

Introduction

This poster will explore and explain what Additional Learning Needs and Disabilities are and explore more in depth about Down Syndrome Children. The poster will also explain why Down Syndrome occurs and how it is diagnosed, and how Down Syndrome children develop and what challenges and barriers they are faced with. Additionally, what strategies can be put in place to overcome these challenges.

Snap Cymru (2024) says that a child with an additional learning need and/or a disability is when a child finds it harder to learn and process things than a other able children of the same age. Furthermore, Dewi Cymru (2024) says that additional learning needs is acknowledged as a legal term, this term relates to children that have physical, sensory, and learning needs. However, Welsh Government (2022, p.5) says additional learning needs also means when a child has needs or a disability that has stemmed from a medical condition or illness. Additionally, Centers for Disease Control and Prevention, (2024, a) says that a disability is also if a child's illness, impairment or condition prevents them from being able to participate in activities.

Lee (2002) says that there are four types of disabilities which are:

- Behavioural and Emotional,
- Sensory Impairments,
- Physical
- Developmental.



Zazzle (2024)

Diagnosis and Characteristics

Public Health Scotland (2023) says, in a typical pregnancy the mother is offered an early pregnancy scan at 12week gestation. During the scan measurements are taken at the back of the neck called the nuchal translucency. If the measurement is bigger than 3.5 mm the mother is offered further tests. Public Health Wales (nd) says at 11 to 14 weeks gestation, the expectant mothers are offered a combined screening test which screens for Down's syndrome (Public Health Wales, nd). Furthermore, National Health Service (2022) says that the mother is offered an amniocentesis if there is a higher chance of the baby having down syndrome. Additionally, National Health Service (2020) this test can only be administered when the pregnancy is in between 15-to-20-week gestation.

Characteristics of Down Syndrome Children
Fergus, 2022) says that there are 3 typical physical features that most down's syndrome children possess, which are almond and slanty eyes, smaller head, shorter in appearance.

Conclusion

Down's Syndrome is a genetic disorder that causes delays in their overall development. It is important that multi-agencies collaborate to support them to achieve their full developmental potential. Since this syndrome was first diagnosed there is sufficient research and strategies to accomplish this. However, it is important to understand that Down Syndrome's are unique individuals.

Barriers and Strategies

(Down Syndrome Scotland, 2023). Down Syndrome children are more likely to suffer with more health problems than other able children such as :

- Heart problems,
- Gastrointestinal ailments
- Hearing or vision impairment

Additionally, John *et al.*, (2004) says young children with down syndrome had a lower visual awareness and contrast responsiveness. Furthermore, Barden (2023) says that when a down's child reaches the age of puberty this is when problems with their vision occur. Pikora *et al* (2014) says that any medical conditions must be monitored regularly, so it would not cause future implications. According to Welsh Government (2019, p.5) vision and auditory impairment in children can have a notable effect on their developmental growth. The Additional Learning Needs and Education Tribunal (Wales) Act should help and support children with down syndrome by continuous assessment and interventions for each child (Welsh Government, 2018). Furthermore, The Additional Learning Needs (Wales) Regulations Act 2021, supports this by saying an Additional Learning Needs Co-ordinator (ALNCO) needs to be able to provide each child with support holistically (Government, UK, 2021). The strategies that can be put in place would be sensory play (James, 2023). Furthermore, James (2023) says that sensory toys that consist of different types of materials and size, which make different sounds are a favourite with the children as they are more fun to play with. National Health Service Wales (n.d) says that these interventions should be for a short period of time but as frequent as possible. Theorist, Jean Piaget was a great believer that children learnt more during play, so it is important to make these interventions fun (Down Syndrome Recourse Foundation, (2024). Additionally, (Mauluddia and Solehuddin, 2023) says that when children that have challenges or barriers in their play and can work out the solutions, this helps the holistic and cognitive development of the children.

Good afternoon, my name is Sharon Davies, and I will be presenting an academic poster about Additional Learning Needs (ALN) in children with focus on Downs syndrome.

Firstly, what is an additional learning need? According to Snap Cymru (2024) Additional learning needs is when a child has difficulty learning, and/or a disability, that will hinder children from learning in comparison with other able children of equal age. Also, Dewis Cymru (2024) says that the term additional learning needs is now recognised as a legal definition, and it applies to children and young adults that have physical, sensory, and learning needs that make it harder for them to learn than the same aged children and young adults. However, Welsh Government (2022, p.5) says that the term additional learning needs not only means a child or young adult that has a disability or a find it hard to learn and understand things, but also if this difficulty has emerged from a medical conditions or illnesses.

FAYE - What is a disability?

Thank you, Faye, for the question. A disability is when a child's illness, impairment or condition makes it harder for them to be able to take part in particular activities and to connect with their immediate environment and the outside world (Centers for Disease Control and Prevention, 2024, a). According to Lee (2022), disabilities can be split up into four types of definitions, which are behavioural and emotional, sensory impairments, physical and developmental. The term developmental disability is what applies to a person whose condition has an enormous impact on the individual's life such as learning, self-care, communication, mobility and living independently (Lee, 2022). Down Syndrome is classed as one of these types of definition but there are so much to these individuals.

So, what is Down Syndrome?

Down syndrome has been about for years and is recognised as an additional learning need, the first document that was written about this disability was by a French psychiatrist Jean-Etienne Dominique Esquirol in the year 1838 (Global Down Syndrome Foundation (nd). Unfortunately, at that time not much was known about Down syndrome, as the French psychiatrist called them idiots and believed them to be insane (Global Down Syndrome Foundation, nd).

Then, in the year 1866, physician John Langdon Down realised that children who had Down Syndrome all had similar impairments and disabilities; from then on, these children were identified as Down Syndrome children (Burak *et al.*, 2020, p. 3). Furthermore, throughout the years discoveries were made linking down syndrome to premature senility, and life expectancy of a down syndrome child goes from nine years old to 60 years old and discoveries on how and why it happens and if there is a cure (Global Down Syndrome Foundation, nd).

According to Heid (2022) there are three types of Down Syndrome, Trisomy 21, Translocation Down Syndrome and Mosaic Down Syndrome.

Down Syndrome is when a baby receives an extra chromosome, this is caused by an alteration in either the mother's egg or fathers' sperm (National Health Service (2023, b). Mayo Clinic (2024) supports this by saying that when a cell divides abnormally in the chromosome 21, this causes the down syndrome to appear. Additionally, Centers for Disease Control and Prevention (2024, b) supports this by saying that when a baby is born it normally has 46 chromosomes, these chromosomes decide on how the baby's body and development progresses throughout the pregnancy and after the baby is born. Therefore, when one of these chromosomes is copied, a down syndrome baby is born, which is called Trisomy 21 in medical terminology (Centers for Disease Control and Prevention, 2024, b). When this happens, this alters the development of the baby's holistic growth and can create difficulties in the future for the baby (National Health Service 2023, a).

Also, in the second type of Down syndrome which is called Translocation Down Syndrome, Heid (2022) says this Down Syndrome is similar to Trisomy 21 but in this case another part or whole chromosome is connected to another chromosome, and only three to four percent of Down syndrome babies that are born have this kind. However, Stanford Medicine (2024) says that when a child is born with translocation, the medical team could investigate to see if the child inherited this from his or her parents. Furthermore, the parent which is the carrier of the translocation chromosome might have had previous difficulty in becoming pregnant and unfortunately have miscarriages and having a greater possibility of having children with health problems (Stanford Medicine 2024).

In the third type of Down Syndrome which is called Mosaic Down Syndrome, (Anthony, 2018) says that this is when cells have a different combination of pairs, of chromosomes in them. Additionally, Johnson (2020) agrees that mosaic Down Syndrome happens when some cells will have more than the usual pair of 23 chromosomes in them and a few may carry the additional copy of chromosome 21.

How is Down Syndrome diagnosed?

Public Health Scotland (2023) says that in a typical pregnancy the expectant mother is offered an early pregnancy scan, this shows the baby's development, heartbeat, what week of pregnancy it is, how many babies are in the pregnancy and to measure the nuchal translucency. Higuera (2016) says that the nuchal translucency is the clear tissue at the back of the baby's neck. The nuchal translucency measurement should normally be less than 3.5 mm, if it is measuring more, the mother is then offered further screening tests (Cambridge University Hospitals, 2024). Next, the expectant mothers are offered a combined screening test which screens for Down's syndrome, Edwards' syndrome and Patau's syndrome (Public Health Wales, nd). This screening take place when they are around 11 weeks to 14 weeks pregnant, they are also offered to have a blood test (Public Health Wales (nd). However, the combined screening test is the mother's choice and if

the screening test is not done, the expectant mother can have a Quadruple test which is taken between 15 and 18 weeks of the pregnancy, the quadruple test only screens for Down's syndrome (Public Health Wales, nd). Additionally, National Health Service (2022) says that if there is a higher chance that the baby has down's syndrome, the mother is offered an amniocentesis. National Health Service (2022) says that this test can only be carried out when the pregnancy is in between 15- and 20-week gestation, as the risk of complications is greater earlier on in the pregnancy which may cause miscarriages. However, Danielsson (2019) says that having an amniocentesis will not always lead to a miscarriage as there is always a possibility that the pregnancy would have ended in a loss naturally. Furthermore, Danielsson (2019) says that women who are older or had a positive result have a greater chance of miscarriage despite not having an amniocentesis. (6 MINS 40)

LYDIA - WHAT SHOULD A PRACTITIONER SHOULD LOOK FOR?

Thank you, Lydia, for asking, As stated previously physician John Langdon realised that down syndrome children had physical similarities and impairments. Fergus (2022) agrees to an extent. However, (Fergus, 2022) says that there are 3 main features that most down's syndrome children have, which are almond shaped eyes, eyes that slant upwards and a smaller head that is flatter at the back. In addition to those, some down syndrome children will have a small mouth and a protruding tongue, a rounder face, shorter in appearance, (Fergus, 2022). Also, down syndrome only has one crease on the palms of their hands, and they have fine, thin straight hair (Stumbo, 2013).

Also, unfortunately children with Down Syndrome are more likely to suffer with more health problems such as heart issues, digestion ailments and hearing or vision impairment (Down Syndrome Scotland, 2023). National Down Syndrome Society (2024) says that vision impairment affects up to 60 to 80% of them, because of this it is recommended that down

syndrome babies should have eye tests when they are born and again at 6 months old and on a regular basis (National Down Syndrome Society, 2024). Furthermore, Barden (2023) says that when a down's child reaches puberty this is when the problem with their vision occurs. Additionally, Barden (2023) says that the earlier these problems are diagnosed the better the results will be. Furthermore, John et al, 2004) says that in a study that was conducted, the results showed that young children with down syndrome had a lower visual awareness and contrast responsiveness. To illustrate this point, Pikora *et al* (2014) conducted a study using questionnaires, these were sent out to parents of children with down syndrome concerning monitoring vision and hearing loss. The result was that there is a definite need to monitor their medical conditions so it would not impair in their lifestyle in the future (Pikora *et al*, 2014). Additionally, in a survey conducted by Ching *et al*, 2013) it revealed that children with additional disabilities who were diagnosed with hearing loss and had hearing aids fitted had better outcomes than children who did not.

According to Welsh Government (2019, p.5) vision impairment in children can have a notable effect on their developmental growth. Welsh Government (2019. P.5) says this is because they have less opportunity to examine their environment, use of fine and gross motor skills and participating in intentional and accidental experiences. However, Welsh Government (2019, p.17) says that if the environment and interventions are not put in place, these children may become uninvolved and indifferent to what is going on around them as they cannot hear or see what is happening. However, (Welsh Government, 2019, p.18) says that educators should recognise what is happening and provide experiences and environments which is best for the individual child. This is supported in article 23 nd 28 of The United Nation Convention on the Rights of the Child (UNICEF, 2019). (UNICEF, 2019) says every individual child including children with disabilities or additional learning needs, has the right to an education and should be supported by the government. Furthermore, Welsh Government (2018) Additional Learning Needs and Education Tribunal (Wales) Act is to help and support all children at school age with a disability, or an additional learning need which consists of individually

assessing, planning interventions for each individual child. This is called an Individual Development Plan or IDP (Welsh Government (2018)). the children as well as the parents, carers and educators are included in this plan as it is important for the children to feel that their voice is heard (Welsh Government, 2018). Furthermore, The United Nation Convention of the Rights of the Child supports this in article and12 which states that children have the right for their feelings, voices and beliefs to be heard and valued. Additionally, Welsh Government (2022, p.14) says that every mainstream school should have an Additional Learning Needs Co-ordinator (ALNCo) as this person makes sure that all requirements and needs of children with ALN are met. This is supported by The Additional Learning Needs (Wales) Regulations Act 2021 where it states that the alnco has the overall responsibility for children with additional learning needs and should respond to the children's needs holistically (Government United Kingdom, 2021).

To help and support down syndrome children, James (2023) says that Down syndrome children are more drawn to sensory toys as this helps them to understand their surroundings and recognise what is occurring around them. However, Frank (2020) says that even though children with down syndrome have difficulty to process sensory messages from their brains to their bodies, not all down syndrome are the same. Additionally, James (2023) says that down syndrome children might have difficulty in doing everyday tasks like bathing, getting dressed and eating. Furthermore, Frank (2020) says that whilst these challenges can be met in abled children, in down syndrome children these challenges should be assessed individually and adapted to suit the needs of the individual child. Additionally, Frank (2020) says these challenges should analysed and advised by a professional such as an occupational therapist. According to Down Syndrome Resource Foundation (2024) disabled children such as down syndrome children need support to understand messages from their brains from the sensory systems and be able to react appropriately. This is called Sensory Processing, and research has shown that around 49% of down syndrome faces sensory processing challenges (Down Syndrome Recourse Foundation, 2024). James (2023) says that sensory resources can supply visual, auditory and touchable responses which can support

down syndrome children to develop their senses appropriately. Additionally, James (2023) says that sensory toys that are of different types of materials and are noisy are most favourable with them as they make it more fun to play. Additionally, NHS Wales (nd) says that down syndrome children require a shorter but more frequent sessions to learn these new skills. Furthermore, National Health Service Wales(nd) says that these sessions should support balance, body movement for gross motor skills, different textures for touch, and toys or object that the child can hold in their hand to support fine motor skills. Mauluddia and Solehuddin (2023) says that Piaget's Learn through play theory allows a child whether he or she is abled or disabled to develop the skills and knowledge that will support them in their future. Furthermore, Piaget believed that when children are faced with challenges in their play and when they learn to overcome them, this will help the cognitive and holistic development of the child (Mauluddia and Solehuddin, 2023)

So, in conclusion, Down syndrome children are individual human beings, and they should not be classed as being the same. This is why it is important to have Individual development plans in place that is unique to the child. It is also important that there are multi agencies like parents/carers, educators, and other professionals involved with the care and support for them too, from even when they are still in the womb up to their present time so the child hopefully will have a solid foundation to grow and develop at their own pace. Down syndrome children are amazing, and they should be loved and nurtured.

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