

2 Theoretical background

2.1 Biological theory

According to DSM-5, AD/HD is characterised by a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development (American Psychiatric Association. DSM-5 Task Force, 2013). In that the aetiology is still not fully understood, theories about the causes of AD/HD abound; however, the dominant perspective in Sweden today is to regard it as a neuropsychiatric disability caused primarily by hereditary factors, damage to the nervous system or the underdevelopment of specific brain areas. It is believed that family systems or other critical aspects of the child's immediate environment are not germane to the development of AD/HD (Gillberg, 2003; Hoogman et al., 2017; National Board of Health and Welfare, 2017).

2.2 Attachment theory

Attachment or bonding theory is based on the work of psychiatrist and psychoanalyst John Bowlby, who utilised interdisciplinary contexts to understand the complexities of the human psyche (Broberg, 2008). One obvious way that attachment manifests itself is the child's tendency to seek proximity with his or her primary caregiver, especially in the event of sickness and fear. Attachment is biological and thus inherited (Bowlby, 2010).

The early interaction between child and attachment figure gives rise to attachment patterns, which evolve into different kinds of mental representation – inner working models or relationships – and influences social relations and health from childhood into adulthood. These inner working models determine how children relate to other people and to themselves. The two main patterns of attachment have been defined as “secure” and “insecure”. Having a secure attachment means that the person feels safe and secure and has positive expectations of the relationship. A person with an insecure attachment pattern often exhibits an ambivalence towards the relationship, in which love and dependency often compete with fear and anxiety about rejection. If the interaction with the caregiver is easy, a secure attachment pattern is created; the child has access to his or her caregiver when needed, providing an opportunity to develop flexible social skills, while the caregiver assists this development by being present and by holding the child and responding to his or her feelings. Through the attachment relationship, the child learns to tolerate stress. An insecure attachment pattern, on

the other hand, can arise when the attachment figure fails to heed the child's signals or to provide the child with proper care. Attachment theory describes from both a sociorelational and biological perspective how babies and young children learn from their attachment figures which attachment behaviours are operating in their personal relationships (Broberg, 2008).

In his research, Allan Schore (2000, 2002, 2003) ties modern neuropsychology to Bowlby's theories. Schore traces a line of reasoning in which he indicates that there is a growing body of studies demonstrating that the infant's right cerebral hemisphere is particularly influenced by early social experiences, and thus is formed and matures through social interaction with attachment figures. He also describes how secure attachment is a powerful counteractor to stress, which is expressed in the ability to regulate emotional states flexibly via auto and interactive regulation stemming from the sound care provided by a secure attachment figure. However, if the child is insecurely attached, he or she will not be able to regulate stress in the same way, which has ramifications on the development of his or her brain, especially the right hemisphere.

Mary Ainsworth, Bowlby's colleague, coined the term "secure base" and devised a procedure for examining attachment in mothers that she called the *strange situation*. Through her research and her work, Ainsworth was able to distinguish three attachment patterns: secure, ambivalent-insecure and avoidant-insecure (Bowlby, 2010).

A fourth pattern is disorganised attachment, the first three – even the insecure ones – being considered organised. Disorganised attachment is no longer an organised attachment pattern and arises when the child is unable to find effective strategies for handling stressful situations, often the result of traumatic experiences in which the attachment figure has appeared overly capricious or even frightening. Associations have been observed between flaws in the attachment figure's relationship with the child and the attachment figure's own unresolved traumas and losses, as attachment interviews have evidenced (Lyons-Ruth, 2007).

Disorganised attachment elevates the risk of mental ill-health beyond that linked to both organised insecure attachment patterns (ambivalence and avoidance) (O'Connor et al., 2012).

Mary Main and colleagues are the authors of the Adult Attachment Interview (AAI). Mary Main's research showed how the individual's ability to think about his or her attachment experiences can be linked to mental health. The AAI is an interview method that is used with adults to gain an understanding of their current internal representations through their memories of attachment from childhood.

The results of this methods have demonstrated that the attachment style of the adult interviewee reflects his or her own childhood experiences with the primary caregiver. Strong correlations were also found between the parents' own attachment patterns and those of their children. However, studies also showed that there were insecurely attached parents who described their childhoods as very unhappy but who nevertheless had children who were securely attached. What these families had in common was that the parents had reflected upon their childhood experiences (Bowlby, 2010; Main, 1996, 2000).

2.3 The stress and vulnerability model

Ljungberg (2008) has published a comprehensive review of scientific papers on AD/HD published up to 2008, in which he is deeply critical of an exclusively biological perspective on the AD/HD issue, and proposes a more composite causal model instead: the stress and vulnerability model. Ljungberg holds that the target of pharmacological therapy is reduced dopamine activity in the brain and tries to show with his review that it is not scientifically viable to claim that AD/HD is attributable to a dopamine deficiency. The stress and vulnerability model entails a more systematic approach to AD/HD in which both biological and environmental factors determine the severity of the symptoms, and treatment needs to proceed from the individual patient's personal circumstances.

3 Previous research

This review of previous research will be confined to studies of the association between AD/HD and attachment patterns, the stress and vulnerability model, and how the biological explanatory model is presented. Keywords for the study's scientific searches were ADHD, attachment, stress, children, parents.

3.1 Empirical scientific studies

There are more scientific publications on the causal relationship between AD/HD and

attachment than has been asserted in the public debate, but despite this, papers on the biological explanatory model dominate.

The latest paper on AD/HD was published in early 2017 in connection with the conducting of this study.

As definitive evidence that AD/HD is a neurological disorder, the article drew considerable attention. However, the results show more exactly that certain brain areas of children diagnosed with AD/HD have slightly less volume, which is believed to be attributable to the delayed development of these areas. The researchers themselves argue that this could be interpreted as immaturity. Similar changes in the brain could not be found in the adult study participants, prompting the conclusion that this developmental delay rectifies itself in adulthood. That the researchers contend that AD/HD is a brain disorder makes such an assertion self-contradictory (Hoogman et al., 2017).

De Bellis (2014) describes in this publication that the brains of children who have been abused or neglected (i.e. experienced trauma) were found to be lower in volume than the control group, a result, perhaps, of the concomitant stress. Pinto et al (2006) describe a link between the infant's disorganised attachment pattern and his or her subsequent AD/HD diagnosis.

While the authors are clear about the need for more research to establish this, they cite a study of 53 one-year olds with disorganised attachment patterns that found significant differences in the number of AD/HD diagnoses by the age of seven when compared to a control group of peers.

Clarke et al (2002) found that children with AD/HD evince insecure attachment more often. Their group comprised 19 children who met the DSM-4 AD/HD criteria and a reference group. Insecure attachment patterns (e.g. ambivalent and disorganised) were more prevalent in the AD/HD group than in the control group.

Richards (2013) presents data to support the adoption of a more biopsychosocial view of AD/HD. The paper details substantial research that shows the correlation between AD/HD

symptoms and the parents' mental health, child abuse, post-traumatic stress disorder, insecure attachment patterns to attachment figures and other extraneous factors.

Sroufe's (2005) attachment research shows that secure or insecure attachment do not only determine a person's mental health later in life. Notwithstanding this, the researcher points out that the significance of attachment patterns must not be underestimated in relation to later mental health or ill-health but it is rather that they are related to and bound up with complex developmental systems and processes that together determine mental health outcomes.

According to this paper, it has been clearly demonstrated that a secure attachment has a protective function for the child's – particularly a newborn infant's – normal development and ability to handle stress; however, in the case of an insecure attachment, the individual can still develop normally with other support systems, such as siblings, secure non-parental adults, and the preschool/school environments.

3.2 Experienced based studies

No experience-based studies have been found using the keywords listed.

4 Aim

The aim of this study is to examine parental attachment patterns in families with a child who has been diagnosed with AD/HD.

5 Question formulation

1. What does the distribution of attachment patterns look like amongst parents whose children have been diagnosed with AD/HD?
2. How closely do the couples' attachment patterns correspond?

6 Method

6.1 Participants

A random selection of paediatric psychiatry (BUP) clinics were contacted by email. This was achieved by the author emailing all BUP clinics, around two dozen in all, for which contact details were available on the County Council (now Regional) network. The clinics were

asked to pass the questionnaire to parents who qualified for the study. Four of the clinics responded affirmatively. While 180 questionnaires were sent to the clinics, the response frequency was low and only 30 parents opted to take part. These 30 parents constitute the study sample.

The survey participants comprised 15 mothers and fathers of 15 children. The requirements for participation were that the child be between six and ten years old, and that both parents completed their own identically coded questionnaire. If the biological parents had separated and an additional parent was in place, the two who were closest to the child participated. The child was also to have been diagnosed in 2016. A further inclusion criterion was the absence of known co-morbidity.

The table below gives the age, sex and highest attained educational level of the study group:

Table 1. The average age of the study group by sex

Sex	N	Average	SD	Min	Max
Male	15	43.07	4.431	36	52
Female	15	41.00	4.088	35	47

Table 2. Highest attained educational level of the study group

Education	N	%
Compulsory	2	7
Upper secondary	13	43
Tertiary	15	50

6.2 Instruments

The study used the Attachment Style Questionnaire (ASQ) (Annex 5), an instrument specifically devised to identify attachment patterns in adolescents and adults (Tengström & Håkansson, 1997).

Feeney et al. (1994) constructed the ASQ self-rating questionnaire in order to create an instrument that gives the test person a multidimensional attachment profile, as opposed to a forced-choice instrument, in which attachment patterns are mutually exclusive. Feeney and colleagues also wanted to design an instrument that did not require the test person (e.g. an

adolescent) to have experience of a romantic relationship.

The ASQ was produced to learn about and understand a person's attachment style. The knowledge thus generated can be used in many ways, both therapeutically and for the purposes of research. The results of the questionnaire are compiled into a personal profile for matching against five different attachment styles that the test presents as five attachment profile variants that occur within the population (Tengström & Håkansson, 1997).

The questionnaire consists of 40 questions (items) to be answered on a Likert scale from 1 (totally disagree) to 6 (totally agree). The questions are divided into five subtraits measuring different aspects of attachment. The aggregated responses on these scales give a personal attachment profile for each participant. The ASQ recognises one secure attachment profile and four insecure. Two of the insecure styles are seen as Avoidant (Discomfort with closeness and Relationships as secondary) and two as Anxious/Proximity-maintaining (Preoccupation with relationships and Need for approval). In the analysis manual itself, an Ambivalent attachment profile has been added (Tengström & Håkansson, 1997).

The original version of the ASQ, created by Feeney, Noller & Hanrahan, 1994 in Queensland, Australia (Feeney et al., 1994) has been translated into several languages, including Swedish.

The Swedish test population for the ASQ instrument (n=161) comprised six groups: upper secondary school students (n=74), university students (n=16), tinnitus patients (n=27), chronic pain patients (n=11), psychotherapy patients (n=90) and drug addicts (n=5).

The students (n=90) serve as a reference group for the mean values and standard deviations presented in the ASQ compilation protocol.

All in all, the reliability analysis shows good internal consistency in and stability between the subtraits. The validity analysis indicates that ASQ Sweden is very similar to ASQ Australia (the original version) when compared to each other using validation instruments, suggesting the the ASQ instrument, properly used, gives a survey good validity (Tengström & Håkansson, 1997).

6.3 Processing methods

The results were first analysed manually in accordance with the analysis model proposed by the ASQ, which provided results on an individual level in the form of mean values for the different subtraits and their comparison with the ASQ's reference population. Drawing on this comparison, the results were interpreted in compliance with the guidelines given in the ASQ manual, whereby the mutual relationships between the subtraits produced an attachment profile for each individual in the study group. The manual holds this attachment profile to be the most important interpretation of each individual's results (Tengström & Håkansson, 1997).

The ASQ is based on the following model depicting the theoretical conceptualisation of attachment:

Attachment			
Secure attachment		Insecure attachment	Two-factor level
Secure	Avoidant	Anxious	Three-factor level
Confidence	Relationships as secondary	Preoccupation with relationships	Five-factor level
	Discomfort with closeness	Need for approval	

Figure 1. Model of the theoretical conceptualisation of attachment

The individual results were compiled at the two, three and five-factor level.

According to the ASQ manual, at a *two-factor level* it is not altogether easy to determine if an individual is securely or insecurely attached from the responses to the questionnaire, as the obtained attachment profile is dimensional rather than categorical. So that a fairly accurate evaluation can nonetheless be made, the authors have set out the following criteria to judge if someone is securely attached:

- i. The average score on the Confidence scale must be higher than 4
- ii. The remaining, insecure, subtraits must be equal to or less than the reference population average

They then explain that while an average score higher than 4 in the Confidence scale does not necessarily mean that an individual is securely attached, it can serve as a kind of moderator

that enables an individual to compensate for some of the interpersonal problems/anxiety resulting from insecure attachment (Tengström & Håkansson, 1997).

To arrive at an attachment profile at a *three-factor level*, each individual's mean score for each subtrait was studied and compared to that of the reference population. A graph was created for each person's attachment profile and analysed. About 70% of the reference population has a mean score within the interval that constitutes the standard deviation from the mean according to the figure below. If the individual falls outside the interval, the interpretation, according to the analysis model, should be that his or her mean value is different to most other people's and therefore constitutes an observandum (Tengström & Håkansson, 1997).

Figure 2. ASQ subtraits for the reference population

At a *five-factor level*, every individual's score per subtrait was derived in accordance with the scoring key given in the ASQ manual. The result for each individual was then used to produce a personal profile as per the above.

6.4 Implementation

Once contact with a particular BUP clinic had been established, the clinical manager was instructed to ask the responsible therapists to distribute the ASQ questionnaire to parents whose child had been diagnosed with AD/HD in 2016 and who met all other criteria.

Each therapist received an information letter (Annex 1) with instructions to distribute the questionnaire to parents when attending a strategy course, which is a pedagogical course for parents with a child who has been diagnosed with AD/HD (Annex 4).

After the ASQ self-rating questionnaires had been distributed to all parents via the children's therapists at the BUP clinics, they were collected and stored in a safe.

The parents received a letter informing them of what participation in the study entailed (Annex 2). Once they had agreed to participate, they each received an envelope containing the ASQ self-rating questionnaire (Annex 5).

Each self-rating questionnaire came with a cover page (Annex 3) containing the variables of age, sex and highest attained educational level. Two parents per child each completed a separate self-rating questionnaire and coded them with the same code on the cover sheet.

To ensure anonymity, the questionnaires were coded by the parents without the involvement of the conductor of this study or the child's therapist. Participation was voluntary and no one was excluded.

The therapist collected all the self-rating questionnaires and the conductor of the study either received them personally or picked them up in person from the BUP clinics. The completed self-rating questionnaires were kept in a safe for the remainder of the study.

All participants were offered a copy of the examined dissertation in the letter, and were instructed to write a request for a copy if they wanted to see the results.

7 Ethical issues

Research plays a significant part in the development of society and its members. At the same time, the members of a society have a right to have their privacy protected, which in some instances can conflict with the demands of research. Consequently, there is also a personal protection requirement, which ensures that individuals are protected from mental or physical harm, personal violation or humiliation. This has been taken into account in this study.

The ethical guidelines drawn up by the Swedish Research Council (Swedish Research Council, 2011) were complied with throughout the study, as was the Act concerning the Ethical Review of Research Involving Humans (SFS 2003:460, 2003).

“The Act concerning the Ethical Review of Research Involving Humans (SFS 2003:460) is applicable only to research. To delimit the remit of the Swedish Ethical Review Authority, Section 2 of the Act excludes from its definition of research work that is performed within the framework of higher education on the basic or advanced level.” (The Swedish Ethical Review Authority, 2017)

Secrecy and confidentiality for the study participants were given the highest priority at all times by, amongst other practices, ensuring anonymisation (name, personal details and other sensitive data) and storing the study material in such a way as to render it inaccessible to

unauthorised persons. The participants were also clearly informed by the therapist distributing the questionnaires and in the letter they received of the voluntary and confidential nature of the study.

8 Results

8.1.1 Two-factor level: Secure or insecure attachment

The table below shows the distribution between secure and insecure attachment as described in the implementation at two-factor level.

Table 3. Distribution of secure and insecure attachment in the study group

Attachment	N	%
Secure	1	3
Insecure	29	97

Only one person (3%) of the group was considered securely attached on the basis of the criteria set out in the ASQ manual. The results therefore show that 97% of the participants were insecurely attached.

8.1.1.1 Distribution by sex

The table below shows the distribution between secure and insecure attachment by sex.

Table 4. Distribution of secure and insecure attachment by sex

Attachment	Sex	N	%
Secure	Male	1	3
	Female	0	0
Insecure	Male	14	47
	Female	15	50

Only one person (3%) of the group was considered securely attached on the basis of the criteria set out in the ASQ manual. The results therefore show that 97% of the participants were insecurely attached.

8.1.1.2 Distribution by age

The table below shows the distribution between secure and insecure attachment by age.

Table 5. Distribution of secure and insecure attachment by age

Attachment	Age	N	%
Secure	35-42	0	0
	43-52	1	3
Insecure	35-42	15	50
	43-52	14	47

The only securely attached person was male.

8.1.1.3 Distribution by highest attained educational level

The table below shows the distribution between secure and insecure attachment by highest attained educational level.

Table 6. Distribution of secure and insecure attachment by highest attained education level

Attachment	Education	N	%
Secure	Compulsory	0	0
	U. secondary	0	0
	Tertiary	1	3
Insecure	Compulsory	2	7
	U. secondary	13	43
	Tertiary	14	47

As can be seen in the table above, the distribution by age was even. The securely attached person was in the upper age bracket.

8.1.1.4 Distribution by family

The table below shows the distribution between combinations of attachment within families.

Table 7. Distribution of attachment combinations within families

Attachment	N	%
Secure & Secure	0	0
Secure & Insecure	1	7
Insecure & Insecure	14	93

As only one individual was securely attached, there was only one couple in the Secure & Insecure category. The other families comprised two insecurely attached parents.

8.1.2 Three-factor level: Confidence, Avoidant, Anxious & Ambivalent

The table below shows the distribution between secure and insecure attachment as described in the implementation at three-factor level.

Table 8. Distribution of attachment profiles in the study group

Profile	N	%
Secure	1	3
Avoidant	14	47
Anxious	3	10
Ambivalent	12	40

The results show a clear skew towards the Avoidant and Ambivalent attachment profiles relative to the Secure and Anxious profiles.

8.1.2.1 Distribution by sex

Table 9. Distribution of attachment profiles by sex

Profile	Sex	N	%
Secure	Male	1	3
	Female	0	0
Avoidant	Male	8	27
	Female	6	20
Anxious	Male	0	0
	Female	3	10
Ambivalent	Male	6	20
	Female	6	20

Most males were found in the Avoidant and Ambivalent profiles. The same was also the case for the females.

8.1.2.2 Distribution by age

Table 10. Distribution of attachment profiles by age

Profile	Age	N	%
Secure	35-42	0	0
	43-52	1	3
Avoidant	35-42	8	26
	43-52	6	20
Anxious	35-42	0	0
	43-52	3	10
Ambivalent	35-42	7	23
	43-52	5	17

The distribution between ages was fairly even in the study group, with the exception that everyone with an Anxious profile was in the 43-52 bracket.

8.1.2.3 Distribution by highest attained educational level

Table 11. Distribution of attachment profiles by highest attained education level

Profile	Education	N	%
Secure	Compulsory	0	0
	U. secondary	0	0
	Tertiary	1	3
Avoidant	Compulsory	0	0
	U. secondary	7	23
	Tertiary	7	23
Anxious	Compulsory	0	0
	U. secondary	0	0
	Tertiary	3	10
Ambivalent	Compulsory	2	7
	U. secondary	6	20
	Tertiary	4	13

The distribution between educational levels in each attachment profile corresponded closely to that within the study group as a whole. The only securely attached person had a tertiary education.

8.1.2.4 Distribution by family

The table below shows the distribution between combinations of attachment within families.

Table 12. Distribution of attachment combinations within families

Family profiles	N	%
Secure & Secure	0	0
Secure & Avoidant	0	0
Secure & Anxious	1	7
Secure & Ambivalent	0	0
Avoidant & Avoidant	3	20
Avoidant & Anxious	1	7
Avoidant & Ambivalent	7	47
Anxious & Ambivalent	1	7
Anxious & Anxious	0	0
Ambivalent & Ambivalent	2	13

Since only one individual was securely attached, there was only one parental couple with a Secure & Insecure combination. All other families comprised two insecurely attached parents.

8.1.3 Five-factor level: ASQ subtraits

The table below shows the mean values and standard deviations regarding the ASQ subtraits for the study group and reference population (Tengström & Håkansson, 1997).

Tabell 13. ASQ subtraits for the study group and reference population

Subtrait	Group	N	Mean	SD
Discomfort with closeness	Study group	30	3.39	0.94
	Reference population	90	3.23	0.85
Relationships as secondary	Study group	30	2.47	0.78
	Reference population	90	2.10	0.66
Confidence	Study group	30	4.48	0.85
	Reference population	90	4.42	0.75
Need for approval	Study group	30	2.92	0.99
	Reference population	90	3.47	0.89
Preoccupation with relationships	Study group	30	3.10	0.81
	Reference population	90	3.52	0.84

In the graph below, the study group means have been juxtaposed with the reference population means and standard deviations in the way that each individual has been compared with the reference population to assess his or her attachment profile.

Attachment profile – study group

Mean values

SD Max ref. group

Reference group

SD Min ref. group

Study group

Discomfort with closeness

Relationships as secondary

Confidence

Need for approval

Preoccupation with relationships

As regards Confidence, the groups' means are close to each other, while the study group means are higher than those of the reference group for Discomfort with closeness and Relationships as secondary and lower for Need for approval and Preoccupation with relationships.

8.1.3.1 Subtraits by sex, age and highest attained educational level

The tables below illustrate the means and standard deviations per study group variable.

Tabell 14. Mean values for subtraits by sex

Sex	Discomfort with closeness	Relationships as secondary	Confidence	Need for approval	Preoccupation with relationships
Male	3.42	2.68	4.53	2.77	2.94
Female	3.36	2.26	4.44	3.07	3.27

Tabell 15. Mean values for subtraits by age

Age bracket	Discomfort with closeness	Relationships as secondary	Confidence	Need for approval	Preoccupation with relationships
35-42	3.70	2.69	4.23	3.28	3.24
43-52	3.08	2.25	4.74	2.56	2.97

Tabell 16. Mean values for subtraits by highest attained educational level

Education	Discomfort with closeness	Relationships as secondary	Confidence	Need for approval	Preoccupation with relationships
Higher	3.35	2.21	4.44	2.43	3.75
U. Secondary	3.63	2.68	4.23	3.21	3.16
Tertiary	3.19	2.31	4.71	2.73	2.97

9.3 Suggestions for further research

1. Since the study has shortcomings in one reference group in particular, it is suggested that the study is repeated, although with a reference group and a larger population that also includes socioeconomically vulnerable groups.
2. It would be very interesting to conduct a study in which the attachment patterns of both parents and children were measured and compared (i.e. a study of attachment patterns from a generational perspective).
3. It would also be interesting to do a similar study on AD/HD and its symptoms from an epigenetic perspective. For example, whether an early preschool debut affects a child's mental health given how any stress experienced will affect the child's future mental health on early separation from his or her attachment figures.
4. Much research has been done on the brains of children and adolescents and their underdevelopment in relation to different kinds of stress. There are not, however, many studies interrogating the correlation between AD/HD and stress in the immediate surroundings. Such a study would be interesting to conduct.
5. Finally, a study is suggested to examine whether family therapy provided for families with children who have been diagnosed with AD/HD has a positive impact on the children's symptoms.

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Annex 1

Letter to therapists about the study with request for participation.

Annex 2

Letter distributed to potential study participants.

Annex 3

Cover sheet for the ASQ self-rating questionnaire for study participants.

Annex 4

Information leaflet for parents prior to participation on the Strategy course.

Annex 5

Swedish ASQ self-rating questionnaire (Tengström & Håkansson, 1996).