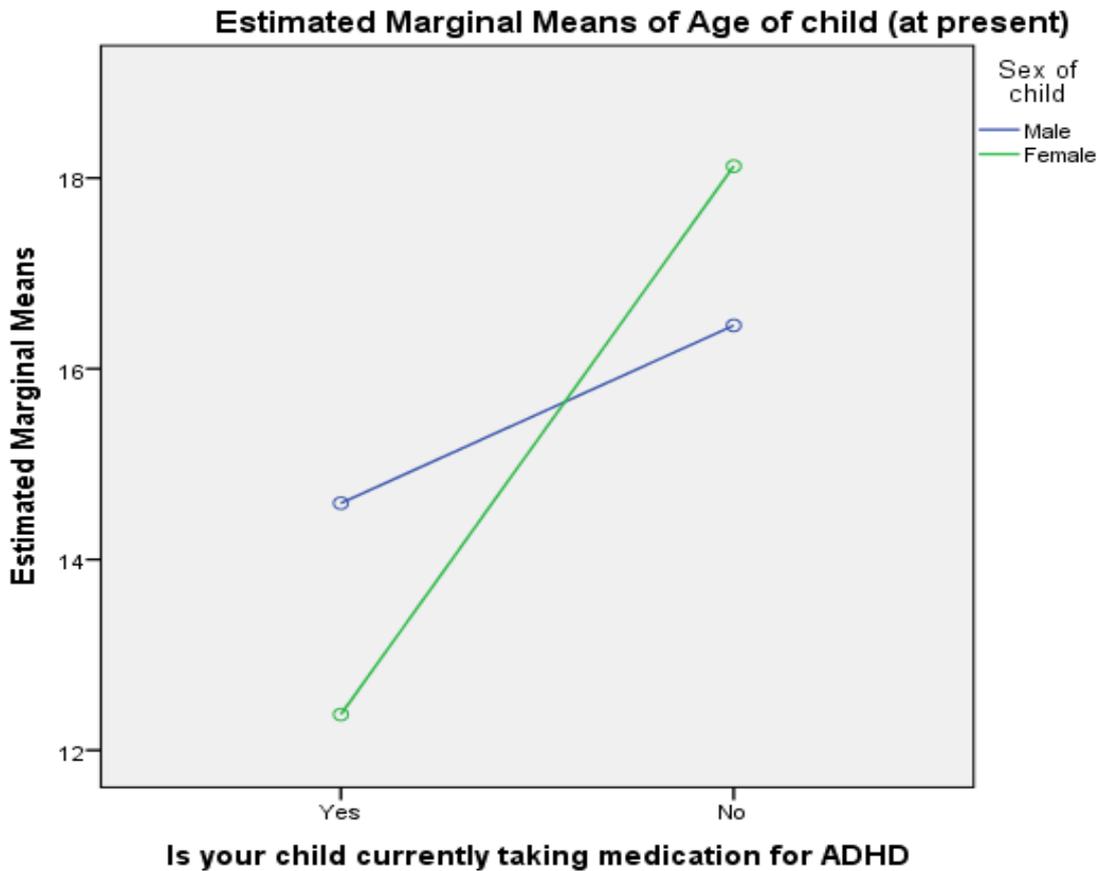


Figure 4 ANOVA profile plot

Hypothesis 3 stated ‘this research believes that the year in which the diagnosis was given will be an indicator as to whether the child is currently taking medication. It is hypothesised that less agreements were made in support of medication in the past than in more recent years’. Table 5 below (see Table 5) shows the mean average year of diagnosis for respondents whose children were taking ADHD at the time of the study was 2010.90, for the children of respondents who weren’t taking ADHD medication the mean average year was 2008.58. Confidence intervals were found to be between .597 and 4.045. As zero was not present a **statistically significant result was found** using an independent samples t-test ($t(47) = 2.709, p = .009$). Therefore the **null hypothesis was rejected**.

Table 5 Mean year average of respondents with regards whether or not their child was taking ADHD medication at the time of the study

Year of child's diagnosis			
Is your child currently taking medication for ADHD	Mean	N	SD
Yes	2010.90	30	2.537
No	2008.58	19	3.453
Total	2010	49	3.109

Hypothesis 4 stated ‘this research believes that if a parent has more knowledge about treatment their child is more likely to be taking medication’. Of the respondents whose children were currently taking medication the average mean for knowledge was 2.43, this was compared to a mean of 1.16 for respondents whose children were not taking medication. A **statistically significant result was found** ($t(47) = 6.370$, $p = .000$), therefore the **null was rejected**. Confidence levels were found to be between .872 and 1.678.

Hypothesis 5 stated ‘it is hypothesised that a high level of knowledge surrounding treatment will lead to a greater acceptance surrounding ADHD diagnoses’. Correlation and multiple regression analyses were run in order to examine the relationship between knowledge and acceptance. Knowledge **significantly correlated** with the criterion, this indicates that those with a higher level of knowledge surrounding treatment often have a greater acceptance of a diagnosis. The multiple regression model produced an output of $R^2 = .309$ $F(1, 47) = 21.044$. Therefore the **null was rejected**. Confidence across male and female participants was quite similar, with no significant difference between the sexes.

Hypothesis 6 stated ‘it is hypothesised that respondents exhibiting higher levels of confidence will have more positive attitudes towards medication’. Correlation and multiple regression analyses were run in order to examine the relationship between confidence of respondent and attitudes towards medication. For every unit increase in confidence, a .845 unit increase in attitudes is predicted. The coefficient for confidence (.845) was **significantly different** ($p = .002$) therefore there was a relationship between confidence and attitudes and so the **null was rejected**. The multiple regression model produced an output of $R^2 = .194$ $F(1, 47) = 11.282$. Using Pearson’s correlation, significant results were also found between confidence and participants’ age ($p = .000$); and confidence and age of child ($p = .000$).

Hypothesis 7 stated ‘it is hypothesised a greater level of trust in healthcare figures will have a bearing on whether or not a child is currently taking ADHD medication’. An independent t-test found a **statistically significant relationship** ($t(47) = -2.238, p = .030$). The mean trust score for respondents whose children were taking medication was 7.87, compared to 8.63 in respondents whose children were not. Confidence levels were found to be between -1.453 and -.077 therefore the **null hypothesis was rejected**. Using a Pearson’s correlation, trust also produced significant results in terms of attitude ($p = .021$). Trust scores between male and female respondents differed significantly ($p = .026$).

4. Discussion

The aim of this research project was to investigate attitudes towards treatment among parents with ADHD diagnosed children and to postulate as to some of the potential reasons behind positive and negative attitude formation. The rationale for the study was to further contribute to already existing ADHD information but to focus on a relatively untouched area. The findings discussed will be primarily based around the seven hypotheses, research mentioned in the introduction will be considered and additional literature cited also. Secondly, a number of limitations the research project experienced will be addressed in retrospect. Thirdly, recommendations for future research will be discussed and finally a brief conclusion will be given.

Hypothesis 1: The age of parent will have a bearing on whether or not their child is currently taking ADHD medication. It is hypothesised that as age increases the likelihood of a respondent's child being on medication will decrease.

Results confirmed that there was a significant difference ($p = .010$) with regards the age of respondents whose children were currently taking medication (mean = 40.50, SD = 7.904) compared with respondents whose children were not taking medication (mean = 47.79, SD = 11.128). Therefore the hypothesis was supported. This finding was not unexpected as previous research would suggest that older persons maintain a certain scepticism towards medicating treatments (McLeod et al., 2007). Along with this, older persons have been found to have less specific knowledge about ADHD (McLeod et al., 2007) and so this lack of knowledge could be a contributing factor for the difference seen in older respondent's children not being on medication when compared with younger parents. Recent research from Lazaratou et al. with regards the use of psychotropic medication in childhood

mental disorders states that “parent’s opinions and beliefs are not in line with scientific facts. This suggest a need to further inform the parents on the safety and efficacy of psychotropic medication in order to improve treatment compliance” (Lazaratou et al., 2007, p. 1). In this study, opinions on psychotropic medication were not statistically differentiated with parental age (Lazaratou et al., 2007). Results from Lazaratou et al.’s research found that the majority of parents in the study had a fear concerning psychotropic medication use amongst their children more so than other medications (Lazaratou et al., 2007).

An alternative interpretation of this finding is that older parents tend to have older children. Therefore some of this age bracket might have ceased medication if they were previously taking it, as mentioned in this introduction Miller’s research believes that as a child develops into adolescence treatment adherence declines significantly (Miller et al., 2004) and so this could be a contributor to the observed results.

Hypothesis 2: This research believes that the age and sex of the child will not have a bearing as to whether they are currently taking ADHD medication.

Results confirmed that there was no statistically significant relationship between sex and age on whether or not a respondent’s child was taking medication at the time of the study. This was both an expected and unexpected finding, unexpected due to previous research rates for ADHD medication intake with regards sex being varied (Rowland et al., 2002). A recent study from Froehlich et al. found that “in bivariate analyses, rates of meeting DSM-IV ADHD criteria were higher in boys than girls” (Froehlich et al., 2007, p. 859). However in the case of this study, there was no difference in medication consumption concerning both sex and age. This could be due to a number of reasons. Of respondents’

children, thirty-three were male (n=33) ranging in age from 7-27, in contrast to this only sixteen were female (n=16) and ranged in age from 8-23. Skogli et al.'s research found that there was a difference between male and female children with regards indicating symptoms for ADHD (Skogli et al., 2013). This study's introduction postulated as to whether or not a difference would be found in the numbers of male and female children currently taking/not taking ADHD medication, in addition it deliberated as to whether age would be a combined factor in this. Results found that age and sex together were not significant, perhaps due to an unevenness in the sex of respondents' children. There was however a significant relationship found between age alone and whether or not a respondent's child was taking ADHD medication at the time of the study.

Hypothesis 3: This research believes that the year in which the diagnosis was given will be an indicator as to whether the child is currently taking medication. It is hypothesised that less agreements were made in support of medication in the past than in more recent years.

Results confirmed that there was a statistically significant difference between the year a child received a diagnosis and whether or not the child was taking medication ($t(47) = 2.709, p = .009$), therefore the hypothesis was supported. This was an expected finding, the majority of respondents' children's diagnoses occurred in more recent years, over 50% of respondents had a child diagnosed with ADHD in the years 2010 through 2014. It is widely accepted that the amount of ADHD diagnoses in the last number of years have increased substantially (Haber, 2003), hence it is only natural for the amount of children taking ADHD medication to increase also. A recent article from Schwarz and Cohen featured in *The New York Times* stated that "an estimated 6.4 million children ages 4 through 17 had received an ADHD diagnosis at some point in their lives, a 16 percent increase since 2007 and a 41

percent rise in the past decade” (Schwarz and Cohen, 2013). With a greater amount of information and support available in more recent years, it is expected that parents will be more knowledgeable regarding treatment options and their potential benefits, therefore making parents more willing to trial medications with their children. The article also detailed that “about two-thirds of those with a current diagnosis receive prescriptions for stimulants like Ritalin or Adderall” (Schwarz and Cohen, 2013).

Hypothesis 4: This research believes that if a parent has more knowledge about treatment their child is more likely to be taking medication.

Results found a statistically significant relationship between levels of knowledge and whether or not a respondent’s child was taking medication for ADHD at the time of the study ($t(47) = 6.370, p = .000$), therefore the hypothesis was supported. This is in contrast to results found by Corkum et al. in 1999. Participants consisted of eighty-one parents who had children that met the diagnostic criteria for ADHD, results found that a higher level of knowledge was related to favourable opinions towards parent groups, but not medication. Adherence to treatment (both pharmacological and nonpharmacological) was not influenced by parental knowledge of ADHD (Corkum et al., 1999). The authors suggested that “experimental studies of interventions that increase knowledge of ADHD and opinions of various treatments may help in engaging more families in treatment for their children with ADHD” (Corkum et al., 1999, p. 1047). Less knowledge of ADHD can often lead to a scepticism regarding medication treatments (McLeod et al., 2007). Studies have shown that parents who have been better educated about ADHD have more knowledge of the benefits and limitations of medication and are overall more likely to pursue it as a treatment (Bennet et al., 1996).

Hypothesis 5: It is hypothesised that a high level of knowledge surrounding treatment will lead to a greater acceptance surrounding an ADHD diagnosis.

Results confirmed that there was a statistically significant correlation between knowledge and acceptance, therefore the hypothesis was supported. This was an expected result as there was a significant relationship between knowledge and whether or not a respondent's child was taking medication it would be natural that a high level of knowledge would mean a high level of acceptance with regards an ADHD diagnosis. The introduction of this study discussed Mather's view that there is a greater social acceptance of treating ADHD diagnosed children with medication (Mather, 2012). One would assume that a readier acceptance to treat would mean a greater acceptance of an ADHD diagnosis also.

Hypothesis 6: It is hypothesised that respondents exhibiting higher levels of confidence will have more positive attitudes towards medication.

Results confirmed that there was a statistically significant relationship between confidence and attitudes. As confidence increased, so too did positive attitudes. This finding was expected, as discussed in the introduction confidence can often be used to counteract the negative effects of stigmatisation experienced by those with particular diagnoses and their families. A recent study from Alizadeh et al. found that the parents of children with ADHD had lower self-confidence than the parents of control children (Alizadeh et al., 2007). Results from this study also found that the parents of children with ADHD scored lower in warmth and involvement with their child and were more likely to use corporal punishment (Alizadeh et al., 2007). Participants for the study consisted of families from Tehran, Iran, who had an ADHD diagnosed child attending public elementary schools there. A similar study in the

western world might produce results worth discussing in terms of parental self-confidence. Although there is much research into both stigmatisation and confidence separately, research concerning both in relation to mental health is extremely sparse. A recent article from Jorm tackles mental health literacy within the community, mental health literacy could potentially increase positive mental health attitudes therefore reducing stigmatisation. The author recommends a number of interventions to improve mental health literacy, these include community campaigns, interventions in educational settings and web based interventions (Jorm, 2011).

Hypothesis 7: It is hypothesised a greater level of trust in healthcare figures will have a bearing on whether or not a child is currently taking ADHD medication.

Results confirmed that there was a statistically significant relationship between respondents trust in healthcare figures and whether or not a respondent's child was taking ADHD medication ($t(47) = -2.238, p=.030$). This result was not surprising, trust relations between those in healthcare and those availing of the service has always been topical research and continues to be so (Gilson, 2003; Mohseni et al., 2007). The introduction of this research project cited a recent article by Rowe and Calnan, this dealt with a number of trust relations within healthcare. Lower levels of trust can have a number of negative outcomes which include low levels of treatment adherence, similarly higher levels of trust can lead to higher levels of treatment adherence (Rowe & Calnan, 2006). The significant result produced from this hypothesis is in keeping with previous research. A recent special report from Jacobs focused on rebuilding a lasting trust in the medical field. In this she correctly stated that "trust is easier to understand than to measure. For us, trust may be particularly difficult to embrace because it is not a science. Few instruments have been designed to allow us to evaluate it with

any scientific rigor” (Jacobs, 2005, p. 3494). The results from this research project should be understood within the limitations of quantitatively being able to comprehend trust.

4.1 Limitations

There are a number of limitations that the present study wishes to acknowledge. Ideally, the author would have liked to carry out a larger scale study and obtained a greater number of participants. There was a very short period of time to complete the research project within, and so due to time constraints and perhaps the medium of communication a larger number of participants was not possible. The author would have liked to have collected a much more even gender split than was seen, in both respondents and their children. Respondents were predominately female (N=36, 73.5%), however the opposite was seen in the gender of respondents’ children, the majority of which were male (N=33, 67.3%). There were no stimulations as to the country a diagnosis was received in, on reflection the author would have stated that the diagnosis should have been received within Europe. This study appealed to a number of young adults that had been recently diagnosed with ADHD (but were suspected of having the disorder during their childhood/adolescence). A number of this population got in touch to ask if they were suitable for participation, they were invited to read through the questionnaire and given information on the research’s objectives but were unable to contribute to the study as participants.

This research project ran into a number of complications when recruiting participants online. Having posted a link to the online questionnaire along with the projects objectives and contact information to number of ADHD forums, the author was inundated with abusive responses from a number of forum members. This unfortunately slowed a number of the projects other aspects. It is the author’s belief that a number of excluded questionnaire

answers (excluded due to the impossibility of their answers) were generated from members of one particular online forum. The author understands that due to the potential sensitivity of the topic, emotions might be high and so recognises why this may have happened.

The author admits that another limitation of the research was the use of certain subscales. In an attempt to structure a more appealing and relevant questionnaire, certain subscales were created. Reliability was tested and proved high in the case of both acceptance and confidence, however the author would have liked a higher reliability in the case of trust and knowledge. A further potential limitation was the order in which questionnaire questions were administered. The author feels that as the GHQ was administered immediately after the QATT, respondents were predisposed to answer GHQ questions in relation to ADHD attitudes. For example ‘have you recently been losing confidence in yourself?’ may have been answered in terms of how a respondents confidence was in relation to their child’s ADHD rather than their personal confidence in general.

Another limitation included the relatively small word count stipulation. The allocation of more words to the research project would have resulted in broader explanations that may have potentially shed further light on attitude formation and implications.

4.2 Recommendations

A number of recommendations for future research were discussed throughout this projects introduction. Having found a number of significant results generated from the hypotheses, the author would propose a number of research recommendations be initiated immediately or in the near future.

This study found a significant correlation between both knowledge/medication usage, and knowledge/acceptance of an ADHD diagnosis. Knowledge appears to be a significant contributor towards attitudes of ADHD treatment in general. In 1996 Bennet et al. prompted for future studies concerning the relationship between knowledge and medication acceptability, having found in their study that parents who had been better educated about ADHD were in a stronger position to make decisions with regards treatment (Bennet et al., 1996). This was a suggestion echoed by McLeod and his colleagues. They found that older populations (along with men and non-white minority groups) had less specific knowledge about ADHD and made the recommendation that future efforts be made to enhance their understanding of it (McLeod et al., 2007). Educational interventions that target particular groups with less knowledge would be beneficial for the treatment of future generations that might suffer with ADHD, and so the author recommends that this to be considered.

Gaynes et al. recently prioritised eight of the highest research needs concerning ADHD. A “more comparative evaluation of psychopharmacologic, psychosocial, and combination interventions across age ranges” (Gaynes et al., 2012, p. 31) was a reoccurring trend seen within the research needs. This research would support this recommendation as more available research on numerous interventions may prove the deciding factor in many parents’ decisions.

There is a real need for more research with regards attitudes of those with ADHD and their families as to date it has been exceedingly sparse. Parent education is vital for those with ADHD children and should be more readily accessible to those who wish to avail of it. This study found that knowledge, confidence and trust in healthcare figures were all significantly important when it came to attitudes and acceptance of ADHD. This study would

recommend that attempts be made to increase levels of knowledge, confidence and trust in parents with ADHD diagnosed children.

4.3 Conclusion

This study set out to observe attitudes towards treatment among parents with ADHD diagnosed children and to hypothesise as to some of the potential reasons behind positive and negative attitude formation. Overall results found that a number of predictors contribute to attitudes towards treatment. Results generated from this study show that respondents' overall mental health is quite good. Contrasting with this however, QATT scores would indicate that respondents' attitudes towards treatment are more negative than positive. There was no significant difference between males and females on overall GHQ scores or overall QATT scores.

Previous relevant literature cited throughout this study, coupled with the study's own results suggest that there needs to be more research into ADHD attitudes conducted in the future. This study provides a mere snapshot into ADHD treatment attitudes and important predictors of both positive and negative attitudes, there still remains much to explore.

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6. Appendices

6.1 Appendix 1 – Participant information sheet

Study title – The relationship between ADHD diagnoses in children and attitudes towards trialing treatment.

My name is Rachael McKenna. I am a full time psychology student at DBS. I am interested in ADHD and the attitudes of parents with diagnosed children; this interest forms the basis of my research. The aim of my final year research project is to identify a range of different attitudes regarding ADHD medication in children and enhance our understanding as to why a number of people chose to trial the medication and why others decline.

I would like to ask you to take part in an online questionnaire that looks at a number of different attitudes surrounding ADHD, its treatments and how you feel this might affect a decision to consent to your child taking medication. Before you decide to take part you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully.

Your participation in the attached questionnaire is entirely voluntary and all responses are completely anonymous. The results generated will be used to improve our understanding of attitudes towards medicating ADHD diagnosed children and what could be done to make sure everyone has access to unbiased information regarding the medications efficacy, potential side effects etc. This will have applications for the parents/guardians of ADHD children when making an informed decision to trial medication.

All parents with an ADHD child (under 18 at the time of diagnosis) diagnosed between the years 2000 and 2014 have been invited to take part. The online questionnaire measures a number of different attitudes surrounding ADHD in children and personal attitudes in parents/guardians towards a number of related factors.

The questionnaire will take approximately 2-3 minutes to complete. All the results are anonymous. If you are willing to volunteer, please email me on 1715342@mydbs.ie with your expressed interest to volunteer and I will provide you with an online link to the questionnaire to complete at a time convenient to you.

Previous research using questionnaires has found that participants tend not to find the experience distressing. All the information that you consent to provide is treated in strictest confidence and will be held securely. Once the results have been analysed for the purposes of this study they will be destroyed.

This study has been reviewed and approved by the DBS ethics board. Finally, do please ask if there is anything that is not clear or if you would like more information and take time to decide whether or not you wish to take part ().

6.2 Appendix 2 – Participant consent form

A questionnaire study on attitudes towards trialing ADHD medication in children

Name of researcher – Rachael McKenna

Please initial beside each point

1. I confirm that I have read and understand the participant information sheet dated.....for the above study. I have had the opportunity to consider the information.
2. I understand that the information I contribute in completing the questionnaire may be looked at and analysed by the researcher Rachael McKenna and her supervisor Dr Chris Gibbons (chris.gibbons@dbs.ie).....
3. I agree to participate in this research.....
4. This agreement is of my own free will.....
5. I have been given full information regarding the aims of the research and have been given information with the researchers name and an email address if I require further information.....
6. I recognise that all personal information provided by myself will remain confidential and no information that identifies me will be make publicly available.....

Signed:

Date:

6.3 Appendix 3 – Paper based questionnaire

Please answer the following questions. In the case of the tables, please place an 'x' in the box that best suits your answer. This questionnaire contains a combination of questions from the Questionnaire on Attitudes towards Treatment (QATT – parent's version) and the General Health Questionnaire (GHQ). The questionnaire will take approximately 2-3 minutes to complete. All data gathered will remain anonymous.

Year of child's diagnosis:

Age of child:

Sex of child:

Age of parent/guardian:

Sex of parent/guardian:

Is your child currently taking ADHD medication? :

1. I am worried about my child being on medication	Always true	Mostly true	Not sure	Mostly false	Always false
2. I think medications can be addictive	Always true	Mostly true	Not sure	Mostly false	Always false
3. I am worried that medication can change my child's personality	Always true	Mostly true	Not sure	Mostly false	Always false
4. I know everything about my child's illness	Always true	Mostly true	Not sure	Mostly false	Always false
5. My child has psychological difficulties	Always true	Mostly true	Not sure	Mostly false	Always false
6. My child needs some help to deal with his/her problems	Always true	Mostly true	Not sure	Mostly false	Always false
7. My child is happy with the way he/she is	Always true	Mostly true	Not sure	Mostly false	Always false
8. My child would feel embarrassed if he/she has to take medication in front of friends	Always true	Mostly true	Not sure	Mostly false	Always false

9. I get on well with my child's doctor	Always true	Mostly true	Not sure	Mostly false	Always false
10. I think doctors prescribe pills for everything	Always true	Mostly true	Not sure	Mostly false	Always false
11. I trust doctors and nurses a lot	Always true	Mostly true	Not sure	Mostly false	Always false
12. My child can stop this treatment as soon as he/she feels better	Always true	Mostly true	Not sure	Mostly false	Always false
13. My child is the only person responsible for his/her treatments	Always true	Mostly true	Not sure	Mostly false	Always false
14. I know everything about this treatment	Always true	Mostly true	Not sure	Mostly false	Always false

Have you recently:

15. been able to concentrate on whatever you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
16. lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
17. felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
18. felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable

19. felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
20. felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
21. been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
22. been able to face up to your problems?	More so than usual	Same as usual	Less able than usual	Much less able
23. been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
24. been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
25. been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
26. been feeling reasonably happy, all things considered?	More so than usual	About same as usual	Less so than usual	Much less than usual