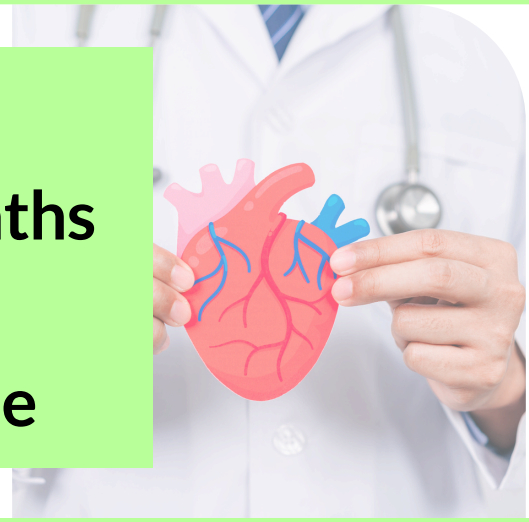
LeDeR
Learning from lives and deaths – People with a learning disability and autistic people



Research Digest: Spring 2024

Welcome to the spring edition of our planned quarterly research digests for 2024. In this edition, we bring you a selection of 8 papers covering the theme of cardiovascular disease (CVD) for people with a learning disability. CVD is one of the top 5 causes of death for people with a learning disability, and in the 2023 LeDeR national report it was found to be second only to COVID-19. In this digest we will look at the latest work into this avoidable cause of death. This edition has been prepared by one of our MSc students, Anna Muirhead, here at King's College London.

As always, for each paper we have provided a summary of 1) the population, 2) the setting and 3) the rating of the level of evidence provided, based on the 5 point rating summary provided here, where 1 is highest level of evidence and 5 is expert opinion. Please feel free to reach out with any questions or feedback on these digests.

In this edition

Focus on: Cardiovascular Disease

1. Cardiovascular Complications of Down Syndrome: Scoping Review and Expert Consensus

2. Association of intellectual disability with overall and type-specific cardiovascular diseases: a population-based cohort study in Denmark

3. Disparities in Acute Coronary Syndrome Outcomes in Individuals With Intellectual Disabilities: A Propensity-Matched Analysis of National Inpatient Sample

4. Prevalence of neurodevelopmental disorders in a clinically referred sample of children with CHD

5. Association Between Autism Spectrum Disorders and Cardiometabolic Diseases: A Systematic Review and Meta-analysis

6.Sex differences in cardiovascular disease and dysregulation in Down syndrome

7. Stress and social isolation, and its relationship to cardiovascular risk in young adults with intellectual disability

8. A Randomized Controlled Trial using Brief Educational Messages Directed to Adults with Intellectual Disability and Hypertension or their Helpers Reduces Hospital Stays

1) Sample: 460 articles
2) Setting: .Systematic review. Papers included covered a variety of healthcare settings.
3) Level of evidence: 2

Cardiovascular Complications of Down Syndrome: Scoping Review and Expert Consensus

Dimopoulos et al. (2023)
DOI: 10.1161/CIRCULATIONAHA.122.059706

A scoping review of 460 articles that highlights the higher prevalence of heart defects in babies with Down syndrome compared to those without Down syndrome. Smoking during pregnancy and insufficient folic acid intake were shown to be associated with an increase in cardiovascular risks. Half of babies born with Down syndrome have heart defects compared to only 1% of babies born without Down syndrome. Screening programs and increased risk awareness training are recommended for early detection and management of cardiovascular issues in individuals with Down syndrome.

1) Sample: 2,288,393 individuals.
2) Setting: Nationwide cohort study using data from national registers in Denmark from 1978 to 2016.
3) Level of evidence: 2

Association of intellectual disability with overall and type-specific cardiovascular diseases: a population-based cohort study in Denmark

Wang et al. (2023)
DOI: 10.1186/s12916-023-02747-4

This study investigated the link between intellectual disability and the risk of cardiovascular disease. Individuals with intellectual disability were more likely to develop cardiovascular disease at a younger age and had higher risks of conditions like stroke, heart failure, and deep vein thrombosis, compared to those without intellectual disability. The severity of intellectual disability was also important, with higher severity associated with greater risk. An increased awareness of recognising and addressing the heightened risk of cardiovascular disease among individuals with intellectual disability is recommended to address these health inequalities.

1) Sample: 5110 admissions (2555 in each group).
2) Setting: Adult admissions with a primary diagnosis of ACS from the national inpatient sample of years 2016–2019.
3) Level of evidence: 3

Disparities in Acute Coronary Syndrome Outcomes in Individuals With Intellectual Disabilities: A Propensity-Matched Analysis of National Inpatient Sample

Maraey et al. (2023)
DOI: 10.1016/j.carrev.2023.02.010

Individuals with intellectual disabilities can encounter difficulties in recognising and expressing symptoms, complicating the diagnosis of conditions such as acute coronary syndrome (ACS). Analysing US national database records, this study compared ACS outcomes between individuals with and without intellectual disabilities. It revealed higher in-hospital mortality rates and lower rates of treatments like coronary angiography and revascularization among those with intellectual disabilities. These disparities underscore the necessity for improved care strategies tailored to this population.

1) Sample: 206 patients with CHD
2) Setting: Retrospective comparative study. Participants were children with CHD were referred for neuropsychological evaluation.
3) Level of evidence: 3

Prevalence of neurodevelopmental disorders in a clinically referred sample of children with CHD

Loblein et al. (2023)
DOI: 10.1017/S1047951122001469

Children and adolescents with congenital heart defects (CHD) are at an increased risk for neurodevelopmental disorders, like attention-deficit/hyperactivity disorder, autism spectrum disorder, and intellectual disability. This study examined 206 patients with CHD, aged 3 to 21, and found that 44% of them had neurodevelopmental disorders, much higher than the general population. These findings highlight the importance of ongoing monitoring and support for children with CHD due to the overlap between CHD and learning disability in young people.

1) Sample: 276,173 participants with autism and 7,733,306 participants without autism.
2) Setting: Systematic review across multiple healthcare settings.
3) Level of evidence: 2

Association Between Autism Spectrum Disorders and Cardiometabolic Diseases: A Systematic Review and Meta-analysis

Dhanasekara et al. (2023)
DOI: 10.1001/jamapediatrics.2022.5629

A comprehensive review of 34 studies involving over 276,000 individuals with autism and more than 7.7 million without. The review found that those with autism had a greater likelihood of developing diabetes, dyslipidemia (abnormal cholesterol levels), and heart disease. Interestingly, the risk of hypertension (high blood pressure) and stroke didn't seem to be elevated in people with autism. To inform appropriate interventions, close monitoring of individuals with autism for signs of these health conditions and complications is recommended, to promote better overall health and wellbeing.

1) Sample: 25 studies, with around 543,780 participants.
2) Setting: Systematic review of multiple healthcare settings.
3) Level of evidence: 2

Sex differences in cardiovascular disease and dysregulation in Down syndrome

Bates et al. (2023)
DOI: 10.1152/ajpheart.00544.2022

People with Down syndrome face heightened risks related to their heart and blood vessels. Specifically, women with Down syndrome may be more susceptible to heart problems such as high blood pressure, heart disease, and stroke, compared to men. There is some evidence to suggest that men with Down syndrome might have a higher likelihood of being born with heart defects. It's important to note that typical signs of heart issues may not always manifest in people with Down syndrome and could differ between the sexes.

1) Sample: A participant cohort with ID (n = 35) and a control group without ID (n = 29).
2) Setting: Participants were recruited through disability services throughout Australia.
3) Level of evidence: 3

Stress and social isolation, and its relationship to cardiovascular risk in young adults with intellectual disability

Zwack et al. (2023)
DOI: 10.1080/09638288.2022.2046186

This study examined self-reported stress levels among adults aged 18-45 with intellectual disabilities and its association with cardiovascular health. It found that adults with intellectual disabilities experience elevated stress levels compared to those without intellectual disabilities. Particularly in females with mild intellectual disabilities, stress correlated strongly with heightened social isolation and obesity. Also, high stress levels predicted arterial stiffness, a risk factor for cardiovascular disease. These findings highlight the importance of stress reduction in young adults with intellectual disabilities to mitigate the risk of cardiovascular issues, enhancing their overall health and well-being.

1) Sample: 412 participants - 214 with Intervention and 198 Controls.
2) Setting: South Carolina Department of Health and Human Services, which administers Medicaid, identified eligible Members.
3) Level of evidence: 1

A Randomized Controlled Trial using Brief Educational Messages Directed to Adults with Intellectual Disability and Hypertension or their Helpers Reduces Hospital Stays

Zhang et al. (2023)
DOI: 10.1177/08901171231161470

This study examined the effectiveness of educational messages in reducing cardio-vascular emergency department visits in South Carolina in adults with intellectual and developmental disabilities (IDD). The intervention offered education about hypertension and the importance of medical adherence (in the form of monthly reminders) to individuals with IDD and their helpers. Results show significant decreases in emergency visits and inpatient days for adults with IDD with a history of high hospital use, especially for those with helpers. This intervention helps manage cardiovascular risks for individuals with IDD, highlighting the importance of education.