Literature review of the challenges in everyday life and participation of four to six year old children with ADHD and how they have been intervened.

Heidi Paananen

Bachelors Thesis
May 2011

Degree Programme in Nursing
Social services, health and sport

JYVÄSKYLÄN AMMATTIKORKEAKOULU
JAMK UNIVERSITY OF APPLIED SCIENCES

Author(s)
Paananen, Heidi

Type of publication
Bachelor´s Thesis

Date
12.4.2011

Pages
50

Language
English

Confidential

( ) Until

Permission for web publication
(X)

Title
Literature review of the challenges in everyday life and participation of four to six year old children with ADHD and how they have been intervened.

Degree Programme
Nursing

Tutor(s)
Lautamo, Tiina

Assigned by
Lautamo, Tiina

Abstract
Purpose. This thesis provides an overview of the literature in symptoms of ADHD affecting in family functioning and participation of a child with ADHD. Based on these findings the non-medical interventions for ADHD are reviewed.

Method. A literature review was performed for the non-medical interventions for ADHD. The database of the thesis is CINAHL.

Results. Altogether 245 studies were found of which 24 were usable in this thesis. The non-medical interventions for ADHD were parent training programs, school based interventions, peer and sibling related interventions and interventions directly to children with ADHD. Of these categories parent training programs were the most common intervention.

Conclusion. The literature suggests that psychoeducation of ADHD is one of the main components in all interventions. The interventions have provided great improvements for children with ADHD and their families. For pre-school aged children with ADHD psychosocial interventions are suggested to be the primary intervention. MTA study suggests that parents are more willing towards combined, and multimodal interventions than stimulant treatment.

Keywords
literature review, pre-school aged children, ADHD, parent training, school based interventions, peer and sibling interventions, child interventions, family nursing, participation

Miscellaneous

Tekijä(t)

Paananen, Heidi

Julkaisun laji
Opinnäytetyö

Päivämäärä
12.04.2011

Sivumäärä
50

Julkaisun kieli
Englanti

Luottamuksellisuus

( ) saakka

Verkkojulkaisulupa myönnetty
(X)

Työn nimi
Kirjallisuuskatsaus arkipäivän ja osallistumisen haasteista 4-6 vuotiailla lapsilla, joilla on ADHD ja kuinka niihin on puututtu.

Koulutusohjelma
Sairaanhoitaja

Työn ohjaaja(t)
Lautamo, Tiina

Toimeksiantaja(t)
Lautamo, Tiina

Tiivistelmä

Tarkoitus. Tämän opinnäytetyön tavoitteena on ollut selvittää aiempien tutkimusten pohjalta, millaisia ongelmia ADHD lasten toiminnassa ja osallistumisessa on havaittu, sekä millaisin keinoin niihin on pyritty vaikuttamaan.

Käytetty metodi. Kirjallisuuskatsaus ei-lääkkeellisistä interventioista. Tiedonhaku suoritettiin CINAHL tietokannassa.

Lopputulokset. Yhteensä löydettiin 245 tutkimusta, joista 24 olivat käyttökelpoisia tässä opinnäytetyössä. Ei-lääkkeelliset keinot kirjallisuudessa olivat, vanhempienohjaus, koulupohjainen interventio, kaveri-ja sisaruspohjainen interventio sekä interventio, joka kohdistuvat ADHD:ta sairastaviin lapsiin. Näistä kategorioista vanhempainohjaus on selvästi yleisin menetelmä.

Johtopäätökset. Kirjallisuus tuo psykoedukaation yhdeksi tärkeimmistä komponenteista psykososiaalisissa interventioissa. Interventiot ovat tuoneet hyvää kehittymistä lapsissa, jotka sairastavat ADHD:ta ja heidän perheissään. Esikouluikäisille lapsille psykososiaaliset interventiot viittaavat olevan primäärejä interventioita. MTA:n tutkimus osoittaa, että ovat hyväksyvämpi kombinaatio, sekä multimodaalisille interventioidde kuin lääkehoidolle.

Avainsanat: kirjallisuus katsaus, esikoulu ikäiset lapset, ADHD, vanhempain ohjaus, koulu intervention, kaveri ja sisarus interventio, lapsiin kohdistuva interventiot, perhehoitotyö, osallistuminen

Muut tiedot

Content page:

1. Introduction

Attention deficit and hyperactivity disorder is a neurobiological developmental disturbance damaging the working order of a person. (Duodecim 2007, 3042–58.) This thesis looks at the challenges ADHD has caused on behavior of children at pre-school age from the perspectives of family nursing and participation. Family is a unity from which members should not be separated. Therefore, the family and home environment are important in supporting children's participation. To understand the challenges of participation, it needs to be understood as a phenomenon. The internal Classification of Functioning is a central framework for defining participation. The challenges ADHD has caused on participation are holistic, therefore, there has not been a single intervention for improving participation. To find up-to-date interventions for participational challenges for children with ADHD, a literature review was performed. The aim of the literature review was to acquire information on the non-medical interventions used to support children's participation in everydaylife despite ADHD. The findings were then discussed. The aim of rehabilitation has been enabling and supporting a child with ADHD to participate more adequately. Moreover, achievements for better quality of participation have occurred by modifying the environment of a child with ADHD.

2. Family nursing in ADHD

Some families with children with ADHD face problems in family functioning, in more detail within their interactions and parental adjustment. Children with ADHD are less likely to sustain their attention to play or perform task-related activities with their parents, be less cooperative and compliant with parental commands. Many of the most problematic interactions occur in the context of functionally important daily tasks. Family nursing in this matter is greatly important since an interrelated family-centered series likely represents promising treatments. (Cunningham 2007, 60-72.)

The nursing relationship is best established with cooperation, mutual respect, equality and understanding between the caregiver and the family. The family is an important active participant and they have much work to do at home in order to achieve results. It is important to remember that although the family may be dysfunctional in some way, they have the solutions to their problems in themselves. It is the caregivers' responsibility to help families find and enable the use of solution mechanisms. Many families with children with ADHD are experts in their child's ADHD. The focus should be put on the family system, their goals and solutions, not forgetting emphasizing their strengths and competence. (Stein, Coleman &Epstein 2001, 861-6.)

Chosen treatment, parental depression and marital conflicts may influence child development. Parents of preschoolers with ADHD seemed to use more lax and overreactive parenting strategies than those of children without ADHD. A more controlling and less positive approach to child management to some extent results in poorly regulated child behavior. However, a more controlling approach to tasks may represent parents' attempt to compensate for the ADHD child's self-regulatory deficits. This is often accompanied by a reduction in the more supportive interactions that are critical to positive parent-child relationships. (Cunningham 2007, 60-72.)

Parents of children with ADHD often lack confidence in their parenting skills and are less satisfied with their performance as parents. They report more stress and poorer coping than parents of children without ADHD. A poor treatment outcome is predicted if parents have low maternal self-esteem and low paternal parenting sense of competence. Marital and parental conflicts may cause reduction in the sense of safety and security of children. However, parent training improves the sense of competence for parents of children with both ADHD and oppositional disorders as well as improves relationships within the family. When parenting is improved, it affects on child compliance. The strength of primary ADHD symptoms and adaptive outcomes may be moderated by child management strategies. (Cunningham 2007, 60-72.)

Parental attitudes and skills affect the intervention and its' results. Treatments are likely to be critically dependent on parent attitudes and behaviors. It is known that in parent training high levels of maternal ADHD limit the improvement gained by ADHD pre-schoolers. In such case the treatment of the mother ensures the child's success. Adjusting the family setting, events or changing circumstances might help improve child behavior. However, many parents were very resistant to changing their own behavior and only saw the problems in the children. (Heriot, Evans & Foster 2008, 121-33.)

In some cases the family may over-focus on the child's ADHD causing the child to subsequently feel as the scapegoat and the problem child. Problematic family functioning may further cause parental anxiety and, therefore, secondarily cause increased low self-esteem, inattention and forgetfulness at home. (Stein et al 2001, 861-6.)

Parents of ADHD children do not seem to know enough about ADHD, or the information that they have received may be misleading. Therefore, simple interventions to support and enlarge the parents' knowledge and understanding of ADHD are greatly useful. (Ghanizadeh, A. 2007.) Knowledge concerning the multimodal approach to treatment in leisure time, at school and home is important, as well as concerning the educational rights of a child due to possible difficulties at the academic level. Knowledge on support groups is valuable since the whole family may suffer of some level of isolation due to ADHD. Information should be given to both parents in order to avoid the burden from falling on one parent. The sense of collaboration between the parents enables them to work and participate as a team. (DeMarle, Denk, Ernsthausen & Ahmann 2003, 302-4, 307-8, 330.)

Since children with ADHD have a higher risk for accidents, their parents have extra responsibility in compensating fot the children's high risk behavior by monitoring their participation in potentially dangerous activities. This may have an effect on the peer relationships of children. Failures of parental monitoring and control are associated with an increase in high-risk antisocial behavior. However, parents with more knowledge about ADHD report a greater sense of control over their child's behavior. The most stra-

tegic intervention may be positively reframing or redefining the parents' perceptions and understanding of their child's behavior as just a fact of life, therefore lowering their stress level. (Cunningham 2007, 60-72.)

Parents may learn and improve in their ability to take care of the child thereby improving the child's behavior or change the parents' perceptions of that behavior. Identifying all family variables or components important to family life may, indeed, affect on the effectiveness of ADHD treatments. The aim of therapy is to maximize opportunities for change to occur. (Heriot et al 2008, 121-33.)

Parents could coach siblings to understand the child's special needs. With adequate knowledge the familymembers can provide support, encouragement, and help the child develop successful habits. Counseling and support groups for ADHD children are often helpful for enhancing self-esteem and coping strategies. These children need to discover where they perform best. Pets or supportive friends can improve the child's self-esteem and coping skills. (Valente 2001, 14-5, 19-20, 23-9.)

3. Participation

If participation is restricted, then engagement to play is restricted. Play is often a social experience and the milieu where children develop social skills, interaction and form peer relationships. Unfortunately, ADHD is known to affect participation. Therefore, the prosocial development of the child is endangered. Play teaches children much of the early learning of physical, socio-emotional and intellectual development. In more detail, learning is dependent on the quality of play. Unfortunately, children with ADHD have been found to be less playful and engage in associative and cooperative play less than typically developing peers. (Cordier, Bundy, Hocking & Einfeld 2009, 332-40.)

The International Classification of Functioning, Disability and Health (ICF) by The World Health Organization (WHO) is a biopsychosocial model providing a framework for defining participation. The ICF views the relationship between the six components of health

which are health condition, bodily functions and structures, activity, participation, environmental and personal factors. According to the ICF, each component affects all components in one way or another. However the ICF has not separated activity from participation. (Geyh, Peter, Muller, Bickenbach, Kostanjsek, Utsun, Stucki & Cieza, 20101-14.) This thesis aims at specifying activity and participation since participation is a base factor in this thesis.

Whiteneck has proposed that participation is a more complex process involving multiple activities unlike activity performance. In addition participation is more likely to involve other people. (Coster & Khetani 2008, 639-48.) The components of participation are domestic life and assisting others, interpersonal interactions and relationships, major life events, and community, social and civic life. Domestic life and assisting others involves participating and caring for household tasks. Interpersonal interactions and relationships include relationship to others and acting individually in social interactions. Major life areas include engaging in preschool. Community, social and civic life includes recreation and leisure time. (World Health Organization 2001) Participation has dimensions such as diversity, intensity, where, with whom, enjoyment and own preference. (Coster et al 2008, 639-48.) Components of activity are learning/applying knowledge, general tasks, communication, mobidity and self-care. (Whiteneck, Marcel & Dijkers 2009, 22-35.)

Participation is defined as involvement in life situations, engagement and involvement in life contexts, and being accepted or having access to needed resources. Participation is personal maintenance, mobility, social relationships, home life, education (Coster et al 2008, 639-48.) leisure and recreational activities. Participation goes hand in hand with children's behavior and emotional well-being. Participation is a process where one develops social and physical competencies, a sense of meaning and purpose in life. (King, Law, Hanna, King, Hurley, Rosenbaum, Kertoy & Petrenchik 2006, 209–234.) In addition, participation in activities is the context in which children form friendships, develop skills and competencies, express creativity, achieve mental and physical health, and deter-

mine the meaning and purpose in life.(Bourke-Taylor, Law, Howie & Pallant 2009, 738-45.)

Participation represents the societal perspective of functioning. It is seen as performance at the social level that is factored by a social role. Therefore, participation means fulfilling social roles. (Whiteneck et al 2009, 22-35.) In fact, participation could be equated with social involvement. Social participation is affected by role demands or external factors, like cultural and societal expectations. It involves meeting the expectations for performance in one's role because attitudes of other are crucial. (Badley 2008, 2335-45.) However, for children such a list of social roles does not exist although we know that life situations and activities of children are play, self-care, home-related tasks and recreational pursuits. (Coster et al 2008, 639-48.)

Participation and the related constructs focus on performance. Performance is the degree in which one fulfills roles, has relationships and in which actions are performed, or time dedicated to the role performance. The primary interest is in the degree to which one with a disability takes part in household, community and society activities. It is seen that particular activity limitations are likely to raise participation restrictions. (Dijkers 2010, 5-16.) The capacity of participation refers to one's maximal ability to execute tasks in a standard environment. (Whiteneck et al 2009, 22-35.) Participation can further be defined as being autonomous or being able to control one's own life, even if one is acting by oneself. (Perenboom & Chorus 2003, 577-87.)

Healthy participation is defined as taking part in all life areas and situations in which one wishes to participate to the expected extent without restrictions. One needs to be able to fit in with others and be accepted as well as be a part of the network of the family, friends and acquaintances. One ought to be an occupant in meaningful and productive activities during the day, and be independent in everyday tasks, decisions and life choices. Normalization is an important term, meaning one with a disability should have the same opportunities as those without it. In normalization circumstances are created so that a disabled person can live, work, play and lead life without distinction. Social partic-

ipation can be further defined as optimal accomplishment of daily activities and social roles and values by a person in a socio-economic environment ensuring survival and development. In social participation individuals share resources with others. (Dijkers 2010, 5-16.) In participation the types of activities in which a child participates are important. The location of participation matters as well, because a great deal of information could be gathered on the target of change, thereby changing the child's surroundings easier for participation. (King, Law, King, Hurley, Hanna, Kertoy & Rosenbaum 2007, 209–234.)

In contrast, activity is defined as the execution of a specific task or action. Activities are seen as elements of participation. As an example of an activity we can take a child running and kicking a ball. However, one can participate in playing football when there are playmates and accessible time and surroundings. (Coster et al 2008, 639-48.) Typical activities include daily activities of living whereas participation includes being a worker, student, friend, spouse, parent, child and citizen. (Whiteneck et al 2009, 22-35.)

Family is a unit of which a child is a part of, and therefore should not be separated from the family. The family is an important environmental factor interacting with the child; likewise the child impacts the participation of the rest of the family. Depending on the child's age, his/her participation can be assessed as a part of the family's participation. Economics and social domains are big enablers and effectors in participation. Unfortunately, many families with disabled children are financially impoverished due to extra costs caused by the impairment. (McConachie, Colver, Forsyth, Jarvis & Parkinson 2006, 1157-64.)

The development of children's competencies is supported by their parents' model and supportive family relations. Parents' engagement provides children with positive sense of self and builds trust in others. The motives for engaging are important since they encourage participation. Meaningful experiences and the satisfaction of basic psychological needs are great motivators. When promoting participation, intensity is greater if the preference for certain activity is higher. (King et al 2006, 209–234.)

Cognitive ability and social skills effect children's participation. A family's participation is affected by resources and barriers such as income, time and environment, and by support factors such as relationships and child and family cohesion. Furthermore, child's participation and functional abilities of cognitive, communicative, physical and emotional functioning are affected by the family's and children's preferences. These are all great determinants of a child's development, resilience, engagement in leisure activities and participation in physical activities. The greater the cohension within the family, the stronger is the family's orientation towards intellectual and cultural activity. Therefore, predicting that a child intensively participates in formal activities, further suggests the family's higher participation in social and recreational activities leading to intense formal and informal participation. In case the parents are of unsupportive nature, lower functional ability means less intense formal and informal participation. If the child is supported by his/her teacher, parents and friends, the stronger is his/her preference for informal participation. (King et al 2006, 209–234.)

Participation is restricted by environmental factors such as the characteristics of social, physical and policy environment. For people with barriers even minor problems can restrict participation all together. The aim of rehabilitation is to reduce participation restrictions, and hence it has the focus on people with disability. Participation is an outcome variable, environment cofounder, mediating factor, intervention or outcome. Participation is influenced by one's own preference of action or even personality and temper. Environment is the independent variable that can be manipulated and changed so that a child can participate better. With the right assistive devices, personal assistance, social support, policies and environment, one with disability can fully participate in society. (Whiteneck et al 2009, 22-35.)

Children with disabilities participate in play and recreation at a reduced rate and frequency than typically developing children. Children with a disability need the assistance of a caregiver to facilitate their play and recreation. (Bourke-Taylor et al 2009, 738-45.) Participation can be formal and informal, of which both are important for children. For-

mal activity comprehends structured activities with rules and goals and has a leader. Informal activities are spontaneous in nature and are often initiated by a child. (King et al 2006, 209–234.)

Communicative participation has been defined as taking part in life situations where knowledge, information, ideas or feelings are exchanged. The exchange can take either a verbal or nonverbal means of communication. Communicative participation is needed in many parts of one's life. It includes everything from personal care, household management and leisure to learning, employment and community. Communicative participation is used to establish friendships, for a job and to give and receive. Participation certainly can be altered by the presence of impairment, limitation in activity, the environment, and personal context. Thus, participation is central because every aspect of disablement and contextual factors may directly influence it. (Eadie, Yorkston, Klasner, Dudgeon, Deitz, Baylor, Miller & Amtmann 2006, 307-20.)

Relations and phases of roles change over time. Contextual facilitators and barriers influence the relationship between tasks and societal involvement. The relationships and effects are always reciprocal. Involvement of others for acquisition and reinforcement in lifecourse is important. Disability is seen as a product of interaction between an individual and his/her environment. (Badley 2008, 2335-45.) Contextual factors are explained as environmental and personal influence functions, activities and participation as well as interaction between them. All of these affect environmental as well as personal factors. (World Health Organization 2001)

4. Introduction on ADHD

ADHD is best viewed as a gene–environment interaction since biological predisposition manifests ADHD when placed in a chaotic environment. The exposing environment is typically characterized by chaotic parenting.(Daley, Jones, Hutchings & Thompson 2009, 754-66.) The non-inherital factors for the development of ADHD include a very small

birth weight, trauma during birth, hypoxia of a neonatal, low blood glucose level, mothers' smoking and alcohol use, as well as mother's high stress during pregnancy. The symptoms of ADHD are intensified by the risk factors of contentious home surrounding, criticality, loss of warmth, inconsistency in upbringing, violence, psychiatric illness and ADHD in the family. (Duodecim 2007, 3042–58)

The core symptoms of ADHD are inattentiveness, hyperactivity and impulsivity. (American Psychiatric Association 2000, 2913-14)If ADHD is left untreated the risks of other psychiatric disorders, isolation and substance abuse increase. Good care should be planned individually according to the child's needs and aims and further be long-spanned. (Duodecim 2007, 3042–58) A child with intense ADHD is at risk of developing difficulties within educational, personal, social, interpersonal and occupational domains. (Jones, Daley, Hutchings, Bywater & Eames 2008, 380-90.) The needed supporting acts should be started as soon as possible after problems have occured, even without the diagnosis. (Duodecim 2007, 3042–58)

There are theories in trying to explain the cause of behavioural issues within ADHD children. One theory sees the problematic ADHD behaviour caused by amotivational style, therefore, as the child's functional response to his/her environment. Some researches have suggested that cognitive dysregulation is caused by ADHD, therefore, resulting in insufficient forethought, planning and control. (Daley et al 2009, 754-66.) Barkley has suggested that behavioral inhibition is the main underlying component of ADHD. (Miranda, Presentacion & Soriano 2002, 546-62.) ADHD is likely related to a difference in the neurotransmitter system in the brain hindering the child's ability to stop and think, or inhibit an action or activity. (DeMarle et al2003, 302-4, 307-8, 330.)

Whenever planning the treatment for a child with ADHD the plan ought to be made according to the child's individual needs for treatment and rehabilitation. The supporting acts should be started immediately after the behavioural or learning problems are detected. (Duodecim 2007, 3042–58)

4.1 Symptoms of ADHD affecting participation and everyday life

Findings suggest that children with ADHD seek out social interaction in normal quantities but struggle as the transaction develops, therefore, causing disruptions, rule violations and other negative behaviors in their play. This may be due to their difficulty in responding to their playmates' cues effectively, however, they were very able to give cues to their playmates. Children with ADHD have been found to have difficulty in identifying the emotional states of their playmates, understanding others perspectives and sharing their affective responses. It is seen that developmentally inappropriate lack of empathy affects social play. Therefore, children with ADHD tend to affiliate with other children who experience peer problems and similarly display negative and antisocial behavior. Siblings are often their common playmates; therefore, siblings are at risk of receiving emotional and behavioral difficulties. Reciprocity is one of the key qualities in interaction and, therefore, in play which is worsly understood by children with ADHD. (Cordier et al 2009, 332-40.)

Parents of children with ADHD would often describe the child's behavior challenging ever since. As infants they may have needed a little sleep, continually demanded attention and became highly active toddlers. Living with ADHD is challenging, frustrating and exhausting. Problems become more apparent after the child starts school. At school a child with ADHD will stand out as more active, restless, and fidgety than others, as well as unable to sit still for a story or table-top activity. Some parents' struggle with poor organization skills and short attention span, which may affect their capacity to attend regular appointments and use behavioral management strategies with their children consistently. This can lead to further self-blame and directly or indirectly affect the child. (Simmons & York 2006, 15-6, 19.)

It could be argued that children with ADHD in fact can pay attention; however, they tend to pay attention to everything. Identifying the most relevant source of stimulus from all other stimuli is challenging. Their nervous system is always looking for the most interesting stimulus in the environment. Therefore, when for example studying, child automati-

cally starts searching for the most novel stimulus to pay attention to. Despite the importance of studying the child's nervous system may view any new or interesting stimuli as equally important. (DeMarle et al 2003, 302-4, 307-8, 330.)

Not all children have the same problems caused by ADHD. Symptoms can be seen is different strengths, some being milder and some more severe. (DeMarle et al 2003, 302-4, 307-8, 330.) It is emphasized that the child's personality should be looked at to understand his/her symptoms of ADHD, as well as the best supporting acts for the child. (Gonzalez & Sellers 2002, 5-15.) People should not be deceived, since it is quite common for the symptoms to be absent in an unfamiliar context, such as surgery. (Simmons et al 2006, 15-6, 19.)

4.2 The core symptoms of ADHD

Due to inattentiveness, hyperactivity and impulsivity the children have various problems with their behavior. Children's inappropriate behavior affects negatively in their ability to participate constructively. All three core symptoms affect the intensity of engagement in play and other such important tasks for children's development. Social play promotes active peer engagement and social competence, which are regarded as 'cornerstone' skills leading to the development of cognitive, social and cultural competence.Therefore, the inability to engage in play endangeres the child's participation. Children with ADHD face numerous difficulties in the self-regulation and vigilance. (Cordier et al 2009, 332-40.)

The ICF sees the criterion for inattention as inabilities in sustaining, shifting, sharing attention and in personal activities such as self-care. (World Health Organization 2007, 132-9.) A child with ADHD often looses belongings necessary for tasks and activities such as toys and homework. Due to the inability of giving close attention to details in activities the child may have difficulties adapting to play. Following through a task is varying impossible; therefore, the child often shifts from an uncompleted task to another. (Cordier et al 2009, 332-40.) After achieving attention the child gets easily distracted by

extraneous stimuli affecting any sense. Furthermore, it may be hard to revert back to the task after disruptive stimuli. A child may seem forgetful in normal daily activities. All this may cause the child to dislike, avoid and be reluctant in engaging to tasks that require constant mental effort and attention. (American Psychiatric Association 2000, 2913-14.)

Inattention causes a child to make careless mistakes in school work since listening to instructions is challenging. (Simmons et al 2006, 15-6, 19.) The child may not engage in purposefully selected activity, may wander aimlessly and participate in a non-focused activity. (Cordier et al 2009, 332-40.)

Three qualifications to impulsiveness include the child having difficulties waiting for own turn in games and group situations such as waiting in a queue. The child often blurts out answers to question before permission to answer is given. Children may interrupt or intrude conversations and other children's play activities rudely. (American Psychiatric Association 2000, 2913-14.) Children with ADHD may often fail in listening and concentrating, and be excessively chatty. The symptoms affect the child's family life, peer relationships and academic ability. Making and keeping friends is difficult because of their disruptive behavior. (Simmons et al 2006, 15-6, 19.)

Hyperactivity negatively affects the child's behaviour in active situations where for example sitting still is reguired. If the expected behaviour goes beond the child's ability (s)he behaves inappropriately. Children may seem as constantly going somewhere and doing something, yet get nothing done. (American Psychiatric Association 2000, 2913-14.) Hyperactive children may be abusive physically and verbally. Particularly boys may be noncompliant and defiant in response to commands and authority figures. Children with ADHD may seem careless and non-reflect, and have low abilities to cooperate and be productive. (McGoey, Eckert & DuPaul 2002, 14-28.) The children have difficulties in managing own behavior unless the environment provides high, clear and structured demands. If the situational demands differ the children fail module own behavioral response. (McGoey et al 2002, 14-28.)

The social behavior of a child with ADHD is often inappropriate for tasks or environmental demands, which is observed as abnormal by others. (Cordier et al 2009, 332-40.) The child may not seem collected to listen when spoken to directly. In researches at group level children with ADHD managed cognitive skills weaker than children without ADHD. (Duodecim 2007, 3042–58.) As development arises in a complex network of social influences the development of children with ADHD is endangered. (Miranda et al 2002, 546-62.)

4.3 Other symptoms

ADHD is associated with specific impairments in processes during daily activities and transitions. Internalizing problems such as anxiety or depression alters the child's cognitions, and contribute to the emergence of antisocial behavior. These factors may increase the child's vulnerability to other environmental stressors such as bullying. (Cunningham 2007, 60-72.) Information processing, alertness, metacognition, self-monitoring and goal-directed behavior are often detoriated. In addition executive functions like working memory and setshifting are affected. The planning mechanisms affected are internalization of speech and self-regulation of affect/motivation/ arousal. (Miranda et al 2002, 546-62.) Delay of gratification and preference for large rewards are common, as well as motor co-ordination, poor regulation of emotion and low frustration tolerance. (Daley et al 2009, 754-66.) Lower level of coping skills increase the psychological stress felt by children with ADHD and they need help with managing chronic distress and discomfort. (Gonzalez et al 2002, 5-15.)

Children with ADHD avoid decision making and are more dependent, having negative and pessimistic view of self, and interaction to environment. Children with ADHD tend to believe that events happen to them outside their personal control or by 'fate'. They view life in unconventional, illogical, unrealistic way distorting reality due to their faulty perception of situations. Communication problems, anger skills deficit and lack of opportunity to process feelings can cause further alienation and rejection by peers. (Gonzalez et al 2002, 5-15.)

4.4 Associated with ADHD

It is indicated that children aged 4–6 with ADHD have high rates of co-morbid psychopathology. The children exhibit higher levels of symptoms of conduct disorder, major depression, (Matos, M., Bauermeister, JJ., Bernal, G. 2009, 232-52.) developmental disorder, anxiety disorder, problems with fine and coarse motor as well as speech and language, night and day wetting and sleeping disorders. (Duodecim 2007, 3042–58.) Environmental factors and family adversity affects the type of symptoms of ADHD, as well as anti-social behavior, which is greatly increased in children with ADHD. (Thapar, Van den Bree, Fowler, Langley & Whittinger 2006, 118-25.)

Over half of the diagnosed children with ADHD have defiance and behavioural disorders that decreases the psychosocial working order and quality of life. Simultaneous ADHD and anxiety disorder significantly undermine social working order, cognitive management and self-esteem. (Duodecim 2007, 3042–58.)

5. Procedure of the literature review

Systematic literature review is a scientific research method. The information that already exists in the literature are identified and collected. The quality of the found material is evaluated which allows justifications and reliable generalizations to be made. Systematic literature review is an examination process is which each phase logically follows another. The process is formed by a research plan, defining research questions, searching for original researches, evaluating their quality and presenting the results. The criterions for accepting and limiting researches are to be made with respect to the research question. The criterions enable all adequate researches to be involved. (Kääriäinen & Lahtinen 2006, 37-45. ; Hannula & Kaunonen 2006, 20-24.)

This literature review is exhibited by applying the rules of systemic literature review. However, the quality of the articles was not evaluated in this thesis. The criterions of this

thesis were child with ADHD, their challenges and non-medical interventions used for treating ADHD. Different approaches of interventions are examined.

The materials were analyzed by content analysis. By content analysis is meant the summarizing of the information, hence allowing the generalization to be made. The aim of the analysis is to answer the research question objectively and comprehensively. (Kääriäinen & Lahtinen 2006, 37-45.)

5.1 The search, search words and found studies

Several different terms were mixed with the baseword 'ADHD'. These word combinations were then used to search for studies introducing interventions for supporting children with ADHD and their families. These word combinations were chosen with the help of the librarian and teacher. The chosen word combinations expressed the wanted field the best. Table 1 introduces the word combinations used, the number of found texts and the number of free and usable studies. Many other word combinations were used, howerer, they were not included in the table because of inadequate search results.

The materials for this bachelor's thesis were limited to the years of 2000-2010. The search was only limited to having free full texts. The material was electronically collected from Cinahl-database and one article was collected from Cochrane-database. The limiting was done by first reading the title and keywords after which the abstracts were read. When the abstract seemed adequate the whole article was read. All studies found were not usable due to inadequate contents; unfortunately very many studies with adequate headings and abstracts were not free of charge and therefore, were unusable. Alltogether there were 245 found studies. Of these studies free and usable were 24.

TABLE 1. Searchword combinations used in literature review in databases CINAHL and Cochrane.

ADHD	other headwords	n	nro of free and

			useable studies
Cinahl	**pre-school**	3	1
database	**preschool**	27	3
	parent training	19	3
	psychosocial+ interventions	11	3
	play+children	24	2
	leisure	1	1
	participation	19	0
	rehabilitation+ children	20	1
	environment+children	32	4
	family centered	2	1
	children +parenting	11	1
	family factors	19	1
	family therapy	29	1
	guidance	13	1
	outcome assesment	9	0
	play+participation	3	0
	attention skills training	2	0
Cochrane database	*social skills*	1	1

5.2 Found studies

The found materials answering the research question were categorized to four interventions according to the target groups for whom the intervention was aimed. These groups are parents, school and teachers, siblings and peers, and children with ADHD. Some interventions were meant for many target groups simultaneously. Table 2 shows the found interventions divided according to their target groups.

TABLE 2. Classification of the found interventions according to their target groups.

Parent training	school	siblings and peers	Children with ADHD
NFPP	Simple interventions	IPG	Social skills training
IYPT	Self-control training	Social skills training	CMAP
Triple P	CMAP		Stress management
PCIT	Intervention for teachers		
Barkley's PT	MBI by Barkley		CMAP
(Family)AASTT			Stress management

Explanations of short terms used:

NFPP	The new forest parent training package
IYPT	Incredible years parent training program
Triple P	Positive parenting program
PCIT	Parent-child interaction therapy
Barkley's PT	Parent-training program developed by Barkley
CMAP	The Children's Medication Algorithm Project
AASTT	The Animal Attribution Story-Telling Technique
MBI	Multiple behavioral interventions used by Barkley
IPG	The Integrated Play Group

6. The found interventions in the literature

To get a clear understanding on the enterity of found psychosocial interventions in the literature the interventions and programmes as well as their contents have been summarized in tables. Additionally each intervention is reviewed separately with describtions of the principles and methods used. In some interventions the follow-up data was found.

6.1 Parent training programmes

The parent training programmes are individually reviewed. Table 3 briefly introduces the continents of each intervention.

TABLE 3. Summary of parent training programs and the central contents.

PT program	knowledge and skills taught
NFPP	For core symptoms. Parenting skills, psychoeducation, parent-child relationship, attention training, limit settings
IYPT	For promoting emotional development, positive relationship, limit setting and clear instructions, managing, non compliance, interpersonal communication: anger management, problem solving skills
Triple-P	Child competence and behavior. SBFI=management strategies, manage disruptive behavior, limit setting, routines, maintenance of parenting skills. EBFI=SBFI + partner support and coping skills

PCIT	For reducing problematic ADHD behavior. CDI=positive and mutual rewarding, no criticizing or commands, child led play. PDI=direction of activity, instructions, house rule management at home/public, pro-social behavior, daily practice of the learnt
Barkley's PT	For increasing compliance. Child management skills, rules and instructions, psychoeducation, increase pro-social behavior, effective commands, home token economy, response, time-out, take learnt outside of home, getting ready for future noncompliant behavior
Stress management learnt taken to public	Educating parents to teach children, relaxation, physical fitness, time control, assertiveness, handling anger,
AASTT	Especially meant for non-cooperative and destructive children. Family play therapy in make-believe world. Mutual understanding and growth. Equality of family members.

6.1.1 The new forest parent training package

The new forest parent training package (NFPP) is a parent-based intervention especially meant for the core symptoms of ADHD, since it is based on the key aetiological theories of ADHD. In addition NFPP teaches parenting skills, consisting of many perspectives for reducing the unwanted ADHD behavior. The continents are psycho-education on ADHD and teaching of parent–child relationships including positive parenting, extension of language to promote emotional self-regulation, and play. In addition the NFPP contains

behavior training to encourage consistent limit setting and attention training to help parents work on improving their children's attention. The programme has games for tackling cognitive dysregulation and inhibitory dysfunction, and strategies aimed at reducing delay aversion. (Daley et al 2009, 754-66.)

NFPP lasts for 8-week and was shown to be superior in reducing ADHD and oppositional defiant disorder symptoms in 3 years. The effects of NFPP persisted up to 15 weeks after the end of the intervention. NFPP increased positive parenting and reduced mental health problems. Unfortunately, these positive findings were not replicated, partially due to different circumstances. (Thompson, Laver-Bradbury, Ayres, Le Poidevin, Mead, Dodds, Psychogiou, Bitsakou, Daley, Weeks, et al 2009, 605-16.)

Goals of parent training include improved parental style, help parents communicate more effectively and improve management of the disorder. In the revised NFPP, constructive parenting is seen as a dynamic process. In the process parents ought to establish children's existing level of competence by scoping children's self-regulatory abilities. Secondly parents ought to set realistic but challenging goals for working within the level of the children's competence. Parent ought to support their children reach these goals by support, motivation and developmental scaffolding. Furthermore parents ought to identify when goals have been met followed with rescopping and setting new goals. NFPP emphasizes on authoritative communication and the development of strategies used for reduction of tempers tantrums and oppositional behavior. There was found a reduction in negative comments and an increase in positive comments. Many of the children's mothers had symptoms of ADHD and depression resulting in inconsistent parenting and inability to cope with the children's oppositional style. The value of early intervention approaches for the psychosocial treatment of ADHD was highlighted in the experiment. (Thompson et al 2009, 605-16.)

6.1.2 Incredible years parent training program

A group-based Incredible years parenting training programme (IYPT) aims at helping parents to develop skills to promote their child's emotional development. The IYPT

teaches to establish a positive relationship with child through play and child-centred activities. In addition parents learnt encouraging praise, reward and incentives for appropriate behaviors, guidance in the use of effective limit setting and clear instruction. The programme showed strategies for managing non-compliance. Teaching methods that were used are facilitator-lead group discussion, brain storming, videotape modelling, role play, shared problem solving, and rehearsal of taught intervention techniques through home assignments. In the advanced version interpersonal communication, anger management and problem-solving skills were included. This programme has demonstrated and worked on children with conduct problems and co-morbid ADHD. (Daley et al 2009, 754-66.)

Findings have suggested a significant success of early interventions for pre-school children presenting signs of comorbid ADHD symptoms and disruptive behavior. The IYPT program may provide an effective intervention for treating early-onset ADHD symptoms. These findings are somewhat consistent with those in 2002. There were improvements in 52% of participants, compared with a 21% improvement in the control group. The evidence suggested that IYPT is cost-effective. (Jones, Daley, Hutchings, Bywater & Eames 2007, 749-56.) The IYPT demonstrated 18-month stability of intervention effects. (Daley et al2009, 754-66.)

6.1.3 Positive parenting program

Positive parenting program (Triple – P) is a family intervention consisting of standard (SBFI) and enhanced behavioral family intervention (EBFI). These programmes include 10 core child management strategies to promote child competence and development such as physical affection, attention and praise. In addition seven more strategies to promote effective limit setting, managing disruptive behavior by rule setting, directed discussion and time-out. The SBFI additionally introduces a six-step planned activities routine to parents. It promotes the generalization and maintenance of parenting skills like planning ahead and joint decision making. In the EBFI strategies on partner support and coping skills were added. For pre-school children with co-morbid and conduct problems the

Triple-P provides significant reductions in behavior problems, including inattention, and improvements in parental competence. (Daley et al 2009, , 754-66.)

For parent training to be effective it ought to include principles of social learning theory. The reciprocal nature of parent–child interaction ought to be emphasized. Parents need behavior management techniques of which effective are the use of praise, using language to describe feelings, and give clear and concise instructions. Parents benefit from learning effective limit setting and non-violent discipline techniques. Children need positive, sensitive and responsive parenting to develop self-regulation skills, like listening, attending and controlling their temper. As parenting a child with ADHD is often stressful promoting more effective coping, problem-solving and communication skills are important for parents. Triple – P reported 12-month stability. (Daley et al 2009, 754-66.)

6.1.4 Parent-child interaction therapy

Parent child interaction therapy (PCIT) is a promising family oriented approach for treatment of ADHD and conduct problem behavior in young children of 2-7 years of age. PCIT was adapted for Mexican American families and is increasingly known in ethnic minority groups, having a strong evidence base to support its success. It was designed to help parents build a warm and responsive relationship with their child, as well as to manage their child's behavior more effectively. (Matos, Bauermeiter & Bernal 2009, 232-52.)

PCIT consists of teaching child-directed interaction (CDI) and parent-directed interaction (PDI). CDI aims at creating and strengthening positive and mutually rewarding parent-child interaction. This is gained by describing, imitating, and praising child's appropriate behavior, reflecting appropriate child speech, ignoring inappropriate behavior, and allowing child to lead play activity. Parents were taught not to criticize child and use commands. PDI aimed at decreasing child's problematic behavior, while increasing pro-social behavior. Parents were taught to direct their child's activity while instructed in use of clear, positively stated and consistent consequences for behavior. Parents learnt to es-

tablish and enforce house rules to manage child's behavior at home and in public. Summary of the learnt was given to families in written material to practice daily for 5minutes. (Matos et al 2009, 232-52.)

Parents were taught and given time to practice communication and behavior management skills with their child in a clinic playroom in a dyadic play situation. While parent and child were interacting, therapist observed them in another room. Parents had a bug-in-ear microphone through which therapists coached parents. In addition therapists met each family in individual meetings. Parents are enlisted as collaborators and encouraged to formulate their own solutions to their child behavioral difficulties as training progresses. (Matos et al 2009, 232-52.)

At the end of the intervention mothers reported a significant reduction in children's hyperactivity and impulsivity, inattention, oppositional defiant, and aggressive behavior problems. In addition a reduced level of parent-child related stress and improved parenting practices were reported. They also reported feeling more confident in their ability to manage their child's behavior. Parents expressed high satisfaction with the content and process of PCIT. Significant improvements in children's problem behaviors and in parent interactional style were seen. The maintenance of the intervention has lasted in children and parents at 3.5month and 1 year follow-up. (Matos et al 2009, 232-52.)

6.1.5 Barkley's Parent training

Barkley developed a parent-training program in child management skills with a two-fold rationale. The base is that parents must understand the need to use more explicit, systematic, externalized and compelling ways of presenting rules and instructions. (Brown 2003, 1, 3-5.)

The four major contributors to the oppositional behavior in ADHD children are discussed by parents. These are child's characteristics, parent's characteristics, situation consequences for defiant behavior, and stressful family events. Parents then learn to ignore

inappropriate behaviors and focus on noticing and rewarding ongoing pro-social and compliant behaviors. In addition parents are taught ways to give effective commands and frequent, systematic, positive attention when children engage in non-disruptive activities. A home token economy is created with a list of child's home responsibilities and privileges, and their value explained. Response cost is introduced, meaning that child faces the consequences for bad behavior. In the next step time-out method is extended so that it includes non-compliant behaviors child still struggles with. (Brown 2003, 1, 3-5.)

After all above, the learnt is taken outside the home. Parents are taught to use a "think aloud, think ahead" paradigm and review two or three previously defied rules with their child before entering a public place. A shortened time-out method is often sufficient for use in public, possibly with a delayed punishment contingency plan. This method can be modified to be used by the school in such way that school behavior is put in a daily report card and consequences for classroom conduct can be applied at home. The final step is for reviewing and brainstorming exercise that parents think will be effective strategies for future noncompliant behaviors. Barkley has stated that these ten sessions appear adequate for improving compliance rates in ADHD children. (Brown 2003, 1, 3-5.)

6.1.6 Stress management

Research of the effective stress-management has shown that teaching stress-management skills directly to parent gives more results than teaching them to children. When stress-management skills are taught to parents the results are longer lasting. In this program parents were taught the definition of stress, breathing techniques, relaxation and imaginary. In addition parents gained awareness of exercise and physical fitness, time control, assertiveness and how to say no. Parents learnt how to handle anger through patience, expressing emotions, making friends and developing confidants. (Gonzalez et al 2002, 5-15.)

Research supports the assumption that parents are the most influencing to empower and teach child how to take responsibility of his/her own life. Children have shown benefits from sessions run by therapists in coping and stress. Cognitive-behavioral techniques teach the children self-responsibility in dealing with symptoms of ADHD. Involving parents in correctly appraising, managing stressors and helping children to feel better about themselves improves the children's relationships, and increases changes for better academic and social success. In order for the learnt to be seen in everyday life the learnt has to be brought to home and school by the parents since the learnt does not transfer by the child. (Gonzalez et al 2002, 5-15.)

6.1.7 The Children's Medication Algorithm Project

The Children's medical algorithm project (CMAP) provides a psychoeducational program into the medication algorithm, which was created to improve treatment of children with ADHD and/or depression in the Texas public mental health sector. ADHD children and family members needed to have an understanding of the disorder and of treatment options to play an active role in treatment planning and implementation. After the implementation the authors found that the children completing the psychoeducation program had greater improvement in ADHD symptoms as rated by both the treating psychiatrists and parents. (Lopez, Toprac, Crismon, Boemer & Baumgartner 2005, 51-66.)

The intervention started with introductory information, which provided a brief explanation of the signs and symptoms of the disorders, etiology, prognosis and treatment options. This information was shared with teachers or school personnel involved in the education of the child as well as their primary care physician. The wishes of the child and caregiver were heard. Teachers were provided with a handout addressing the common educational and behavioral difficulties resulting from the disorder. In addition concrete suggestions were given of the ways that the school can facilitate the child's success in school. (Lopez et al 2005, 51-66.)

Next information on medication was given. Self-monitoring was taught so that one would be able to recognize the symptoms and furthermore rate how problematic they have been during the time period. This was followed by coping and lifestyle management handouts. The handout described concrete strategies for coping with the disorder and for children tips for improving organizational skills, time management, and completion of school assignments. For the parents there were behavioral strategies for effective management of the children's behavior. Parents also received an in-depth booklet targeting at changing the environment and behavior, working with the school, and teaching and encouraging social skills. (Lopez et al 2005, 51-66.)

Furthermore there were video-based groups where participants viewed a video followed by discuccion led by the group leader. In addition there was a topical group which addressed issues such as understanding what it meant to have ADHD, what medications can and cannot do, improving problem solving skills, parental limit setting skills, working with the school system, and psychiatric comorbidities. (Lopez et al2005, 51-66.)

6.1.8 Family intervention-the Animal Attribution Story-Telling Technique

The Animal Attribution Story-Telling Technique (AASTT) is a family play therapy taking place in a make-believe world that does not procide immediate consequences. The techniques include verbal story-telling, family puppet interview, and children's drawings. The AASTT is meant especially for non-cooperative and disruptive children. Lately the method has been proved to be usable to many other cases. The AASTT is a vehicle that families finds acceptable, fun and nonthreatening while providing clinicians with useful material for their work. Play can be described as the children's language. Play dialogue can bring parents and children to new levels of understanding and growth. Moreover, family play therapy reminds parents that they used to speak the language used by the children. When the techniques and topics are adapted to specific ages the intervention can be used with almost all ages. (Arad 2004, 249-63.)

Principles of family play therapy techniques are based on concrete and structured techniques. These 11 categories are art, verbal, nondirective and experiential techniques, psychodrama, puppets and dolls, story-telling techniques, filial therapy techniques, games, sand-tray play, and verbal modes. These techniques aid both children and adults in the task of expressing their conflicts, fears, and wishes. These techniques treat children as equally important family member, lowering defenses, and allowing fantasy, metaphorical, and symbolic dialogue. The techniques allow family therapists to be more efficient, while being more clientfriendly. The open-ended animal attribution enables such a wide set of possible projections that it can be accommodated to any situation. Children who act out and are labeled as suffering of ADHD are troubled by low self-esteem, plagued by continuous criticism, and grapple with unmanageable anger and tremendous shame. Their parents and siblings are many times helpless and suffer because of their inability to cope. The externalization of all these feelings and messages through animal imagery can change symbolic meaning, facilitate dialogue and growth, inspire change and resonate with a sense of personal power that is possibly dormant in all of those involved. (Arad 2004, 249-63.)

6.2 Interventions at school setting

Interventions at school are individually reviewed. Table 4 briefly introduces the contents of each intervention.

Table 4. Summary of school based interventions and the central contents.

School interventions	Knowledge and skills taught
Simple interventions	Token system, response cost system, time-out from reinforcement, manipulating curriculum, clear time limiting, increase supportive stimuli.
self-control training	Progressive delays and delay activities

Teacher based int.	Aimed at increasing functions linked to executive system. Psychoeducation and child's needs, behavioral modification techniques, cognitive behavioral techniques, management strategies, positive reinforcement, contingency contracting, token reward, response cost, time out, losing privileges.
MBI by Barkley	Token system, response cost, over-correction, time out from reinforcement, children scoring own behavior.

6.2.1 Simple interventions

Like healthy children, most ADHD children have adequate intellectual capacity. However ADHD children often forget assignments causing them to become poor achievers. School is the place where child learns skills such paying attention, co-operation with others and complete tasks. Children with ADHD often fail to master these skills. Whenever distractions and interruptions are reduced, ADHD children can control the symptoms better. (Valente 2001, 14-5, 19-20, 23-9.)

To support a child in a classroom setting the structure and task of classroom demands ought to be taken into account. In case unpleasant teacher-child interactions occur more often than positive teacher-child interactions, rarely enhancing differential attending skills of the teacher should take place such as individual feedback after a period of observation. Simple interventions help the children with ADHD to succeed, such as providing brief academic assignments. Alternatively interspersing classroom lectures with quick and simple physical exercise to reduce specific problematic behavior and problem situations. The token systems can be used to reinforce appropriate behavior in specific situations. To ensure the functionality of the system there could be some back-up reinforcements, such as special playtime or lesser homework assignments. Similar to token

system is the response cost systems which is used as positive reinforcement for improved behavior in group level. (Dopfner & Bauermeister 2007, 89-99.)

Brief time-out from reinforcement can be used as a punishment procedure for more serious forms of child noncompliance if negative consequences to problem behavior are not effective. However, leaving the classroom should not be positively reinforcing. If learning disorders co-exist with ADHD remedial teaching of academic skills may be needed. Behavioral interventions implemented in recreational settings, like summer programs, with social skills training and contingency management has been proven to be effective. Children's newly acquired skills should be reinforced in the natural environment of the child. These increase attention and reduce impulsivity in learning settings, help in social problem solving trainings and in natural-social interactions, especially in children with high impulsivity in social interactions. Each child's progress should be frequently monitored with a rating scale. Moreover positive and negative consequences and contingencies of appropriate and problem behaviors should be analyzed. (Dopfner et al 2007, 89-99.)

Academic performance findings indicate that manipulating the curriculum, past conditions as well as peer tutoring are effective. Cutting tasks into smaller units, limiting time more clearly and establishing expectations allow a child with ADHD to success more often. Increasing stimuli, such as color, shape and texture, presentation, and teaching style impacts ADHD child's ability to concentrate and sustain attention. A meta-analysis in an academic setting has revealed that insecurity management methods and concrete reinforcers demonstrate significant, short-term improvement in behavior and productivity. (Brown 2003, 1, 3-5.)

Parents who negotiate to get homework assignments from and to school can structure study time, coach the child, and encourage persistence. When distractions and interruptions can be reduced the achievement of one improves. This can be managed by placing child in a quiet area of the classroom away from windows and doors, as well as seating the child near the teacher, keeping verbal instructions brief, and providing written in-

structions. The optimal classroom is one with moderate but consistent discipline, clear expectations, frequent rewards for progress, and positive reinforcement for acceptable behavior, and impulse control. Consulting a psychology, the child's needs for structure can be identified. The clinician may collaborate with the school for feedback on behavior and to recommend management strategies. Collaboration between parents and teachers can enhance the success of this plan. (Valente 2001, 14-5, 19-20, 23-9.)

6.2.2 Self-control training

Self-control training was implemented on a preschool classroom. Choise, distracting activities, and large rewards for waiting were used. Participants' self-control was increased through progressive delays and delay activities. Implementation was in a classroom however the training could be carried to other circumstances. In another study effects of a positive reinforcement and response-cost intervention on the disruptive behavior of preschool-age children with ADHD were examined. In the classroom setting teachers were taught to reward appropriate behaviors by awarding buttons on a chart. Respectively inappropriate behaviors were discouraged by removing buttons. At the end of each preschool day children earned rewards based on the number of buttons on their chart. Disruptive behavior during both interventions was decreased. However in both studies follow ups have not been done. (McGoey et al 2002, 14-28.)

6.2.3 Intervention for teachers of pupils with ADHD

Unfortunately some teachers may not believe or accept the diagnosis of the child, (Simmons et al 2006, 15-6, 19.) therefore, the co-operation with teachers is essential. For these purposes there is an intervention programme designed for teachers in classroom settings, which has given great results. The focus of the intervention was to expand functions linked to the executive system in natural settings where hyperactive children interact. The three approaches that acted as the bases for the program were behavior modification techniques, cognitive-behavioral techniques, and instructional management strategies. Moreover, the main aim of the project was to provide teachers’ with

knowledge on ADHD and enable them to respond to the educational needs of students with ADHD. Therefore, the teachers learnt how ADHD affects child's ability and participation. (Miranda et al 2002, 546-62.)

Within this intervention contingency management meant that teachers were trained to use several techniques including positive reinforcement, contingency contracting, token reward, time-out, response cost, or losing privileges to be used in a classroom setting. These procedures have been effective in improving the classroom behavior of ADHD students. Diversely cognitive-behavior modification (CBM) includes techniques for children to control their own behaviors. These techniques of self-management strategies include cognitive modeling, self-reinforcement, self-monitoring and self-instruction. The results show CBM's effective in reducing inappropriate and maladaptive behavior. The classroom difficulties of ADHD children show the need for efficient instructional resources adapted to the learning style. (Miranda et al 2002, 546-62.)

6.2.4 Multiple behavioral interventions by Barkley

Especially Barkley has used multiple behavioral interventions in two special education classrooms of preschool children with disruptive behavior. The program included an intensive token system, response cost, over-correction and time-out from reinforcement, group cognitive-behavioral self-control training, group social skills training, group anger control training, and a daily school report card with home-based reinforcement. The children's responsibility was to score their behavior and give a price to the one with the highest score in the classroom. (Miranda et al 2002, 546-62.)

Significant differences were found in core problems and inhibitory control. Positive changes were seen in disorganization, reflection, impulsivity, cognitive flexibility and behavioral problems. Children showed learning in mathematics, natural sciences and language. Children acquired freedom from distractibility requiring special mental abilities, concentration, visual discrimination, visual-motor skills, and precision. Significant reductions were seen in disturbing teachers and classmates, standing up, and acting ag-

gressively. Furthermore the intervention improved teachers' knowledge about the strategies directed towards responding to the children's educational needs. (Miranda et al 2002, 546-62.)

6.3 Peer and sibling interventions

The two interventions for peers and siblings are reviewed. Table 5 provides a brief explanation of the contents used in each intervention.

TABLE 5. Summary of peers and sibling based interventions and the central contents.

Peer/sibling interventions	Knowledge and skills taught
IPG	Aims at increasing interaction with peers and quality of play. Arrange environment to increase play and interaction. Peers learn variety of useful skills for play and interaction.
Social skills training	Peers/siblings as target of intervention. Training typically developing children to initiate play.

6.3.1 The Integrated Play Group (IPG)

The Integrated Play Group (IPG) model is an effective intervention using playmates and siblings. IPG promotes a ‘common focus’ on an activity and has doubled the amount of interaction with peers. The IPG has increased functional object use and decreased manipulative, repetitive and isolated play. The IPG model highlights the arranging of the environment to foster mutually enjoyable social interaction, play and imaginative experiences. A child with ADHD is encouraged to engage in and maintain interactions with peers. These peers then learn to use a variety of skills such as getting the friend’s atten-

tion, sharing, requesting, organizing play and giving compliments. (Cordier et al 2009, 332-40.)

6.3.2 Peers as target and social skills training

To improve peer relationships it may be more realistic to target a dyadic friendships rather than attempting to improve relationships in a group using social skills training. Forming friendships is a potential counteract against peer rejection that may often face children with ADHD. This issue is supported by the important fact that children learn life through play; therefore, children with ADHD should be provided the ability and chance to play and learn. Interventions that are peer-mediated forethought training typically developing peers to initiate, prompt and reinforce social interactions will result in greater improvements in social play behaviors, istead of having autistic children initiate play. A standard training protocol is used to teach the typically developing peers to deliver specific social offers such as 'do you want to play', by uniformity and quality instruction. (Cordier et al 2009, 332-40.)

6.4 Interventions for children with ADHD

In this part the interventions targeted at children with ADHD are reviewed. However, stress management and CAMP have been reviewed in previous chapters. Therefore, social skills training is the only one reviewed. Table 6 provides a brief introduction of the contents used in each intervention.

TABLE 6. Summary of interventions for children with ADHD

Intervetions for children with ADHD	Knowledge and skills taught

Social skills training	For communication improvements. Anger management, conflict resolution, appropriate social behavior,and social norms and rules. Skills for acquiring friends
Stress management	While parents are taught about stress management children learn similar contents in therapy sessions.
CAMP	Psychoeducation to family and school, self-monitoring for children, child management skills for parents, written material, problem solving skills, limiting setting, medication

6.4.1 Social skills training

Researches found that when children's motivation is captured they are enabled to engage in activities precisely for the pleasure of being involved instead of searching for a specific outcome. Captured motivation hence increased children's ability and willingness to sustain attention and therefore, maintain play themes. This would conclude to a more calm and pleasurable play time. (Cordier et al 2009, 332-40.)

In improving the children's behavior and skills communication, anger management, conflict resolution, and developing appropriate social behavior are effective. Children were taught the skills needed to make friends. Children then rehearsed the learnt behavior and joined in play sessions coached by parents. Combined social skills training and parent education were both found effective for children with ADHD who took stimulants. (Valente 2001, 14-5, 19-20, 23-9.)

Social skill training is coaching focusing on developing, maintaining, and improving social skills which may increase cooperative learning. The method of teaching concentrates on how to regulate own verbal and nonverbal behaviours involved in social interaction and compliance in respect to social norms. Training and retraining of social skills is the main element of the training. On a concrete level, training focuses on teaching children to

'read' subtle cues in social interactions, such as learning to wait one's turn, knowing when to shift topics during a conversation, and being able to recognise the emotional expressions of others. Social norms, social 'rules', and expectations of others are taught to children. Likewise, problem solving, control of emotions, verbal and non-verbal communications are taught. The results of social skills training can be evaluated by the quality of peer relationships, emotional competences, and general behaviour. Often parental groups are created to support the training the children receive. (Storebø, Skoog, Damm, Thomsen, Simonsen, & Gluud 2010, 283–297.)

5. Multimodal behavioral therapy

In a study hosted by the Multimodal Treatment Study of ADHD (MTA) the effectiveness of medication management (methylphenidate), intense multimodal behavior therapy, a combination of both treatments and, standard community care. Children in the combination treatment received a lower dose of medication than in the medication management. The multimodal behavioral therapy included parent behavior therapy, teacher behavior therapy and child cognitive-behaviour therapy. (Van der Oord, Prins, Oosterlaan & Emmelkamp 2007, 48-57.)

Parent training was based on ‘Defiant children: A clinicians manual for parent training’ by Barkley. It contained psychoeducation on ADHD, structuring the environment, practicing positive attending skills, giving effective behavioral commands to the child, contingency management skills and knowledge of parenting techniques. Teachers’ training was based on ‘Attention deficit hyperactivity disorder, diagnosis, nature, etiology and treatment’ by Pelham. It included psycho-education on ADHD, structuring the classroom environment, implementing contingency management in the classroom, and a daily report card to take home. At home, using the daily report card, parents rewarded children based on the teacher’s ratings of one’s classroom behavior for that day. Child cognitive-

behavior therapy was based on Kendall's and Braswell's work on children acquiring problem-solving techniques. Due to holistic purposes relaxation and contingency management techniques were taught, as well as academic and interpersonal problems solving. During group sessions a token system was used. All training was taught through three routes: modeling by the therapists, role-play, and guided practice. (Van der Oord et al 2007, 48-57.)

Post-treatment all conditions showed significant reductions in ADHD and related symptoms. Medication management and combined condition showed significant improvement in ADHD and related symptoms without much difference. However parents preferred multimodal therapy and combination treatment over medication management. For issues of oppositional and internalizing behavior, social skills, and parent–child relations combined condition was superior to behavioral treatment condition, unlike the medication management. (Van der Oord et al 2007, 48-57.)

Furthermore medication improved ADHD symptoms, social skills, anxiety, oppositional and conduct behavior, self-esteem, and parenting stress. Although for oppositional and internalizing behavior, social skills, and parent–child relations combined condition was superior to behavioral treatment condition, while the medication management condition was not. Anyhow multimodal therapy did not show to have an additive effect on stimulant treatment. However it is good to bear in mind that once methylphenidate is discontinued its' positive effects cease. (Van der Oord et al 2007, 48-57.) Behavioral intervention treatments were equivalent to community treatment where children were mostly medication. (Dopfner et al 2007, 89-99.)

The MTA study showed that behavior management, combined treatments and parent training reduced the high levels of stress reported by parents more effectively than stimulant medication. (Cunningham 2007, 60-72.) Parenting stress, parental cognitions, low self-esteem of the mothers and low parenting efficacy in fathers were associated with a worse child treatment outcome. Overall the present study clearly showed that in naive children with ADHD intense multimodal behavior therapy does not enhance the

effects of optimal titrated medication. Both treatment conditions show large treatment gains for ADHD- and related symptoms. In previous studies there are mixed results in multimodal therapy enhancing the effects of medication. (Van der Oord et al 2007, 48-57.)

6. Combinational treatment

Similar to the MTA an experiment of two groups was held. The first group received methylphenidate and was included in a parent training program. The second group that worked as the 'placebo' group received the same amount of methylphenidate and was included in a parent support program. Parents in the parent training program went through a ten step program that included orientation and review of ADHD with knowledge of 'normal' development including issues pertaining to ADHD. Furthermore parents were taught on parent–child relations and principles of behavior management. Parental attending skills were enhanced in the context of special play time exercise. In addition parents learnt to pay positive attention to appropriate independent play, and compliance and giving commands more effectively. A home token system was established and refined; additionaly time out from reinforcement was used when behaving inappropriately. Finally parents learnt how to handle future behavior problems. Within one month individual booster session was held. (Heriot et al 2008, 121-33.)

Parents in the support group received information on ADHD, and normal child development and watched a video on ADHD. Parents were free to talk and discuss any chosen topic without receiving specific feedback or advice on child management. The therapist only facilitated or directed conversation and discussion among the parents. Similarly an individual booster session was held. After the follow-up data had been collected the 'placebo' group learnt the behavior management strategies similarly to group one. (Heriot et al 2008, 121-33.)

The result indicated that on average children's verbal IQ was significantly lower than their performance IQ. Seven of the 16 children no longer met diagnostic criteria for ADHD at the end of the study. This was more likely seen in children receiving active medication. After the intervention parent ratings showed that 10 children were rated as being better or significantly better, while teachers rated 13 children as being better or significantly better. Some gained more than others, although both treatments showed improvements for some children. (Heriot et al 2008, 121-33.)

7. Discussion

The literature shows good reasonings to why family nursing and family interventions are important and succesfull in treating ADHD. Quite a few studies have been done about psychosocial treatment interventions for ADHD children and their families. This thesis has discussed with literature the challenges ADHD causes to family functioning, furthermore, to participation. Additionally this thesis justified why psychosocial interventions of parent, peer and sibling, school and children with ADHD bases are important to reach successful results affecting the child and family holistically.

Most problematic interaction in functioning due to ADHD takes place in important daily tasks within the family. Therefore keeping the family at the center of treatment is justified. As many challenges happen in the family setting, the emphasis on the solution mechanisms being in the family is important and empowering. However, in case parents experience psychiatric difficulties or symptoms of ADHD and understanding its effect on child behavior may clarify the situation. (Stein et al 2001, 861-6.)

Neurological knowledge is the base of principles of behavioral interventions for ADHD, although one scheme has not been found superior over others. The evidence base for cognitive-behavior therapy of children is controversial. (Dopfner et al 2007, 89-99.) Combination treatment affects the core symptoms of ADHD better than behavioural therapy without medication or medication alone. The aim of the supporting mechanisms

is that a child learns to estimate and control own behaviour better. (Duodecim 2007, 3042–58.)

For young children with ADHD parent training gives great success. Parent training provides better parent–child interaction in compliance and on-task behavior, as well as in parent-reported ADHD symptoms and child behavior problems. (Daley et al 2009, 754-66.) A child needs to know specifically what is expected of one with concise directions to succeed in behavioural improvement. (McGoey et al 2002, 14-28.)

In parent training participants develop strategies to manage routine daily transitions and essential tasks, social relationships, interactions with siblings, planning of leisure activities, and problem and conflict resolving. As parent training often targets adaptive functioning rather than primary ADHD symptoms the results are seen respectively. Management strategies parents adopt include daily tasks of family life, such as meals and bedtime, responding to noncompliance and dealing with sibling conflict. Studies show that improvements in parenting skills are often accompanied by a reduction in inattention, overactivity, and impulsivity, noncompliance, aggression, and general management problems of the child. (Cunningham 2007, 60-72.)

Since parents are the child's primary agents of socialization during the pre-school years parent training is of great importance. (Jones et al 2007, 749-56.) Barkley reminds that one strategy is not effective in and of itself. According to Barkley research suggests that parent training programmes work best with children under the age of 12, and especially under the age of seven. Unfortunately, the positive effects of many prevention programmes decline rapidly after intervention. Therefore, long-term interventions with periodic re-interventions are needed to keep up the treatment gains. (Brown 2003, 1, 3-5.)

Alltogether eight parent training, five school and teacher, two peer and sibling and three children with ADHD related interventions were introduced and reviewed. In most of the interventions the environment children participate in is seen as the independent variable that can be manipulated and changed to improve child's ability to participate as so-

cially expected. (Whiteneck et al 2009, 22-35.) This remark cannot be emphasized enough.

In each intervention psychoeducation on ADHD is at the base of the intervention. Still it is surprising how literature highlighted that not enough is know about ADHD, and its symptoms on behavior and everyday life. Especially schools pointed out in their weakeness to understand ADHD. Consistant themes in parent training programmes are the relationship, mutual understanding and quality of interaction between a parent and child. In addition limit setting, parenting skills, child management are constant subjects. The aim is that the learnt methods are taken to public after mastering the skills at home. Parenting styles may not be wrong; however they can be unsupportive and unbeneficial to a child. Even so there are always good perspectives and qualities in each family.

Although some families can be experts in psychosocial interventions for ADHD they are important to redo time after time since new perspectives and gaining of understanding are eye opening for families. Children clearly benefit from improved parenting. Parents with more knowledge have a greater control over their child. Additionally psychosocial interventions prevent isolation from occurring. Unfortunately, the risk is that in some cases the isolation of a child with ADHD may often account to the isolation of the whole family. (DeMarle et al 2003, 302-4, 307-8, 330.)

Interventions of peer and sibling based are supportive since they increase the amount and quality of play essential for a child with ADHD to learn, develop and practice new skills. (Cordier et al 2009, 332-40.) Social skill training may highly support peer and sibling based interventions as it trains children with ADHD to read subtle cues in social interactions. In addition problem solving skills and communication skills increase emotional competence and behavior. (Storebø et al 2010, 283–297.)

Interventions targeting schools and teachers highlight the systematically received consequences of the children's behavior. Specifically the engagement and co-operation of parents and teachers is the base for the intervention to work since the consequences of school behavior may be tranfered home. The school environment is particularly impor-

tant as it heavily influences future success in life. Unfortunately, stigmatization of child with ADHD as may be characterized by others as being “lazy, disorganized, erratic, scatter-brained and uncontained”. Trying to prevent this, the increased knowledge of school’s and participants’ gives increasingly great results. As a matter of fact, the clinical management largely depends on the management of these aspects of “disability.” Children with ADHD may need to learn and relearn to wait for their turn in school or play activities and plan for their daily activities with assistance. (Wolrd Health Organization 2007, 132-9.)

Sameroff has stated ‘that there will never be a single intervention strategy that can solve all developmental problems’. When facts are missing in a problematic behavior, therefore, a specific intervention may be impossible to find. However in such cases combined treatments are being used since they affect stronger than psychosocial and medication alone. On the other hand this approached could be called a ‘shotgun’. Unfortunately, if this method is used it adds little to the overall knowledge of children, ADHD and development. (Heriot et al 2008, 121-33.)

A simple and cost-effect intervention of a natural treatment for ADHD has been studied. Activities and time was spent in the green outdoor environment.The aftereffects of activities taking place in green outdoor settings were better than those activities taking place either indoors or in relatively built outdoor settings. Children's performance was significantly better after walking in the greenest setting than after walking in either of the other two settings. The experiment indicates that exposure to ordinary natural settings in the course of common after-school and weekend activities may be widely effective in reducing attention deficit symptoms in children. The advantages of green outdoor activities over other activities were consistent in repetition. (Kuo & Taylor 2004, 1580-6.)

For further investigation a greater emphasis should be placed on the evaluation of self-administered versions of the NFPP, Triple – P, IYPT and other programs for parents of

pre-school children with ADHD. (Brown 2003, 1, 3-5.) Since the follow up of many interventions haven't shown longlasting results more emphasis must be put on continuous replication. This clearly is of great importance to families since the sharpening of the learnt skills and methods provide longerlasting effects of the intervention in their daily lives.

Replication of interventions has been inadequate or inaccurate; (Brown 2003, 1, 3-5.) therefore simple replications of the interventions may add much knowledge to the data base at this point. With the knowledge of the importance of play to children and especially children with ADHD surprisingly little research of ADHD is conducted in the context of play. Therefore more research is needed in the context of play. (Cordier et al 2009, 332-40.)

ADHD ought to increase in preschool children since by time more awareness and knowledge is raised among parents and schools. Denying these children medication may do them a significant educational and social disservice. (Parr, Ward & Inman 2003, 215-8.) However it can be argued since the earlier the psychosocial intervention starts the benefits can be more easily gained. Clear limitation of the study was the low number of free articles and studies performed in psychosocial treatment of ADHD.

8. Conclusion

The challenges in family functioning and participation are made clear in this review. It provides a supportive background for the literature review done in the psychosocial treatment interventions for ADHD. The review showed great studies in psychosocial intervention as a credible option for medical treatment. However, there is a clear need for further study and replication of programs to increase the positive follow up results. As shown in the MTA study many parents would rather participate in multimodal interventions than medical management, which shows that there is a need and inquiry to know and provide more multimodal interventions.

9. References

American Psychiatric Association. 2000. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC, American Psychiatric Association. JAMA; 2913-2914. Referred to 1.4.2011.

Arad, D. 2004. If your mother were an animal, what animal would she be? Creating play-stories in family therapy: the Animal Attribution Story-Telling Technique (AASTT).**Family** Process, Jun; 43 (2): 249-63. Referred to 25.3.2011. Http://jamk.fi/kirjasto, Nelli-portal, EBSCO.

Badley, EM. 2008. Enhancing the conceptual clarity of the activity and participation components of the International Classification of Functioning, Disability, and Health. Social Science & Medicine, Jun; 66 (11): 2335-45. Referred to 21.3.2011.

Bourke-Taylor, H., Law, M., Howie, L. & Pallant, JF. 2009. Development of the Assistance to Participate Scale (APS) for children's play and leisure activities. Child: Care, Health & Development, 2009 Sep; 35 (5): 738-45. Referred to 21.2.2011.

Brown. 2003.Expert explores psychosocial interventions for ADHD.University Child & Adolescent Behavior Letter, Feb; 19 (2): 1, 3-5. Referred to 15.3.2011. Http://jamk.fi/kirjasto, Nelli-portal, EBSCO.

Cordier, R., Bundy, **A.,** Hocking, C. & Einfeld, S. 2009. A model for play-based intervention for children with ADHD.Australian Occupational Therapy Journal, Oct; 56 (5): 332-40. Referred to 21.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Coster, W. & Khetani, MA. 2008. Measuring participation of children with disabilities: Issues and challenges. Disability & Rehabilitation, 30 (8): 639-48. Referred to 21.3.2011.

Cunningham, EC. 2007. A family-centered approach to planning and measuring the outcome of interventions for children with attention-deficit/hyperactivity disorder. Ambulatory Pediatrics, Jan-Feb; 7 (1S): Supplement: 60-72. Referred to 27.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Daley, D., Jones, K., Hutchings, J. & Thompson, M.2009. Attention deficit hyperactivity disorder in pre-school children: current findings, recommended interventions and future directions. Child: Care, Health & Development, 2009 Nov; 35 (6): 754-66. Referred to 20.4.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

DeMarle, DJ., Denk, L., Ernsthausen, CS. & Ahmann, E. 2003. Family matters. Working with the family of a child with attention deficit hyperactivity disorder. Pediatric Nursing, Jul-Aug; 29 (4): 302-4, 307-8, 330. Referred to 1.4.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Dijkers, MP. 2010. Issues in the Conceptualization and Measurement of Participation: An Overview. Archives **of** Physical Medicine & Rehabilitation, Sep; 91 (9): Supplement: S5-S16. Referred to 27.2.2011.

Dopfner, M. & Rothenberger, A. 2007. Behavior therapy in tic-disorders with co-existing ADHD. European Child & Adolescent Psychiatry, Jun; 16: Supplement 1: I/89-I/99. Referred to 22.4.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Duodecim. Suomalaisen Lääkäriseuran Duodecimin, Suomen Lastenneurologinen Yhdistys Ry:n ja Suomen Lastenpsykiatriyhdistyksen asettama työryhmä. 2007. Käypähoito suositus, ADHD:n (aktiivisuuden ja tarkkaavuuden häiriön) hoito lapsilla ja nuorilla. Duodecim 2007;123(24):3042–58 Referred to 1.2.2011. (http://www.kaypahoito.fi/web/kh/suositukset/naytaartikkeli/tunnus/hoi50061).

Eadie, TL., Yorkston, KM., Klasner, ER., Dudgeon, BJ., Deitz, JC., Baylor, CR., Miller, RM. & Amtmann, D. 2006. Measuring communicative participation: a review of self-report instruments in speech-language pathology. American Journal of Speech-Language Pathology, Nov; 15 (4): 307-20. Referred to 27.2.2011. Http://jamk.fi/kirjasto, Nelli-portal, EBSCO.

Geyh, S., Peter, C., Muller, R., Bickenbach, J.E., Kostanjsek, N., Utsun, B.T., Stucki, G. & Cieza, A. 2010. The personal factors of the international classification of functioning, disability and health in the literature-a systemic review and content analysis. Disability and Rehabilitation, Early Online 1-14. Referred to 25.2.2011. Http://jamk.fi/kirjasto, Nelli-portal, EBSCO.

Gonzalez, LO. & Sellers, EW. 2002. The effects of a stress-management program on self-concept, locus of control, and the acquisition of coping skills in school-age children diagnosed with attention deficit hyperactivity disorder.Journal of Child & Adolescent Psychiatric Nursing, Jan-Mar; 15 (1): 5-15. Referred to 26.2.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Hannula, L. & Kaunonen, M. 2006: Systemaattinen kirjallisuuskatsaus osana hoitotyön suositusten laadintaa. Sairaanhoitaja 12. 20-24.

Heriot, SA., Evans, IM. & Foster, TM. 2008. Critical influences affecting response to various treatments in young children with ADHD: a case series. Child: Care, Health & Development, Jan; 34 (1): 121-33. Referred to 21.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Jones, K., Daley, D., Hutchings, J., Bywater, T. & Eames, C. 2008. Efficacy of the Incredible Years Programme as an early intervention for children with conduct problems and ADHD: long-term follow-up.Child: Care, Health & Development, May; 34 (3): 380-90. Referred to 21.4.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Jones, K., Daley, D., Hutchings, J., Bywater, T. & Eames, C. 2007.Efficacy of the Incredible Years Basic parent training programme as an early intervention for children with conduct problems

and ADHD. Child: Care, Health & Development, Nov; 33 (6): 749-56. Referred to 2.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

King, G., Law, M., Hanna, S., King, S.,Hurley, P., Rosenbaum, P.,Kertoy, M. & Petrenchik, T. 2006. Predictors of the Leisure and Recreation Participation of Children With Physical Disabilities: A Structural Equation Modeling Analysis. CHILDREN'S HEALTH CARE, *35*(3), 209–234. Referred to 3.2.2011.

King, GA., Law, M., King, S., Hurley, P., Hanna, S., Kertoy, M. & Rosenbaum, P.2007. Measuring children's participation in recreation and leisure activities: construct validation of the CAPE and PAC.Child: Care, Health & Development, Jan; 33 (1): 28-39. Referred to 5.2.2011.

Kuo, FE. & Taylor, AF. 2004. A potential natural treatment for attention-deficit/hyperactivity disorder: evidence from a national study. American Journal of Public Health, Sep; 94 (9): 1580-6. Referred to 15.4.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Kääriäinen, M. & Lahtinen, M. 2006. Systemaattinen kirjallisuuskatsaus tutkimustiedon jäsentäjänä. Hoitotiede 18 (1). 37-45.

Lopez, MA., Toprac, MG., Crismon, ML., Boemer, C. & Baumgartner, J. 2005. A psychoeducational program for children with ADHD or depression and their families: results from the CMAP feasibility study.Community Mental Health Journal, Feb; 41 (1): 51-66. Referred to 15.4.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Matos, M., Bauermeister, JJ. & Bernal, G. 2009. Parent-child interaction therapy for Puerto Rican preschool children with ADHD and behavior problems: a pilot efficacy study. Family Process, Jun; 48 (2): 232-52. Referred to 15.4.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

McConachie H., Colver, AF., Forsyth, RJ., Jarvis, SN. & Parkinson, KN.2006. Participation of disabled children: how should it be characterised and measured? Disabil Rehabil. Sep 30;28(18):1157-64. Referred to 21.2.2011.

McGoey, KE., Eckert, TL. & DuPaul, GJ. 2002. Early intervention for preschool-age children with ADHD: a literature review.Journal of Emotional & Behavioral Disorders, Spring; 10 (1): 14-28. Referred to 22.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Miranda, A., Presentacion, MJ. & Soriano, M. 2002. Effectiveness of a school-based multicomponent program for the treatment of children with ADHD.Journal of Learning Disabilities, Nov-Dec; 35 (6): 546-62. Referred to 21.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Parr, JR., Ward, A. & Inman, S. 2003. Current practice in the management of Attention Deficit Disorder with Hyperactivity (ADHD).Child: Care, Health & Development, May; 29 (3): 215-8. Referred to 5.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Perenboom, RJM. & Chorus, AMJ.2003. Measuring participation according to the International Classification of Functioning, Disability and Health (ICF). Disability & Rehabilitation, Jun 3-17; 25 (11/12): 577-87. Referred to 12.2.2011.

Simmons, H. & York, A. 2006. Recognising the signs of ADHD. Practice Nurse, Dec 15; 32 (10): 15-6, 19. Referred to 1.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Stein, MT., Coleman, WL. & Epstein, RM. 2001. "We've tried everything and nothing works": family-centered pediatrics and clinical problem-solving. Pediatrics, Apr; 107 (4 part 2): Suppl: 861-6. Referred to 11.2.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Storebø, OJ., Skoog, M., Damm, D., Thomsen, PH., Simonsen, E. & Gluud, C. 2010. Social skills training for children with attention deficit hyperactivity disorder (ADHD). The Cochrane Collaboration. Evidence-Based Child Health: A Cochrane Review Journal, Volume 6, Issue 2; 283–297,Referred to 15.3.2011.

Thapar, A., Van den Bree, M., Fowler, T., Langley, K. & Whittinger, N. 2006.Predictors of antisocial behaviour in children with attention deficit hyperactivity disorder.European Child & Adolescent Psychiatry, Mar; 15 (2): 118-25. Referred to 15.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Thompson, MJJ., Laver-Bradbury, C., Ayres, M., Le Poidevin, E., Mead, S., Dodds, C., Psychogiou, L., Bitsakou, P., Daley, D. & Weeks, **A**., et al.; 2009. A small-scale randomized controlled trial of the revised new forest parenting programme for preschoolers with attention deficit hyperactivity disorder. European Child & Adolescent Psychiatry, Oct; 18 (10): 605-16. Referred to 15.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Valente, SM.2001. Treating attention deficit hyperactivity disorder. Nurse Practitioner, Sep; 26 (9): 14-5, 19-20, 23-9. Referred to 17.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Van der Oord, S., Prins, PJM., Oosterlaan, J. & Emmelkamp, PMG. 2007. Does brief, clinically based, intensive multimodal behavior therapy enhance the effects of methylphenidate in children with ADHD? European Child & Adolescent Psychiatry, Feb; 16 (1): 48-57. Referred to 15.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.

Whiteneck, G., Marce,l P.& Dijkers. MP. 2009. Difficult to Measure Constructs: Conceptual and Methodological Issues Concerning Participation and Environmental Factors American Congress of Rehabilitation Medicine. Referred to 11.2.2011. Archives of Physical Medicine and Rehabilitation, Volume 90, Issue 11; S22-S35.

World Health Organization.2001. Interactional classification of functioning, disability and health-ICF: 53-61 (http://books.google.fi/books?id=pwb9ywSVKxwC&printsec=frontcover&dq=who+icf&source=bl&ots=JxJZAvpcuA&sig=54NZvhDYgQRSg45MrNuuvWOB1ws&hl=fi#v=onepage&q&f=false) Referred to 11.3.2011.

World Health Organization. 2007. Using the international classification of functioning, disease and health in attention-deficit/hyperactivity disorder: separating the disease from its epiphenomena. Ambul Pediatr.Jan-Feb;7(1 Suppl):132-9. Referred to 19.3.2011. Http://jamk.fi/kirjasto, Nelli-portal,EBSCO.