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Nursing interventions in the management of challenging behavior in adults with learning disabilities

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Abstract

The aim of the research was to find effective nursing interventions in the management of challenging behaviour in adults with learning disabilities. The study aimed to find intervention methods that were safe for both staff members and service users and effective in reduction of challenging behaviours. The purpose of this study was to provide evidence-based information for practical use.

The study was carried out as a literature review. After defining the inclusion criteria, the literature search was conducted by using several search words in different databases. After that, the articles were manually reviewed and the articles answering the research question were included in the final study. A total of 5 articles were included in the final review, one of them being a systematic review of restraint interventions, and one being a meta-analysis of intervention effects.

As a results, all different intervention methods reviewed proved to be effective in the management of challenging behaviour in adults with learning disabilities. Nevertheless, other intervention methods concentrated only on the effectiveness of the intervention method in reduction of challenging behaviour with individuals with learning disabilities, but other methods also aimed to increase the overall quality of life of the adults.

The results also brought forth the importance of staff training in the management of challenging behaviour in individuals with learning disabilities. Training staff to use new methods and skills were found to be crucial not just for the effective treatment but also in the wellbeing of the staff members. It was found, that the more confident the staff members were, the more effectively they were able to treat the individuals.

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Tiivistelmä

Opinnäytetyön tavoite oli löytää tehokkaita hoitokeinoja kehitysvammaisten aikuisten haastavan käyttäytymisen hallintaan. Opinnäytetyön tavoitteena oli löytää keinoja, jotka olisivat turvallisia sekä henkilökunnalle että potilaille, ja jotka tehokkaasti alentaisivat haastavaa käyttäytymistä. Opinnäytetyön tarkoituksena oli löytää näyttöön perustuvaa tietoa käytännön tarkoitukseen.

Opinnäytetyö toteutettiin kirjallisuuskatsauksen muodossa. Sisäänottokriteerien määrittämisen jälkeen aineistonhaku toteutettiin käyttämällä eri hakusanoja sekä tietokantoja. Tämän jälkeen artikkelit läpikäytiin manuaalisesti, ja opinnäytetyöhön sisällytettiin tutkimuskysymykseen vastaavat artikkelit. Yhteensä 5 artikkelia vastasivat tutkimuskysymykseen. Yksi niistä oli systemaattinen kirjallisuuskatsaus erilaisista pidättämiskeinoista ja yksi oli meta-analyysi tehokkaista hallintakeinoista.

Kaikki hallintakeinot, joita tarkasteltiin tässä tutkimuksessa, osoittautuivat tehokkaiksi kehitysvammaisten aikuisten haastavan käyttäytymisen hallinnassa. Osa tutkimuksista keskittyi ainoastaan siihen, kuinka tehokkaasti hallintakeinon avulla kehitysvammaisten aikuisten haastavaa käyttäytymistä saatiin vähennettyä, kun taas osa hallintakeinoista keskittyi myös parantamaan kehitysvammaisten aikuisten elämänlaatua laajemmin.

Tuloksissa tuli myös ilmi työntekijöiden kouluttamisen tärkeys haastavan käyttäytymisen hallinnassa. Joidenkin hallintakeinojen kohdalla työntekijöiden kouluttaminen uusien keinojen ja taitojen käyttöön osoittautui ratkaisevaksi paitsi hyvien hoitotulosten saamisessa, myös työntekijöiden hyvinvoinnin suhteen. Tutkimuksissa huomattiin, että mitä varmempi hoitaja oli, sitä paremmin he pystyivät hoitamaan potilaita.

Avainsanat (asiasanat)

Kehitysvamma, haastava käyttäytyminen, aikuiset, keinot

Muut tiedot

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1 Introduction

Learning disability and mental health nursing are fields that are constantly undergoing changes and new policy structures to improve choice, equality and inclusion for the individuals with learning disabilities and challenging behaviour. The mental health needs of individuals with learning disabilities are still often ignored. (Patel & Raghavan 2005, 7.)

The Mental Health Law in Finland states, that mental health work includes the development of the population's living environment in a way that it prevents mental health disorders, helps the progress of mental health work and provides mental health services. The law states that an individual with mental health disorders is required to receive the appropriate mental health services. (L 14.12.1990/1116.) Diagnosing mental health illness in individuals with learning disabilities is a complex process (Patel & Raghavan 2005, 7), which may lead to delayed treatments or misdiagnosis. Regardless, between 5-15% of individuals with learning disabilities show challenging behaviours (Challenging behaviour, N.D.).

Patient-safety is a major topic in health and care industry nowadays, and nurses in Finnish hospitals are required to attend staff training regarding the patient safety. At the same time, nurses have to face threats and aggression in their daily work, but they may not necessarily receive appropriate training to deal with these situations. Individuals that show challenging behaviours and have learning disabilities, safe and effective intervention methods are needed in order to maintain the safety of the individuals and others around them, and to prevent the further challenges in the behaviours.

Due to the author's personal experience in working with individuals with challenging behaviour and learning disabilities, the safe challenging behaviour management was a personal point of interest. This study aims to find effective nursing interventions in order to manage challenging situations in a way that is safe for both the patient and the nursing staff. Even though this study concentrates on finding the ways of working

for nurses, the intervention methods are also useful for other support staff and family members of individuals with challenging behaviour and learning disabilities.

In this research, the effects on individual's quality of life and self-determination will be considered. Many researches showed that reductions in challenging behaviours improved the individuals' quality of life. There were many ways to manage the challenging behaviour effectively, but each of the intervention methods had their own issues in implementation.

2 Learning disabilities

2.1 Terminology

Learning disability is a term used in the United Kingdom by service providers and health care professionals, but another common term is a mental retardation, which is used in the United States (Carnaby & Pawlyn 2009, 4). In academic literature the term 'intellectual disability' is often used, and Carnaby & Pawlyn (2009, 4) present, that it would be a term likely to take place in a professional arena in the future.

The Foundation for People With Learning Disabilities clarify, that often self-advocates prefer to use the term "learning difficulty", but family carers of people with learning disabilities find that it does not reflect on the level of support the people with more complex learning disabilities need. The difference between a learning difficulty and a learning disability is that a learning difficulty is often used to describe difficulties such as dysleaxia, whereas learning disabilities affect people in many areas in life – not just school. (The foundation for people with learning disabilities, N.D., NHS, 2015.)

In Finland the term learning disability is often mistaken to difficulties in learning (Arvio & Aaltonen 2011, 13). The finnish word *kehitysvamma* means the intellectual disabilities which are being discussed in this study.

2.2 Defining learning disability

Learning disabilities can be identified in many different methods, but at the moment the accepted method is a statistical model, which utilizes the IQ score to an assessment of adaptive function. Sometimes a clear pattern and structure is not presented in each level of learning disability and in those cases some additional neuropsychological testing are needed. (Harris 2006, 81.)

"A condition of arrested or incomplete development of the mind, which is especially characterized by impairment of skills manifested during the developmental period, skills which contribute to the overall level of intelligence, i.e. cognitive, language, motor, and social abilities. Retardation can occur with or without any other mental or physical condition." (ICD-10 Version 2016.)

"Learning disability includes the presence of a significantly reduced ability to understand new or complex information, to learn new skills (impaired intelligence), with a reduced ability to cope independently (impaired social functioning), which started before adulthood, with a lasting effect on development" (Valuing People, 2001.)

These two definitions used different terminology, as ICD-10 uses the term mental retardation, but Valuing People uses the term learning disability. The content of the definitions was very similar and brought out the same facts. In this study the chosen term to use was a 'learning disability' to avoid confusion of many terms.

As it was stated in definition given by ICD-10, having a learning disability does not mean that the person would also have mental or physical disorders too. Even though ICD-10 categories are also divided into mild, moderate, severe, profound, other and unspesified mental retardation, the severity of the disability is not significant in this study, as it concentrates on those adults that have not only learning disabilities but

also challenging behaviour. Nevertheless, adults with mild learning disabilities have less complex needs which makes it easier to support them in a daily living.

2.3 Causes of learning disabilities

According to Aaltonen & Arvio (2011), it is important to identify the cause of a learning disability to provide appropriate treatment and to make a plan for education, treatment and prognosis. The diagnosis of a developmental learning disability is done by neurologist and neuropsychologist, but a multidisciplinary team of physiotherapist, speech therapist and an occupational therapist is also needed when making a rehabilitation plan. (ibid., 17.)

For family members finding the cause of learning disability is important, as it can reduce the unnecessary guilt that parents may feel about the pregnancy time and birth of the child. Knowledge of typical medical risks related to learning disabilities can also speed up the process of treatment and help the family members to observe any symptoms of the illnesses. (ibid., 17.)

Early diagnosis of a learning disability and the reasons behind it help the family members and other close people to understand the learning disability, to support the development of the child and to understand developmental restrictions and to be happy about the child's achievements. (ibid., 17.)

Approximately half of the individuals with moderate to profound learning disabilities can be identified with a genetic etiology (Gillig & Gentile 2012, 339). Some genetics reasons are based on failure of expression of a specific gene, contiguous gene, or they may be involved in multiple genes (Harris 2006, 100). The most common genetic reason for learning disabilities is Down syndrome, which is found in 1 out of 700-1000 (Gillig & Gentile 2012, 339). Physical, mental, intellectual and behavioural abnormalities have also been linked to be caused by a pre-natal exposure of alcohol.

The most common signs of learning disabilities are behaviour disturbances, language delay, physical abnormalities and delays in both fine and gross motors. Neurological

abnormalities are often noticed by decreased muscle tone, coordination problems, repetitive movements or behaviours, ataxia, and often changes can be found in EEG (electroencephalogram). (Gillig & Gentile 2012, 51.)

Harris (2006) separates the disorders associated with learning disabilities into prenatal, perinatal and postnatal causes. Prenatal causes are for example chromosomal disorders, like Angelman syndrome. Perinatal causes include, among other things, muscular and skeletal disorders such as Duchenne's muscular dystrophy, and postanal causes can be for example traumatic (head-injuries) or toxin-related. Harris (2006) also mentions that the impact of alcohol on brain development, learning disabilities and behaviour problems is nowadays well known. (ibid., 103-105, 190.)

It is important to identify the cause of learning disability so that the appropriate courses of interventions can be taken (Harris 2006, 100). Although there are over 750 genetic disorders associated with learning disabilities (Harris 2012, 104) Gillig & Gentile (2012) and Harris (2006) have identified several genetic and toxin-related disorders that are associated with learning disabilities. These disorders are represented in an Appendix 1.

2.4 Common medical disorders associated with learning disabilities

Epilepsy

Adults with learning disabilities often have epilepsy, which affects the high-quality care (Kerr 2009). Within people with learning disabilities, 25% have epilepsy, and within those individuals, 50% of epileptic disorders stay active regardless of treatment. Within individual's with severe learning disability and epilepsy, 1 out 5 are autistic, 1 out of 4 have challenging behaviour and 1 out of 10 have both autism and challenging behaviour. (Aaltonen & Arvio 2011, 109.) Due to the communication and behaviour difficulties of adults with learning disabilities the treatment of epilepsy can be challenging. A good management of epilepsy often reduces the challenging behaviour in autism and improves individual's vitality (ibid., 109.)

Epilepsy is chronic neurological disorder and it includes many different seizure disorders. The most typical seizure disorders are fits, problems in consciousness, sense disorders and behavioural disorders. Epilepsy is caused by electrical events of the brain, causing a temporary brain activity disorder. (Arvio & Aaltonen 2011, 109.)

Kerr (2009) introduces a study which was undertaken to create guidelines to treat epilepsy in individuals with learning disabilities. According to the study, misdiagnosis of epilepsy can be avoided by following a diagnostic pathway. According to the guidelines, the following key points need to be identified when diagnosing epilepsy in individuals with learning disabilities:

- Eye-witnesses exact description or a video-recording of the seizure
- Assessment of the patient's capacity to participate in treatment decision
- Evaluation of patient's experience of the seizure
- Identification of possible warning signs
- Identify what may trigger the seizure, such as fever, certain activity or medication, stress or an infection
- EEG-recordings, MRI-scanning and/or brain CT are important when diagnosing epilepsy

Also some factors that may lead to misdiagnosis were identified:

- Clinicians may have to rely on relatives or carers when collecting information and judgement may vary greatly depending on who is the information provider
- Even for professionals, it may be hard to write an exact description of the seizure
- Non-conclusive or partial seizures can be hard to diagnose in individuals with learning disabilities leading to under-diagnosis
- Recognizing epileptic seizures from non-epileptic behaviour in individuals with learning disabilities may be hard, as they may express sudden aggression and motor stereotypes that are not epileptic, but may lead to confusion and over-diagnosis of epilepsy
- When proceeding with EEG, MRI and CT-scanning, it is important that the environment is planned so that the patient can feel less anxious and so that the procedure could be carried out. Appropriate medication should be given and even anaesthesia may be needed during MRI scanning.

The guideline recommends a cognitive and behavioural assessment to be made prior to drug treatment and them to be remeasured, so that cognitive and behavioural changes can be identified. This is due to communication and behavioural problems of individuals with learning disabilities, which leads for the patient to be unable to report side-effects and other difficulties drugs may cause in their daily life. The reports of side-effects can also be observations of relatives or carers.

As it can be noticed from the study, carers' and relatives' observations are needed in many parts of epilepsy treatment. Nurses or carers support are also needed with administration of medication and especially when rescue medication is needed during the seizure. Kerr (2009) mentions, that unwillingness to take medication can be an issue when treating individuals with learning disabilities. That is a challenge that care givers and relatives supporting the individuals will face.

Aaltonen & Arvio (2011) also emphasize the importance of diagnostics and treatment plan of epilepsy, because complex epilepsy restricts the individual's and their family's lives, reduces children learning new skills and with adults is a risk of dementia. 50% of individuals with learning disabilities and epilepsy have difficult-to-treat epilepsy. (ibid., 110.)

Extrapyramidal symptoms

Extrapyramidal symptoms are caused by disturbance in extrapyramidal system. The symptoms are often physiological but can also be caused by an illness, such as Parkinson disease. Neurological illnesses cause extrapyramidal symptoms and therefore individuals with learning disabilities have them much more often than a general population, Aaltonen & Arvio (2011) explain. Individuals with learning disabilities often use psychiatric medication, which can also cause the symptoms. (ibid., 121.)

Extrapyramidal symptoms are hyperkinesis, dyskinesis, hypokinesis, ataxia and rigidity. Aaltonen & Arvio (2011, 121) introduced symptoms more closely:

- Hyperkinesis and dyskinesis: Increased muscular activity and involuntary muscular activity. Causes tremor, tics, restless feet, akatasia (when person needs to move,

causes excessive walking), quick and involuntary movements of fingers, feet and face, and dystonia (involuntary muscle contractions)

- Hypokinesis: Diminished muscular movements
- Ataxia: Lack of voluntary coordination of muscle movements,
- Rigidity: Increased tension, reduced flexibility

Sleep disorders

Around 50% of people with learning disabilities suffer from different kinds of sleeping disorders. Arvio & Aaltonen (2011) state, that according to researches, sleep disorders, epilepsy and challenging behaviour are associated to each other. Sleep disorders also cause aggressive behaviour and irritability and they cause problems in attention and memory. (ibid., 123.)

Sleep apnea is a sleep disorder, where an individual stops breathing during the sleep period. Snoring is a symptom of sleep apnea, although it does not mean that all individuals that snore suffer from sleep apnea. Sleep apnea can be caused by central reasons, or obstructive reasons. Obstructive reasons can be obesity (round the neck area) or palatal abnormalities, such as a large tongue. For example, individuals with Down syndrome often have a large tongue. (ibid., 123-124.)

For example, psychiatric and epileptic medications can cause problems with sleep. Aaltonen & Arvio (2011, 124) state, that also pain, which individuals with learning disabilities are unable to describe, can cause problems in sleep.

Memory impairment

Dementia means a developing impairment of memory and intellectual capacity. It is crucial that dementia is diagnosed correctly in individuals with learning disabilities, as even a small change in functional abilities may lead to increased level of care that the individual needs. Nurses can make assessment for example by using dementia rating scales. Especially individuals with Down syndrome suffer from dementia. Memory impairments are treated with medication. (Aaltonen & Arvio 2011, 125-127.)

Osteoporosis

Osteoporosis is one of the most common medical disorders associated with learning disabilities. In Finland, nearly 70% of individuals with learning disabilities living in a care home suffer from osteoporosis. Osteoporosis is not usually discovered until the individual breaks a bone. (Aaltonen & Arvio 2011, 128.) Therefore, it is important that the nurses working in care homes are aware of the osteoporosis risk factors.

The risk factors include a lack of vitamin D and calcium, lack of exercise, malnutrition and some medication. In care facilities the professionals are in charge of nutrition, which should prevent malnutrition and lack of calcium, but sometimes additional reasons prevent appropriate nutritional care. (ibid., 129.) In those cases, the individuals should be assessed more closely by the nurses and doctors, and appropriate action needs to be taken. If the individual does not get enough Vitamin D from nutrition, it can be given as a dietary supplement.

Exercising can be difficult for individuals with learning disabilities due to motor sensory impairment. Many adults with learning disabilities need assistance for moving and exercising. It is important to support individuals with learning disabilities to exercise according to their abilities. (ibid., 129.)

Disorders of digestive and respiratory tract

According to Aaltonen & Arvio (2011), malnutrition is common among individuals with learning disabilities. There are many reasons that could cause malnutrition, such as person's inability to decide their own eating regime, due to living in a care home, or sometimes good nutrition is not valued in a care setting leading to malnutrition. (ibid., 131.)

There may also be physical reasons behind malnutrition. The individual could suffer from problems in swallowing or their involuntary muscular movements or symptoms-related movements and walking may burn more energy than the person can eat. Malnutrition has both physical and psychological effects and it can lead to behavioural problems. (ibid., 131.)

Sometimes individuals with learning disabilities need a percutaneous endoscopic gastrostomy (PEG) tube, which means that a feeding tube is being put directly into stomach through abdominal skin. Aaltonen & Arvio (2011) points out that the individual can still continue to eat by mouth if they are capable of doing so. The feeding tube can be used for additional nutrition. (ibid., 131.)

Many individuals with learning disability suffer from excess mucous, which is a symptom of muscular deterioration leading to problems in swallowing and coughing, infection sensibility, and some medication that affect the central nervous system. Drooling can be a sign of excessive mucous and swallowing problems. (Aaltonen & Arvio 2011, 132.)

Many researchers have shown that up to 70% of individuals with learning disabilities have constipation. Untreated constipation can lead to vomiting and bowel obstruction. It is common to use medication to avoid constipation. Bowel needs to be emptied at least every other day, so bowel movements need to be monitored to avoid problems with constipation. (Aaltonen & Arvio 2011, 132-133.)

2.5 Learning disability nursing

In Finland a practical nurse can specialize in learning disabilities, but that specializing field is not available for nurses at the moment. In the USA nurses can specialize in intellectual disabilities, and in the UK the specialized field is called learning disability nursing. As an example, some history of learning disability nursing in the UK will be introduced to indicate the long road it has undergone to take its place in healthcare industry. As it can be seen from the previous chapter, individuals with learning disabilities have syndrome-related medical needs as much as they have needs in management of their challenging behaviour.

The difference between mental health nursing and learning disability nursing was discovered in England in the early 20th century. Even though the two professions shared the similar characteristics of mental health nursing, the main difference in

learning disability nursing was that it aimed to provide long-term support rather than a cure. Also because of that difference, learning disability nursing was not seen, or accepted, as its own special nursing field. (Raghavan & Patel 2005, 117.)

In 1985 the English National board declared that individuals with learning disabilities should have an access to the skills of a learning disability nurse. It was stated, that the skills of the nurse should include teaching, training and communicating with people with learning disabilities and also advice and support their family members and carers. The nurses were also to support the individuals with learning disabilities to gain independency and ensure the quality of life to be in a same level with other people of similar age groups. (Turnbull 2004, 58.)

In 1992 The All Wales Nursing Group for People with a Mental Handicap defined that the purpose of learning disability nursing was to improve health of individuals with learning disabilities, which placed learning disability nursing into the context of healthcare. A guide of learning disability nursing published by the Royal College of Nursing in 1994 explained, that learning disability nurses improved the health of individuals with learning disabilities by "*carrying out assessments and diagnoses, planning developmental care regimes, preventing ill health and promoting health, providing rehabilitation and remedial therapy and providing physical care*". (Turnbull 2004, 60.)

Turnbull (2004) explains, that a UK Government based learning disability nursing project report *Continuing the Commitment (1995)* described that the purpose of learning disability nursing is to improve individual's personal autonomy and that is achieved by working in partnership with the individual. Nurses are to encourage the individuals to get involved in the local community, maximise their choice, increase individual competence, help others involved in individual's life to support them, mitigate the effects of disability and to help the individuals to achieve optimum health. That explanation also supports the fact that learning disability nurses are needed to support rights and independence of individuals with learning disabilities. (ibid., 60-63.)

As it can be seen in Appendix 1, the individuals with learning disabilities also have various impairments in cognitive skills, such as motor control, coordination, memory impairment and communication difficulties. Therefore, nursing skills are not needed

just for the management of challenging behaviour, but also to support individuals with learning disabilities in daily living activities, such as washing, dressing and eating.

3 Challenging behavior

3.1 Definition and diagnostics

Arvio & Aaltonen (2011) explain, that a behavioural symptom is an unwanted behaviour that disturbs the individual or the environment. Those symptoms can be associated with emotional symptoms, such as anxiety or depression, or they can also be overlapping. Behavioural symptoms can be withdrawn, such as anxiety, or extroverted such as aggression and destructive behaviour. (ibid. 140.)

The Challenging Behaviour Foundation explains challenging behaviour to be things such as "*hurting others, self-injury, destructive behaviours, eating inedible objects and other behaviours such as spitting, smearing, repetitive rocking, stripping off or running away*". As Arvio & Aaltonen (2011, 140-141) point out, it is important to find the reason to these behaviours, as it could for example be a reaction for something, and finding out the reasons behind the behaviour helps to find a correct treatment.

Individuals with learning disabilities can have psychiatric disorders, but having a learning disability does not mean that the person would automatically have a psychiatric disorder as well. Aaltonen & Arvio (2011) also state, that individuals with learning disabilities are more prone to have psychiatric disorders than other population due to having to face constant failures, negative experiences and bullying because of their learning disability. Communication difficulties and lack of social skills can lead the individuals with learning disabilities into confusing and stressful situations. Neurological disorders can expose the person for psychiatric disorders too. (ibid., 140.)

Diagnosing psychiatric disorders within individuals with learning disabilities can be hard due to other challenging behaviour they express. According to researches around 30-50% of individuals with learning disabilities have psychiatric disorders. The term dual diagnosis is usually used when a person is diagnosed with both psychiatric disorder and a substance abuse problem, but in literature it is also being used to describe a patient who has psychiatric disorders and learning disabilities to emphasize that they are two different diagnoses. (Aaltonen & Arvio 2011, 141-143.)

The most common reason for a psychiatric evaluation in individuals with learning disabilities is aggressive behaviour towards self, others or environment. Aggression can be a symptom of a psychiatric disorder but it can also be challenging behaviour caused by other reasons. If the aggression cannot be associated into certain situations and behaviour interventions have not been successful, it is reasonable to doubt that it would be a sign of a psychiatric disorder. Other symptoms that can be signs of a psychiatric or other medical problem can be changes in sleep, appetite, sexuality, impaired skills in daily living activities, and autonomic symptoms such as sweating and high pulse can be symptoms of psychiatric disorders. (Aaltonen Arvio 2011, 143.)

3.2 Behavioural phenotypes

Behavioural phenotypes mean those patterns of behaviours that can be identified within those individuals that also have a neurodevelopmental disorder (Harris 2006). Certain stereotyped behaviours suggest that the individual would have a syndrome, although not all individuals with the same syndrome represent same behaviour features and Harris (2006) suggests that in the future there is more to learn about brain mechanism by comparing the individuals with the stereotypical behaviour to those that do not express the behavioural features. (ibid., 191-192.)

Behavioural phenotypes can be identified with many different neurogenetic syndromes. There are some behavioural patterns that can be identified with multiple

disorders, therefore they have a lack of specification and may not define as a behavioural phenotype, but according to Harris (2006) they should still be included to the description of the disorders. Those behaviours include attention and hyperactivity problems, self-injury, aggression, impulsive behaviour, autistic-like behaviour and determinative behaviour. (ibid., 193.) Appendix 1 represents a list of some common disorders and their behavioural phenotypes.

Down was the first person to discover the link between the disorder and interpersonal characteristic behaviour within individuals with Down syndrome in the late 19th century. Harris (2006) points out, that even though not all individuals with a syndrome express the behavioural phenotypes, it is more likely that they do, and it helps to identify the correct diagnoses. With the developing study in neurogenetic disorders, the behavioural phenotypes are increasingly recognized. (ibid., 191-193.)

An understanding of the behavioural phenotypes is also critical when assessing psychiatric disorders. The diagnosis of behavioural and mental disorders in individuals with learning disabilities is three to four times higher than in other population. Inability to recognize mental disorders in individuals with learning disabilities have a negative effect on treatment, sometimes causing harmful treatment methods or denial of important services. (Harris 2006, 191-192.)

3.3 Behaviour assessments and interventions

Gillig & Gentile (2012) state that behaviour assessments are needed to identify the reasons behind the behaviour. Knowledge of the reasons leads towards correct interventions and increases the likelihood of success. These functions of behaviour *"are the consequences that are related to maintaining the occurrence of behaviour".* For example a non-verbal individual's behaviour may have a function of communication. The reasons for behaviours can be related to, for example, social reasons, where an individual wants to obtain attention of others, sensory reasons or escape, when the individual wants to escape from a certain activity, place or attention. (300-301.)

Challenging behaviour, such as aggression towards others, self-injury or non-compliance, is often concerning reason for a behaviour assessment. In the assessment the goal is to find out the functions of behaviour, to gather information related to the behaviour and to identify possible environmental influences. The behaviour assessment is adapted to individual's skills: is the individual able to act in a different manner but for some reason is not, or does the individual have to adapt new skills to change the behaviour into a more appropriate manner? For example, the individual using aggression following a demand could be thought to use gestural signs to express their need for a break. (ibid. 311.)

Gillig & Gentile (2012) indicate several assessment methods, and explain that most assessments use multiple methods. These assessment methods are observation of the individual in their own environment, rating scales filled by informants, interviewing the individuals and people who know them well and functional analysis. (311).

Observation of the individual in their own environment is labour-intensive, but as an advantage it has been done in individuals own environment over a time period that allows the flow of usual interactions and event. A typical assessment tool used is an A-B-C chart, which separates what has happened before, during (explanation of the behaviour) and after the incident. It is also helpful when indicating possible triggers that cause the challenging behaviour. (ibid. 311.)

Interviews have been structured to obtain information about when, where and how often does the challenging behaviour take place and to find more about the individual's daily routines and possible environmental factors of behaviour. With the interview multiple informants can give similar information about the incidents and it can then be assessed if the behaviour is associated with a certain time of the day or certain activity, what is the individual's typical behaviour and communication method and if there have been any previous behaviour interventions. During the assessment it is important to take into account the informants role, because it may influence the information given. The individuals can also be interviewed personally, if they are willing to participate and have applicable communication skills. (ibid., 311-312.)

Some rating scales are also introduced by Gillig & Gentile (2012). One of them is a Motivational Assessment Scale (MAS), which is filled by carers or relatives of individual with learning disabilities and aims to find out the behaviour functions. It has statements such as “Does the behaviour occur whenever you stop attending him or her” in which the person completing the scales answers by rating the frequency of occurrence. A specific problem behaviour rating scale is an Aberrant Behaviour Checklist (ABC), which is a 58-item problem behaviour checklist and has scales 0-3 to indicate the severity of the behaviour. This form aims to identify specific target behaviour and the severity of the problem. (ibid. 312-313.)

In a functional analysis the assessment is carried out in a controlled environment by creating situations where the challenging behaviour occurs. This is particularly useful with the individuals that express the challenging behaviour frequently. It aims to identify the behaviour functions and plan interventions based on the behaviour function. The functional analysis has been criticized due to its analogue approach. Often behaviours have more than one function, which functional analysis does not take into account, as its aim is to find one specific functional analysis. (ibid., 313-314.)

During the assessment it is also important to identify reinforces, which increase the future likelihood of appropriate behaviour occurring. The reinforcer could be a toy, a special food item or a preferred activity. The effectiveness of a reinforcer can change during the time, so it is important to assess the effectiveness, and change the reinforcer when necessary. (ibid., 314.)

4 Aim and purpose of the study

The aim of this study is to find out how to manage and reduce challenging behaviour in adults who are over 18 years old and have learning disabilities. The study aims to find effective interventions methods that are safe for both the nursing staff members and the patient.

Research question:

- What are effective nursing interventions when managing challenging behaviour in adults with learning disabilities?

5 Methdods and implementation of the study

5.1 Literature Review

Literature review is becoming increasingly popular in health and social care due to having all relevant data being analysed at once by using a systematic approach. Therefore, a literature review is a comprehensive study of literature that is relative to a certain topic. (Aveyard 2010, 5-6.) This study was chosen to be carried out as a literature review, because the area has already been studied from many different points of view and this study wanted to bring together the studies which introduce effective interventions in management of challenging behaviour in adults with learning disabilities.

Aveyard (2010) also states that a literature review should be carried out in small steps and by using only primary research papers – a literature review cannot be carried out by using other research material such as opinion papers. A literature review summarizes research articles that are relevant to a particular question (Bettany-Saltikov 2012, 5, Roe & Webb 2007, 3). Literature reviews are essential in health and social care. More researches are being done all the time and without literature reviews there would be even hundreds of researches based on the same question. (Roe & Webb 2007, 3.)

Many individual quantitative researches may have problems with the reliability due to, for example, not having a large enough sample. A literature review brings together many types of researches that have been conducted therefore making the results more reliable than an individual study. Literature reviews are also needed to ensure that the future research is implemented as well as possible. (Roe & Webb 2007, 3-4.)

The decisions that nurses take at work should be based on the evidence based nursing (EBN). Sometimes nurses find it challenging to follow the EBN guidelines due to lack of time to read and analyse the researches. A literature review can reduce the time and skills it would take to identify and analyse individual researches (Bettany-Saltikov 2012, 8). This study aims to bring together as much relevant literature as possible and hence to learn from the past mistakes and successes, to find out what has been discovered previously and to identify future research ideas.

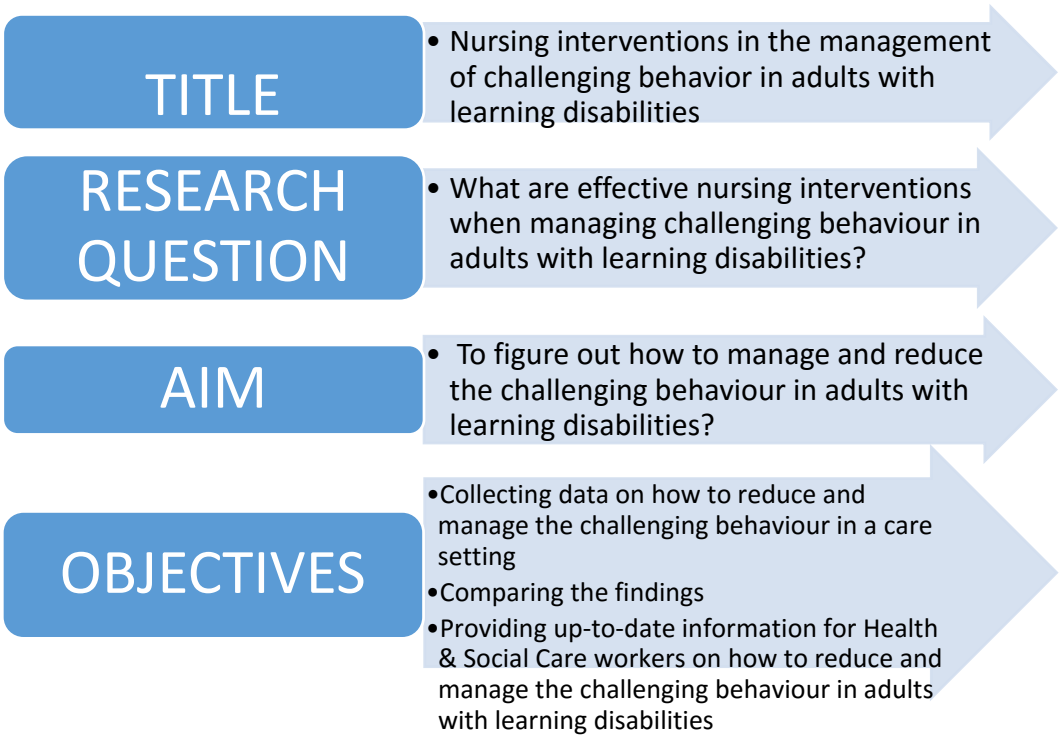
In a literature review a research topic is chosen based on one's interest and a question that needs an answer. After that it is important to identify what a researcher and their profession will gain when the question is answered and therefore why it would be worthwhile to find out the answer. The researcher should also ponder whether there is a lack of knowledge in that area and what are the issues related to the research question. (Bettany-Saltikov 2012, 14.)

Once the research topic has been chosen it is time to narrow it down to a specific research question (Bettany-Saltikov 2012, 14). In this study "Nursing interventions in the management of challenging behaviour in adults with learning disabilities" was easily narrowed down to a question: "What are effective nursing interventions when managing challenging behaviour in adults with learning disabilities?"

5.2 Literature Search

The literature search was done by identifying the title, aims and objectives. Bettany-Saltikov (2012) states, that especially the words “aims” and “objectives” are sometimes used interchangeably, but actually have different meanings. According to Bettany-Saltikov (2012), the ‘aim’ is to answer to question and the ‘objective’ specifies the aim. Bettany-Saltikov (2012) also emphasizes the importance of the title, question, statement and objectives to belong into the same category – otherwise the title and the aims would be different. The literature search was done by allocating all of the categories first. This is represented in Figure 1.

Figure 1 - Research process



The Inclusion criteria were made to identify which studies would be useful for the study. Bettany-Saltikov (2012) suggests to ask “why is this necessary?” when choosing the criteria. The question will separate the articles that answer the research question from the articles that are irrelevant. She also clarifies that the criteria should be as relevant as possible to the research, within the time and financial restrictions.

A comprehensive and thorough search strategy helps to identify the key literature on the topic and the relevant research. Without it the search would be too random and disorganized. (Aveyard 2010, 70.) In this study it was aimed to find new, relevant information, and to bring it together. There were lack of finances and language knowledge limiting the search. Table 1 demonstrate the research process and the articles that did not match the inclusion criteria were executed

Table 1 – Inclusion criteria

Inclusion criteria
Language has to be Finnish or English
Free full text access
Published after 2006
Scientific publication
Article has to be available online
Peer reviewed
Focused in the care of adults

The research of the data was done from four different databases: Academic Search Elite, CINAHL, Medic and PubMed. Manual search was conducted by relevant subjects and after that by abstracts. Combination of search words were tested before the final search, and the titles of the results were briefly checked to see if any of them would match the criteria. Key words in those combinations were *intellectual disability, learning disability, challenging behaviour, aggression, nursing, management, reduction and support*. If the title or description had words such as *children* or *dementia*, they were immediately executed.

As the study aims to find out the interventions that can be carried out to reduce the challenging behaviour and to support the individual, the final search words were chosen according to that and they can be seen in Table 2. All the articles that were relevant by title were read through and categorized into *yes, no and maybe* - categories. Articles categorized as “yes” were included immediately, the ones in category “no” were executed and the articles that were in “maybe”- category were read through again and analysed if they fully answered the research question. After that they were

either put into “yes” or “no” categories, which finally appointed whether they were included to the study or not. Table 2 indicates the search process.

Table 2 - Search process

Database	Search Words	Results	Relevant by title	Relevant by abstract	Relevant by full text
Medic	Aggression AND kehitysvamma	3	2	2	0
Academic Search Elite	Learning disability AND challenging behaviour AND support	62	12	7	1 same with CINAHL
CINAHL	Learning disability AND challenging behaviour AND support	14	9	5	1 same than earlier (ASE,) 1 other
PubMed	Learning disability AND challenging behaviour AND support	19	3	2	0
Academic Search Elite	Reduc* AND challenging behaviour AND intellectual disabilit*	42	9	5	1
CINAHL	Reduc* AND challenging be-	14	6	4	1 same with previous

	haviour AND intellectual disabilit*				searches, 2 others
PubMed	Reduc* AND challenging behaviour AND intellectual disabilit*	10	1	1	0

PubMed's results were more based on the cost effectiveness, and not so much in the ways of how to reduce the challenging behaviour of the adults with learning disabilities. Also many researches had measured how the quality of life had improved due to the reduction of challenging behaviour, but they did not address which methods were found particularly useful in the reduction of challenging behaviour. After duplicates were removed, there were 5 articles left that answered the research question and were included in the review.

Out of these 5 articles, one was a meta-analysis and one was a literature review. These articles were chosen into the literature review because the studies were based on the effectiveness of the intervention methods of challenging behaviour in individuals with learning disabilities and they had a good variety of studies included in their reviews.

5.3 Analysis and synthesis

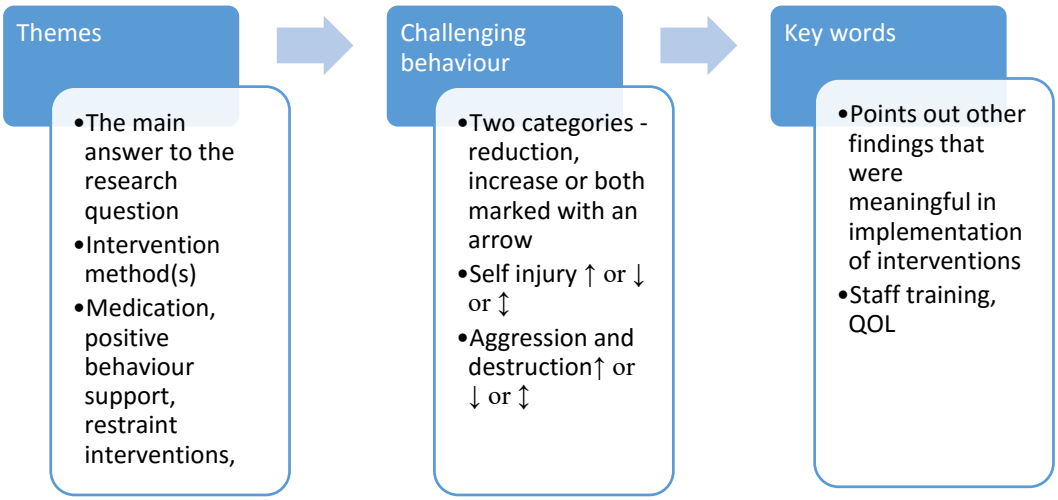
The aim of the synthesis process is to bring the chosen literature together so the research question can be addressed (Aveyard 2010). The aim is to be able to explain the similarities and differences in the chosen articles and to find new meaning, which could not be addressed by just reading only one of the articles. There are many different methods to bring together the information, three well-known methods being

meta-analysis, meta-ethnography and meta-study, but these methods are more advanced and not suitable for undergraduates. Therefore, the chosen method for this study was a simplified approach, which is suitable for individuals that are new to the literature review process. (ibid., 123-128.)

The analyse was started by becoming familiar of all the articles to the point where they could be described, recognizing their strengths and limitations, and then making an overall summary of all of the articles. That procedure provided a good understanding of all of the studies, because a comparison cannot be made before knowledge of all of the papers being used (Aveyard 2010, 129). All of the articles were summarized to point out the aim, results, sample size and methodology of the research. This is represented in Appendix 2.

After the familiarization and summarizing the articles the result-parts of each article were read again and the main themes and findings were themed and coded. In this case, the theme was the intervention method, and it was written on the side of the results. Following the theme, the challenging behaviours were addressed in two categories: self-injury and aggressive and destructive behaviour. After each category an arrow was marked to represent whether the behaviour was increased or decreased – or both in phases. Other findings were coded with key words. The key words used were staff training, medication, QOL meaning quality of life and skill teaching. These findings created the core of the results. Data analysis process is represented in Figure 2 below.

Figure 2 - Data analysis process

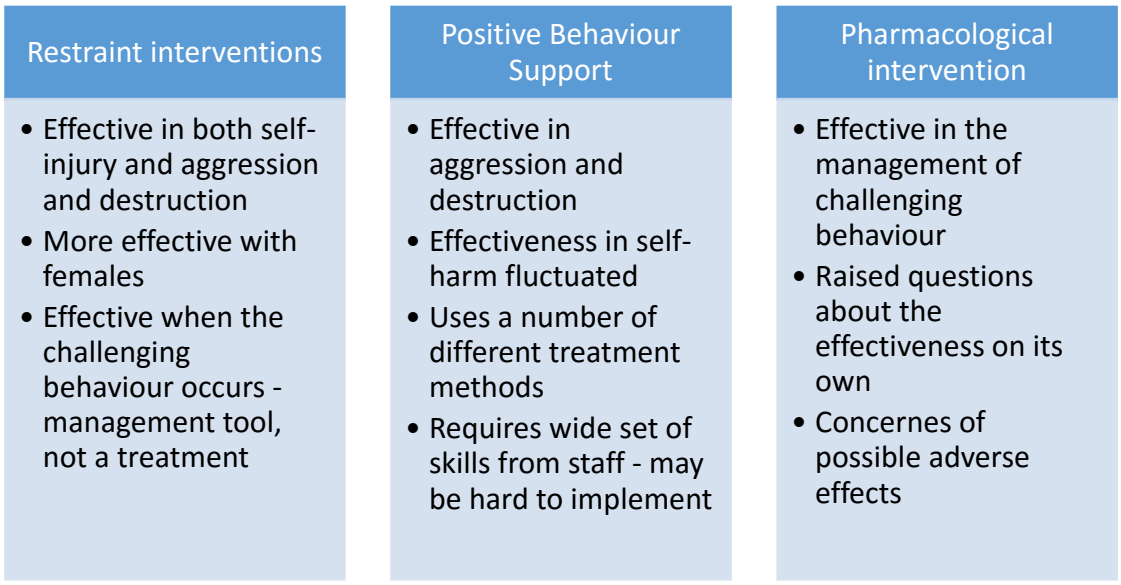


Two of the chosen articles did not concentrate on a specific intervention method. McConkey, Slevin, Taggart & Truesdale-Kennedy (2008) did a research in an assessment and treatment unit by using a survey, which made it possible to include all the intervention methods used at the ward. Therefore, they got a wide look on different intervention methods and their effectiveness – all in all 48 individuals were included to the study. The second article that did not concentrate on a specific intervention method was a meta-analysis by Heyvaert et al. (2010), which concentrated on biological, psychotherapeutic and contextual intervention methods. They reviewed 30 articles giving them a broad understanding of the effectiveness of different intervention methods. Therefore, those two articles were included in this study, and in those two articles all of the intervention methods they reviewed were written on the side of results.

6 Results

All of the intervention methods were found to be effective in the reduction of challenging behaviour among adults with learning disabilities. There were some issues regarding the implementations and some were found to concentrate more in the overall wellbeing and the quality of life of the individual, whereas others only concentrated on the effectiveness of the reduction of the challenging behaviour. Figure 3 was made to demonstrate the overall results, but the results are explained more broadly further in this chapter.

Figure 3 - Search results



6.1 Intervention Methods

Resraint Intervention

Heyvaert, Maes, Onghena & Saenen (2014) introduced different restraint intervention methods. *Personal restraint* involves a physical contact with the person with challenging behaviour and at least one other person in order to prevent or restrict

the challenging behaviour – this method is also known as *physical restraint*. *Mechanical restraint* involves materials or equipment, such as helmets, mittens, special clothing and wrist weights, to prevent or restrict the challenging behaviour. *Environmental restraint* uses material banners, for example locked doors, in order to manage the challenging behaviour. The most often applied restraint interventions in the research done by Heyvaert et al. (2014) were personal restraint and mechanical restraint.

Even though the findings showed that personal restraint and mechanical restraint were the most commonly used restraint interventions, it was found, that in everyday and more routinely the service providers used environmental restriction and personal restraint rather than mechanical restraints.

Heyvaert et al. (2014) state that usually a treatment of the challenging behaviour within individuals with learning disabilities aims to reduce the challenging behaviour in a long term, and managing the challenging behaviour when it occurs. It is pointed out, that restraint interventions are usually seen as safe and effective methods to manage the challenging behaviour rather than as a treatment of the behaviours. Restraint interventions are mainly used to protect the individual and others around them when the challenging behaviour occurs.

Heayvaert et al. (2014) also pointed out, that in their study the restraint interventions were mainly used to manage internal maladaptive behaviour, such as self-injury or stereotyped behaviour. Heyvaert et al. (2014) noticed, that a previous study by McGill et al. (2009) show that restraint interventions are most likely to be used with physical aggression – even 74% of the individuals with physical aggression needed intervention methods to manage the challenging behaviour, and 41% of individuals with internal maladaptive behaviour needed restraint interventions in order to manage their challenging behaviours.

Positive behaviour support – PBS

Also known as a multi-element behavioural intervention, this intervention method uses a variety of interventions in order to prevent challenging behaviour. The model

uses four different intervention categories: three of them are proactive strategies and one a reactive strategy. (Grey & McClean 2012.)

Proactive strategies include skill teaching, adapting the environment and use of focused support. The reactive strategies are interventions that take place after the target behaviour has occurred. Usually all four categories are being used.

Centre et al (2010) found in their study, that the staff supporting the individual were burnt out and had chaotic approaches to the management of the challenging behaviour, therefore making it crucial for the specialist team to help staff to implement the PBS intervention. The staff members also noted that as they became more confident and familiar with care plans, the individual's challenging behaviour levels decreased. (Centre et al. 2010.)

In a study where individuals' challenging behaviour management was studied in a specialised treatment and assessment unit the main intervention method was said to be medication. However, the staff members of the unit also clarified that they have used other methods in order to manage the challenging behaviour as well, such as therapeutic nurse-patient-relationship, psychosexual therapy, promoting positive environment and supporting and reassuring the individuals. (Heyvaert et al. 2010.)

Some communication barriers appeared between staff members and the individuals, because the staff members did not have the skills to use additional communication methods. Staff training for these additional methods helped the communication and understanding between the staff members and the individual with learning disabilities. (Centre et al. 2010.)

The individuals' social life was often limited due to the challenges in their behaviour management (Centre et al. 2010; Grey & McClean 2010). The communication between staff members and individuals was challenging as the staff members did not have skills to use additional communication methods, such as sign language or picture exchange communication system. Therefore, being able to understand the individual's needs and choices was limited. In one case PECS (picture exchange communication system) cards were introduced to improve the communication between staff members and individuals. (Centre et al. 2010.)

Some sign language was taught to the individual and staff members to express certain simple words, such as “finished”. A visual scheduling for daily activities was put in place for two reasons: so the staff members would have a structured day, and so the individual would be able to look at the diary as well and to see what will happen during the day (Centre et al 2010; Grey & McClean 2012). These communication skills enabled the individuals to use other methods instead of challenging behaviour to express their needs and choices (Centre et al. 2010).

Proactive strategies changed the individuals’ environment from chaotic into well-structured, quieter and less chaotic environment. The skill teaching was used to support the environment change – if the individual wanted to, for example, leave the situation, the new skills enabled the individual to express their needs rather than use challenging behaviour to escape from the stressful environment. An individual was also thought to sign “turn off TV” to make their environment quieter when they wanted to. (Centre et al. 2010.)

The quality of life (QOL) was increased during the implementation of PBS. In some cases, the individuals were able to expand the contact to their family members and to visit and have overnight stays with the families. Prior to the PBS the family contact was, in some cases, limited. (Grey & McClean 2012.) Individuals also gained more social contacts by being able to take part into more activities, such as shopping, swimming, visiting coffee shops, or other leisure time activities. The participation levels to offered activities were also high when PBS was implemented consistently. (Centre et al 2010; Grey & McClean 2012.)

As a result, PBS was found to reduce challenging behaviour and to increase the quality of life of the individuals with learning disabilities. The individuals’ self-determination, mental health status, and personal wellbeing were also increased. (Centre et al 2010; Grey & McClean 2012.)

Pharmacological intervention

Medication was found to be useful in the treatment of challenging behaviour. Mostly used medications were anti-depressants and mood stabilizers, antipsychotics and

anti-epileptic medications. Some individuals were prescribed a number of different medications. (McConkey, Slevin, Taggart & Truesdale-Kennedy 2008.) Even though in some cases medication was used as the most frequent intervention method, it was not used as a single method in any of the cases, but instead it was used as one intervention method in combination of interventions. (Grey & McClean 2012; McConkey et al. 2008; Heyvaert et al. 2010).

It can provide challenging to assess individual's mental health status when learning disabilities are present. The atypical and challenging behaviour can "hide" the mental illness or lead into misdiagnoses therefore making it difficult to assess whether the antipsychotic medications are necessary. For example, when implementing the PBS, in one of the cases the individual's both anxiolytic and atypical antipsychotic medications were reduced, but the challenging behaviour remained reduced. In two cases pharmacological treatment was not given and with one individual the medication remained the same. (Grey & McClean 2012.)

When the medication was considered as the main intervention, the staff members notified that other treatments, such as social skills training, psychosexual counselling, reassurance, support and forming a positive environment for the individuals. As the other interventions were not looked at in the study, at the end it was difficult to determine how the other interventions affected the behaviours of the individuals in the unit. Nevertheless, it was clear, that medications were prescribed to significant amount on individuals treated at the ward. (McConkey et al. 2008.)

6.2 Effectiveness in the reduction of challenging behaviour

Restraint interventions, in average, were highly effective, but the effectiveness also seemed to vary considerably. Restraint interventions appeared to be more effective on females, and restraint interventions appeared to be more effective than no-restraint interventions. Regardless, the male participants also had higher reduction on challenging behaviour when using restraint intervention compared to no-restraint in-

terventions. It was also noted, that restraint interventions were effective in the management of the challenging behaviour when it occurred, but they were not used as a treatment for the behaviours. (Heyvaert et al. 2014.)

PBS was shown to effectively reduce challenging behaviour. The key points to successful multi-model treatment were addressing the reasons behind the behaviour, creating care plans according to them, and finding the range of factors that maintain the challenging behaviour (Centre, Hume, MacDonald & McGill 2010). Staff training and support was found to be critical for the success of the treatment. A team specialised in behaviour support were needed to address the effective methods and to provide staff training and guidance throughout the individuals' care, as it was found that there was only a little guidance of which intervention should be used first and which methods were most likely to be effective in different cases (Centre et al. 2010; Grey & McClean 2012). Staff training was also found to be crucial when teaching new skills to the individuals.

The level of self-injury of the individuals was most likely to fluctuate during the PBS intervention. (Centre et al 2010; Grey & McClean 2012.) Increased self-injury levels of the individual could be used to identify that something in the support of the individual was not working or the individual was not happy with something. Self-injury could be reduced by for example skills training and more structured support. (Centre et al 2010.) Even though the self-injury fluctuated during the PBS intervention, the aggressive and destructive behaviour significantly reduced and remained low throughout the intervention (Centre et al. 2010; Grey & McClean 2012).

In PBS, teaching new skills, such as communication methods, helped to reduce the challenging behaviour in individuals with learning disabilities. Individuals were thought a number of skills so they could communicate their needs (Centre et al. 2010; Grey & McClean 2010). Communication methods were also thought for the staff members that supported the individuals.

Changes in the environment reduced the challenging behaviour among individuals with learning disabilities (Centre et al. 2010; Grey & McClean 2010). For individuals that reacted to stress and arousal with challenging behaviour, creating a low-arousal environment showed significant reduction in their challenging behaviour (Grey &

McClean 2010). It was noted that as the challenging behaviour decreased, the individuals' involvement in community-based activities was mainly increased (Centre et al. 2010; Grey & McClean 2012). In the community-based activities, the individuals' favourite activities were used as de-escalation (Centre et al. 2010).

Heyvaert et al. (2008) found out, that when comparing medication and other methods, such as multidisciplinary approach, there were no significant differences in the effectiveness of the interventions. But as the nursing staff noted, the other interventions are not always visible but are still in place during the treatment of the individual McConkey et al. (2008). The effectiveness of pharmacological treatment was contradictory and the concerns on the adverse effects were noted (Heyvaert et al. 2010; McConkey et al. 2008). The use of both antipsychotic and anti-epileptic medications was, however, significantly associated with having challenging behaviour. However, when medications were used as the main intervention, significant reductions on challenging behaviour were recorded (McConkey et al. 2008).

7 Discussion

7.1 Discussion of the results

The aim of this study was to find safe and effective nursing interventions in the management of challenging behaviour among individuals with learning disabilities in a way that would promote the individuals' self-determination and increase the quality of life. Even though all of the results verified, that there are many effective ways to manage challenging behaviour, the others seemed to be more effective in promoting the individuals overall wellbeing, quality of life and self-determination. Those aspects should be taken into consideration when assessing the effectiveness of the intervention, because even though the main aim is to maintain safety of the individual with

challenging behaviour and others around them, the importance of the other aspects that can be reached during the behaviour management process cannot be ignored.

Even though all of the reviewed methods were effective in reduction of challenging behaviour, PBS appeared to be the only method that aimed to increase individual's quality of life more widely by, for example, teaching the individual new skills. The Finnish Law of Patient's Status and Rights (L 17.8.1992/785) points out, that the patients' self-determination is to be respected by treating the patient in mutual understanding and if the individual cannot make the decisions due to learning disabilities, the advocate, family member or next of kin is to be heard regarding the patient's care in order to figure out which treatment method is most suitable for the patient.

When reviewing the pharmacological interventions, some of the features used in PBS were also notified during the treatment. There were some elements that showed that nurses already used features of PBS in their daily work, but more training and specialization would probably be needed so the staff members could fully understand and embrace these elements.

Restraint interventions were found to be effective in management of challenging behaviour. However, the results did not show what kind of implementation is needed to use these methods safely and effectively. There are number of different staff trainings available for safe physical and mechanical interventions, but the study did not concentrate on the amount or quality of staff training needed – only for the effectiveness of the interventions. The study did point out, that the restraint intervention methods are mainly used for management of the challenging behaviour when it occurs, but as a long-term treatment the effectiveness is unclear. Ethically considered, the results of this intervention method were not broad enough. The effects on individuals' quality of life, activity participations, and long-term effects on behaviours were not clear enough. Also the study did not look at the cases where restraint interventions increased challenging behaviour, or how to ensure the lawfulness of the restraint. According to the Finnish Mental Health Law (L 14.12.1990/1116) a restraint intervention can be used by a doctor's order temporarily when it is necessary in the individual's health care – this includes physical care interventions as well. Because of these deficiencies in the results, it remained unclear how the individuals' self-determination and quality of life was improved.

Positive behaviour support used many methods in order to reduce the challenging behaviour. The aim of this intervention is not just to manage the challenging behaviour, but also to reduce it long-term, so the individual's quality of life would be increased. The problem with this method was, that it was hard to implement. A challenging behaviour specialist team was needed to teach the staff members to use the different methods needed and a new training from the beginning is needed for each new staff member that enters the care-team of the individual. Nevertheless, PBS appeared to be the most patient-centred intervention method found in the research. As it has been pointed earlier in this study, the care of individuals with challenging behaviour and learning disabilities is challenging, and many aspects need to be taken into consideration regarding their physical and mental health statuses. Therefore, PBS can be so effective on these individuals – the behavioural challenges are so diverse that what works with one individual may not work with another. The patient-centred approach enables each individual to receive the intervention methods that are suitable for them personally. PBS also promoted the individuals' self-determination and increased the quality of life.

The results of the pharmacological treatments were as expected. The link between epilepsy medication and challenging behaviour was found, and as it was stated earlier in this study, it has been detected that a good management of epilepsy reduces challenging behaviour. Even though there was also a link between challenging behaviour and antipsychotic medication, the studies did point out the difficulties in diagnosing mental health disorders in individuals with challenging behaviour therefore questioning whether the medication is always correct, needed, and if it could actually be harmful due to adverse effects.

The articles were chosen with criteria to answer strictly to one research question: what are the effective nursing interventions when managing challenging behaviour in adults with learning disabilities? The articles that were researched included single case experiments, treatment and assessment unit, a systematic review of 59 single case experiments, and a meta-analysis. The meta-analysis and a systematic review made the results more reliable, as they had already analysed a number of different researches and single-case experiments – with the results in this study a research that wide would have been otherwise impossible.

During the process it was found that this subject had mainly been researched in the United Kingdom. As learning disability nursing is its own special field in the UK, the implementation of the results would be easier there with nursing staff specialised in this field. The care of the individuals with challenging and behaviour requires broad knowledge in both somatic and psychiatric fields, and in Finland nurses are usually specialised in either one but not both.

For example, when implementing PBS, a specialist team training the staff members was found to be crucial for the success of the treatment. Staff training is a field that needs constant improvement so new evidence-based methods can be implemented and the care would be as effective as possible. During the implementation of PBS, it was found, that medication did not play a part in reduction of challenging behaviour.

This research aimed to find effective intervention methods that could be useful for both the nursing staff and other people that are involved in daily life of individuals with learning disabilities and challenging behaviour. As this research looked at many different intervention methods, it can be used by taking all of these methods into consideration and with their help trying to find the best person-centred ways to manage the behaviours. In many cases it was noted, that multi-disciplinary team was needed in order to effectively use the methods. For example, health care professionals can recommend certain intervention methods for other care staff and family members, or family members can discuss with health care professionals if they want to use the methods but would need help in implementing them. Regardless, it appeared, that a deeper knowledge of implementation is needed in order to successfully reduce the challenging behaviour among individuals with learning disabilities.

7.2 Ethical consideration, validity and reliability

The ethical quidelines in science have been created to ensure the quality and appropriatness of the research (Holloway & Wheeler 2010, 4). Resnik (2015) brought together a list of ethical principles from multiple resources. These princples included *openness* when sharing data, results, ideas and resources; *objectivity* to avoid bias in

data analysis and other aspects of research; *honesty* when reporting data and results and *carefulness* to avoid errors and negligence. The ethical considerations of this research were done according to these principles.

Holloway & Wheeler (2010, 299) point out, that a qualitative research can never be completely replicable due to researcher's own emphases, background and characterictics, that will all have an influence on the research. They also state, that the validity in qualitative research is affected by researcher's own interpretations. Generalisability, which means that the study could be used with other similar settings or population, can be difficult in a qualitative research (ibid., 300). In order to generalise this research, the aim was carefully selected to concern a certain type of population with certain behavioural issues. It was still found, that the results where not easily applied with anyone – it appeared, that a person-centred approach was needed in order to reach the goals.

The researcher is to cite the other's publications correctly and to share the data and results of the research in a precise and open manner. The data recording should be done by following the standards set for scientific knowledge. (Resnik 2015, Ethical principles of JAMK University of applied Sciences 2013, 6-7). In this research, the in-text-citations and the list of references were made with carefulness to avoid inadequate referencing. The citations and the list of references were constantly checked throughout the whole writing process to ensure the preciseness.

The whole research process was carefully documented from the search process to the data analysis. The strict inclusion criteria was created to find as appropriate data as possible, and after that the articles were searched by using multiple search words, including american terms, and databases.

The final choice of the used articles were done by manually reviewing a number of articles. Finally, 5 articles were chosen for the research. It was noted, that four out of five articles were from the United Kingdom, and one from Northern Ireland, setting regional limitations to the research. Even though the data search included articles written in Finnish or English, and from all over the world, all of the search results were researcher mainly published in the United Kingdom. As the research was narrowed down to find effective intervention methods used in adults, a number of

studies were excluded, as they concentrated on the treatment of children and adolescents.

It was found, that a lot of researches about the intervention methods were single case experiments. Having the limited time and human resources, instead of using many single case experiments, a meta-analysis and a systematic review were included to the research. These two researches had already brought together a number of previous researches over a longer period of time, which increased the reliability of the final results of this thesis.

The results were analysed carefully to provide as reliable results as possible and to avoid one's own interpretations to affect the results. All of the authors' work was respecting by citating the articles in the results. The results were stated clearly, and author's own opinions and views were included only in the conclusions in order to avoid unintentional falsification.

The results were examined honestly, objectively and openly. The aim of the research was to find effective nursing interventions in management of challenging behaviour in adults with learning disabilities and even though all of the intervention methods reviewed in this research proved to be effective, some issues were noticed within all of the methods. The results were coherent with the background information.

7.3 Further research ideas

It was found, that the implementation of interventions often needed specialist knowledge. Therefore, this research raised questions in how to effectively treat the challenging behaviour in individuals with learning disabilities in Finland, and how to implement the findings in practice.

More research could also be done in the field of restraint interventions. It would be useful to find out how training the staff members into different restraint intervention methods affects the effectiveness and what kind of training would be most effective.

It would also be useful to find out if restraint intervention trainings include teaching about ethics and lawfulness.

Another research idea would be to find out how often maltreatment is behind the challenging behaviour in individuals with learning disabilities. Maltreatment was not included in this study, as it was found to be such a wide area that it could be a research of its own.

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Appendices

Appendix 1

Syndrome	**Genetic cause**	**Cognitive functions**	**Behavioural phenotypes**	**Psychopathology**
Down syndrome	An extra copy of chromosome 21	Low IQ which decreases as the child ages Impaired expressive & receptive language skills, strengths in pragmatics of language Can engage in conversations Memory impairs with age -> related to dementia and Alzheimer's	Strengths in social functioning Less serious behaviour problems compared to other forms of learning disabilities Weakness in gross motor and expressive language skills Usually described as good-tempered	Prone to mental illnesses High rates of depression Anxiety disorders Alzheimer's disorder

Fragile X syndrome	Affects mainly males, but also females, although females usually have higher intellectual levels. Expansion of the trinucleotide sequence CGG within the FMRI gene on the X chromosome.	Difficulties in with attention Poor visual memory and perception Language impairment Deficits in visual-motor coordination Deficits in abstract reasoning	Hand flapping and biting Gazing Hyperactivity Stereotypical movements Unusual speech Sensitivity to noise and taste Anxiety Social avoidance Depression, withdrawal Self-injury	Anxiety disorders ADHD Self-injury Autistic disorder with 30% Panic attacks
Autism Spectrum Disorder (=ASD).	Several genetic reasons. ASD's have been linked to multiple chromosomes: 7, 3, 15, 16, 17, 22 and X. ASD's are 3-4 times more common in males than in females.	Exceptional focusing, memory, skilled in calculation, musical, artistic Selective attention, specific areas of interest Deficits in planning and mental flexibility	Lack of communication No eye contact Delay of speech or atypical speech: repeating of words and phrases in exactly the same way they have heard it No nonverbal gestures	Aggression Self-injury Repetitive behaviours Sleep disorders Inattention Hyperactivity Irritability Tantrums

		Some cognitive areas are significantly advanced, other delayed	Focus on details, miss the big picture Unable to understand other's perspective Struggles with empathy, sharing and comforting Hand flapping, walking, rocking Rituals and routines in daily activities	
Prader-Willi syndrome (=PWS)	Deletion of chromosome 15 or imprinting centre mutation. Chromosome inherited from father.	Learning disability levels vary, and may be greater than would be expected from IQ level Problems in arithmetic, writing and reading Decreased memory	Food-related behaviour, such as compulsive food searching Skin picking Irritability Anger Low frustration tolerance Stubbornness	ADHD Eating disorders

Angelman syndrome	Deletion in chromosome 15 (similar to PWS). Chromosome inherited from mother.	Severe-to-profound learning disabilities Difficulties in speech and co-ordination	Happy, social Laugh frequently and inappropriately Hand flapping Sleep disturbances	Self-injury Inappropriate social behaviour
Fetal alcohol spectrum disorder = FAS(D)	Prenatal exposure to alcohol	Decreased and complex intellectual performances Deficits in encoding and shifting focus Decreased skills in planning, inhibition and problem solving Verbal and non-verbal problems Working memory impairment Difficulties following multi-step directions	Impairments in academic performances, emotional functioning and social skills Behavioural dysfunction Hyperactivity Growth retardation Poor social skills Lack of stranger fear Immaturity Inappropriate sexual behaviour Some symptoms can reduce over time	Depression Bipolar disorder Substance abuse Passive-aggressive or anti-social disorders

		Difficulty changing strategies Inability to apply knowledge in new situations Poor judgement		
Smith-Magenis syndrome (=SMS)	Interstitial deletion of chromosome 17p11.2 Contiguous gene deletion syndrome	Cognitive abilities vary Strengths are long-term memory, computer skills and perceptual skills Poor short-term memory Weaknesses in response speed, visumotor coordination and sequencing Limited independence in adults	Sleep disturbances Self-injury: head banging, wrist biting, pulling out nails, skin picking, etc. Maladaptive Speech delay ADHD Decreased pain sensitivity Aggression Temper tantrums Impulsiveness Body rocking Mouthing objects Spinning/twirling objects	Aggression Self-injury

			Teeth grinding	
Turner syndrome	Only in females: caused by lacking or alternation of one of the X-chromosomes.	IQ within normal range: verbal being normal, performance IQ being weaker Poor visual motor skills Normal verbal and language abilities Lack of understanding other's facial expressions	Young girls: immature, hyperactive, anxiety Older adults: Anxiety, depression, problems in social relations	Depression Anxiety
Velocardiofacial syndrome = VCFS	Long arm of chromosome 22, nowadays referred as 22q11.2 deletion syndrome	IQ level usually normal Delays in fine and gross motor development Palatal abnormalities that can cause speech disorders Attention deficits Abstract thinking problems Delayed and impaired language skills	Social deficits Limited facial expressions Monotonic speech Blunt, inappropriate Shy Impulsive Prone to temper tantrums	Psychotic and affective syndromes Schizophrenia Bipolar spectrum disorders

William syndrome (=WS)	Long arm of chromosome 7, known as 7q11.23	IQ mean between 50-60 Strengths in vocabulary, linguistic affect, short-term memory, facial recognition and memory, the ability to interpret other's mental state, musicality Weakness in visual-spatial construction, perceptual planning, fine motor control	Friendly, charming, kind, social -> "overly friendly" Social and behavioural vulnerability Low tolerance for frustration and teasing Impulsive	Anxiety ADHD Depression
Lesch-Nyhan Syndrome	Inherited in an X-linked recessive manner, mother being the carrier	IQ low to normal	Self-injury, often biting, also head-banging, pulling fingernails, eye poking and psychogenic vomiting Fingers, mouth and oral parts are mutilated	Self-injury

Rett's disorder	In females only: X-linked dominant condition	Both communicative and cognitive skills are limited, but the skills can be maintained with intervention and support	Stereotypical hand movements: clapping, tapping, mouthing or of hands Gait apraxia Impairment in language skills Psychomotor retardation Gradual motor deterioration Interaction by gaze	

Appendix 2

Author(s), publishing year	**Title**	**Aim**	**Participants, sample size**	**Methodology**	**Key results**
McConkey R., Slevin E., Taggart L., Truesdale-Kennedy M. 2008.	People with learning disabilities admitted to an assessment and treatment unit: impact on challenging	To find out the impact on challenging behaviour and mental health problems in individuals with learning	48 people 27 of them were men 21 were females 21 aged 15-29 years 14 aged 30-49 years	Survey using a purposely designed pro forma Two structured assessment scales	Significant reductions in challenging behaviours and mental health problems following admission to the unit.

	behaviours and mental health problems	disabilities that have been admitted to an assessment and treatment unit	13 aged over 50 years		
Centre T., Hume L., MacDonald A., McGill P. 2010.	The use of multi-element behaviour support planning with a man with severe learning disabilities and challenging behaviour	How multi-element behaviour support planning affects the challenging behaviour in a man with severe learning disabilities and challenging behaviour	1 man	Functional assessments Calculations Specifically designed recording form Informal observations Running notes	Decrease in challenging behaviour while participation in activities increased
Heyvaert, M., Maes B., Onghema P., Saenen L. 2014.	Systematic review of restraint interventions for challenging behaviour among persons with intellectual disa-	To find out the effectiveness of restraint interventions for reducing challenging be-	59 studies 94 cases Mean age 24,38 46 males 48 females	A systematic literature review of 59 studies	Restraint interventions were on average highly effective in people with learning disabilities. Effects vary significantly

	bilities: Focus on effectiveness in single-case experiments	haviour among persons with intellectual disabilities			over the included participants, and the published data and reported outcomes are rather unrepresentative of the everyday use of restraint interventions in persons with learning disabilities
Heyvaert M., Maes B., Onghena, P. 2010	A meta-analysis of intervention effects on challenging behaviour among persons with intellectual disabilities	Analyse whether interventions that are applied to treat individuals with challenging behaviour and learning disabilities are effective	30 studies 1444 participants 18 studies of biological interventions 13 psychotherapeutic interventions 9 contextual interventions	A random-effects meta-analysis	Several biological, psychotherapeutic and contextual interventions effectively reduce challenging behaviour in individuals with intellectual disabilities

Grey, I., McClean B. 2012	An evaluation of an intervention sequence outline in positive behaviour support for people with autism and severe escape-motivated challenging behaviour	To evaluate a sequence for implementing changes to key contextual variables over a 3-year period	4 individuals all presenting severe episodes of aggressive behaviour	Functional assessment Episodic severity scales and severity subscales to measure intensity of the most severe behavioural incident Behaviour recordings The Checklist of challenging behaviours Health of the Nation Outcome Survey – Learning Disabilities Quality of Life Scale	Substantial reductions in target behaviours Incremental improvement in mental health scores and quality-of-life scores