4.0. Phase 2: Evidence generation

Enya Redican, Mark Shevlin, Jamie Murphy

4.1. Purpose and context

The purpose of this second evidence generation phase was to produce new administrative data evidence on ADHD that could be meaningfully engaged with by stakeholders across multiple sectors. Given that stakeholders requested information on ADHD medication prescribing according to area-level deprivation and urbanicity, we sought to generate outputs based on this. Additionally, we sought to run some additional analyses typical of a sensitive data research project.

4.2. The data

The data has previously been described in full in Section 2. For these new analyses, we completed a project modification request. Specifically, we asked for area-level deprivation deciles from 2017 along with settlement band status, aggregated into urban or rural.

Once this modification request was approved, we linked these variables to the data spine described in Section 2.

2.4 Measures

Prescription records from 2011 to 2025 were used to identify medication use. ADHD medication receipt was defined as any recorded prescription for drugs used in the treatment of ADHD (BNF 4.4), with individuals classified as either receiving or not receiving ADHD medication for each year.

Demographic variables included age at baseline, grouped into 6–10, 11–15, and 16–20 years, and sex (male, female).

Household characteristics were derived from Census 2011 and captured indicators of household composition and socioeconomic circumstances, including car availability, employment within the household, housing tenure, number of carers, and property value. The latter variable was derived from Land and Property Service Valuation data described in Section 2.

Area-level variables included area-level deprivation, measured using the NI Multiple Deprivation Measure (NIMDM 2017). Deciles range from 1 to 10, with lower deciles indicative of greater levels of deprivation. Urbanicity was measured using settlement band status in 2017, and included urban or rural status.

Health outcome were derived from the Census 2021 and included health quality measured across five categories: very good, good, neutral, bad, very band. Other psychotropics were used as health outcome and included antidepressants, anxiolytics or hypnotics, antipsychotics, and drugs used in substance dependence, with individuals classified as receiving or not receiving each drug category between 2021 and 2025.

Employment outcomes were derived from Census 2021 and included economic activity (employee, self-employed, unemployed (incl. full-time student).

Education outcomes were derived from Census 2021 and included qualification level (level 1, level 2, level 3, level 4+, apprenticeship, no qualifications).

4.3. Analytic approach

Analyses using deprivation and urban/rural status were generated under the ***WHO*** and ***WHEN*** framework. Specifically, we looked at the proportion receiving ADHD medication per annum according to deprivation status and urban/rural status. Moreover, we looked at the association between deprivation status and urban/rural status and ADHD medication receipt between 2011 and 2020.

Next, we conducted latent class growth analysis (LCGA) to identify trajectories of ADHD medication receipt between 2011 and 2020. LCGA groups people according to similar patterns of change over time.

It assumes that people within each group follow roughly the same trajectory, while different groups can have different starting levels and different rates of change (Jung & Wickrama, 2008). The models were adjusted for age and sex.

We then examined demographic and household predictors of class membership, as well as associations between class membership and a range of outcomes measured in Census 2021, including education, employment, and health status.

As described in Section 2, given that one of the objectives of the WG is to understand the most effective dissemination strategies, formats, and mediums for our stakeholders needs, the same evidence was presented in numerous ways.

Results are presented here at a high level to illustrate the types of evidence generated and the ways in which the same findings were presented in different formats for stakeholder engagement.

4.5 Results

4.5.1. WHEN: Key results

- Across each year, the proportion receiving ADHD medication was highest in the least deprived decile,with proportions generally decreasing as deprivation decreases. An exception is the least deprived group, where prescribing is also relatively high.
- Across each year, the proportion receiving ADHD medication was highest in urban areas

Decile	2017	2018	2019	2020	2021	2022	2023	2024	2025
1	18.20%	17.50%	16.80%	16.90%	16.40%	15.70%	14.80%	14.30%	15.90%
2	10.60%	9.90%	10.30%	9.60%	9.90%	9.70%	10.40%	9.80%	9.10%
3	9.40%	10.40%	9.90%	9.90%	9.00%	9.70%	9.90%	9.80%	9.60%
4	10.10%	9.90%	10.20%	9.10%	9.40%	9.00%	9.90%	10.40%	11.10%
5	8.20%	8.10%	8.40%	8.40%	8.70%	8.60%	8.50%	7.80%	7.80%
6	8.20%	9.00%	8.70%	9.30%	9.80%	8.60%	7.40%	8.40%	7.80%
7	8.10%	8.60%	8.80%	9.30%	8.80%	9.00%	9.90%	10.20%	9.90%
8	8.40%	8.40%	8.20%	8.20%	8.00%	8.40%	8.30%	8.70%	9.10%
9	8.30%	7.90%	9.20%	9.60%	9.80%	10.50%	9.60%	9.50%	8.90%
10	10.40%	10.20%	9.60%	9.90%	9.80%	10.80%	11.10%	11.10%	10.80%

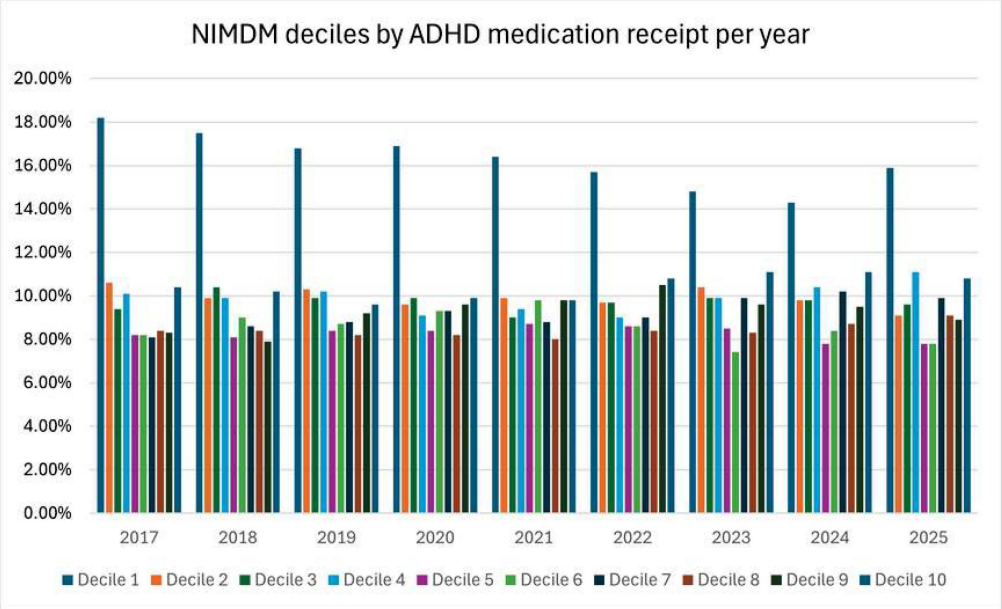
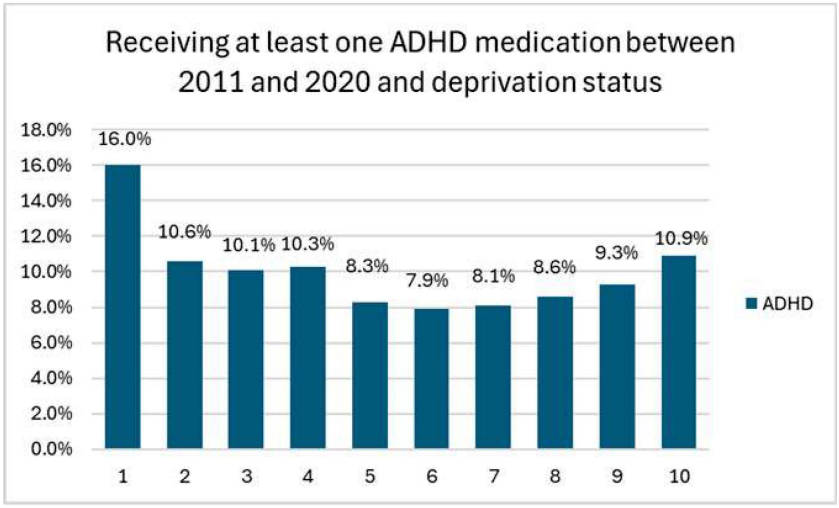


Figure 4.1: An example of providing the same WHEN results for deprivation in different formats

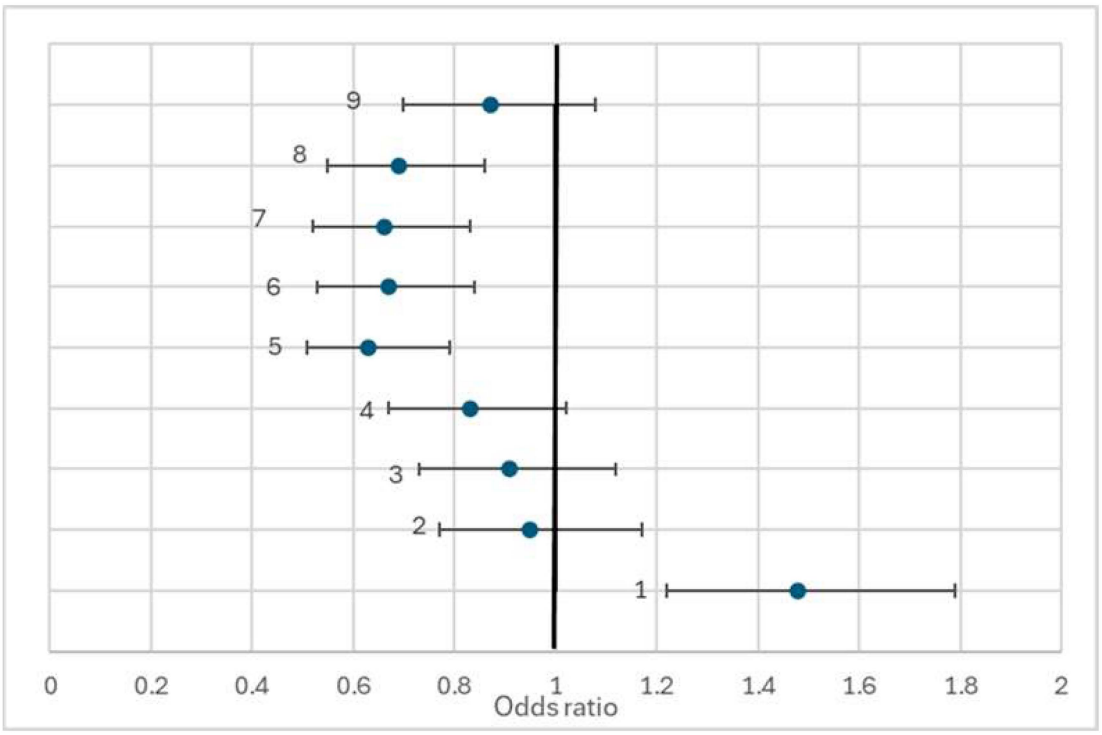
3.5.2. WHO: Deprivation Key results

- The highest proportion of individuals in the ADHD group were from the most deprived areas (16.0%), with proportions generally decreasing as deprivation decreases. An exception is the least deprived group, where prescribing is also relatively high (10.9%).
- Children living in the most deprived areas were more likely to receive ADHD medication over the study period than those living in the least deprived areas.



		ADHD 2011 – 2020	
		%	n
NIMDM 2017	1	16.0	259
	2	10.6	171
	3	10.1	164
	4	10.3	166
	5	8.3	135
	6	7.9	128
	7	8.1	131
	8	8.6	139
	9	9.3	150
	10	10.9	176

Figure 4.2: An example of providing the same WHO descriptive results for deprivation in different formats using NILS data

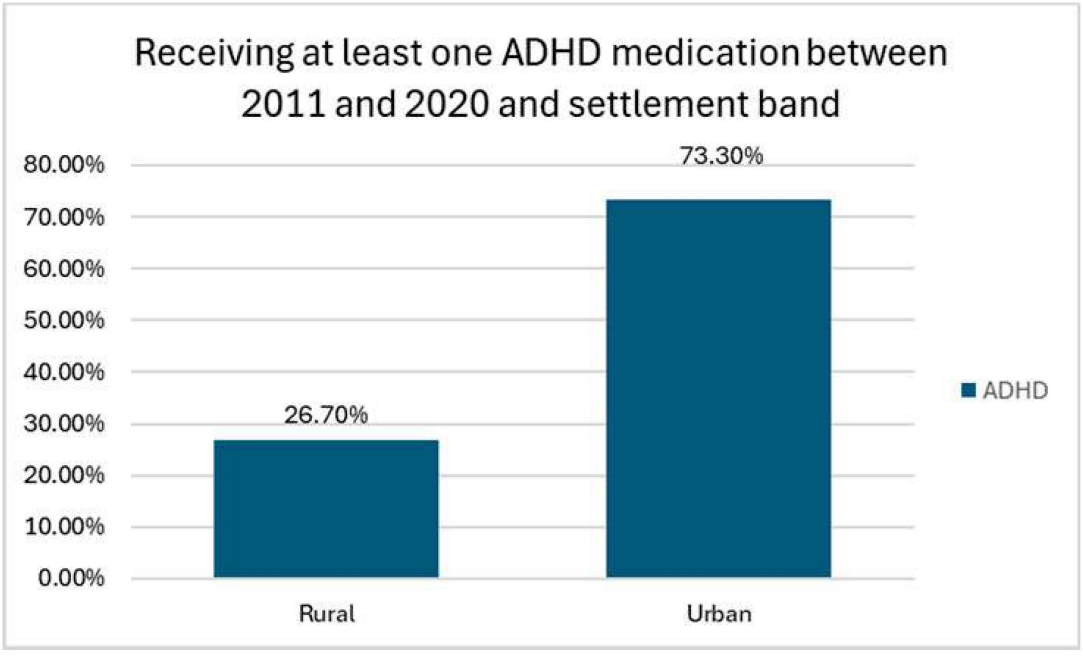


			ADHD group		ADHD group	
		N	OR	95% CI	AOR	95% CI
Deprivation	1	91,899	**1.48**	(1.22, 1.79)	**1.65**	(1.40, 1.95)
	2		0.95	(0.77, 1.17)	1.02	(0.84, 1.23)
	3		0.91	(0.73, 1.12)	0.98	(0.81, 1.18)
	4		0.83	(0.67, 1.02)	0.87	(0.72, 1.06)
	5		**0.63**	(0.51, 0.79)	**0.67**	(0.55, 0.82)
	6		**0.67**	(0.53, 0.84)	**0.71**	(0.58, 0.88)
	7		**0.66**	(0.52, 0.83)	**0.71**	(0.58, 0.87)
	8		**0.69**	(0.55, 0.86)	**0.72**	(0.59, 0.89)
	9		0.87	(0.70, 1.08)	**0.90**	(0.89, 0.91)
	10		-	-	-	-

Figure 4.3: An example of providing the same WHO inferential results in different formats using NILS data

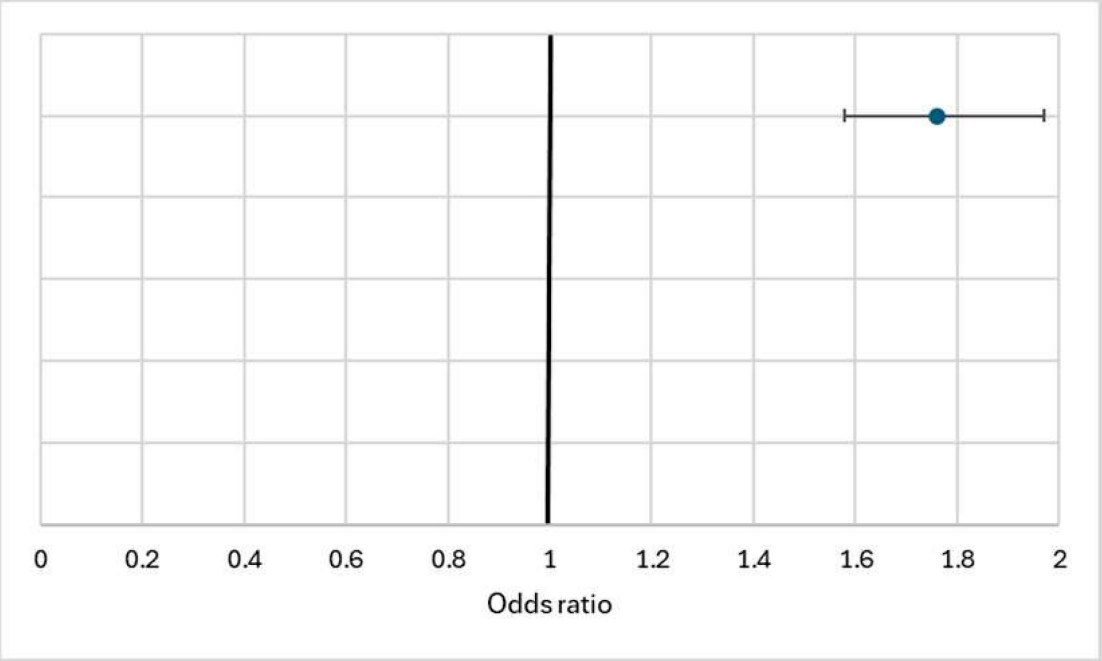
3.5.3 WHO: Urbanicity Key results

- The highest proportion of individuals in the ADHD group were living in urban areas rather than rural areas.
- Children living in urban areas were more likely to receive ADHD medication over the study period than those living in the rural areas.



		ADHD 2011 – 2020		No ADHD 2011 – 2020			
		%	n	%	n	X^2	p
Settlement band	Rural	26.7	428	39.1	34567	102.05	<.001
	Urban	73.3	1176	60.9	53864		

Figure 4.5 An example of providing the same WHO descriptive results for settlement band in different formats using NILS data



		ADHD 2011 – 2020		No ADHD 2011 – 2020			
		%	n	%	n	X^2	p
Settlement band	Rural	26.7	428	39.1	34567	102.05	<.001
	Urban	73.3	1176	60.9	53864		

Figure 4.6 An example of providing the same WHO inferential results for settlement band in different formats using NILS data

3.5.4. ADHD medication trajectories

3.5.4.1. ADHD medication trajectories

- Four different medication trajectories identified: Stable low, stable high, increasing, decreasing

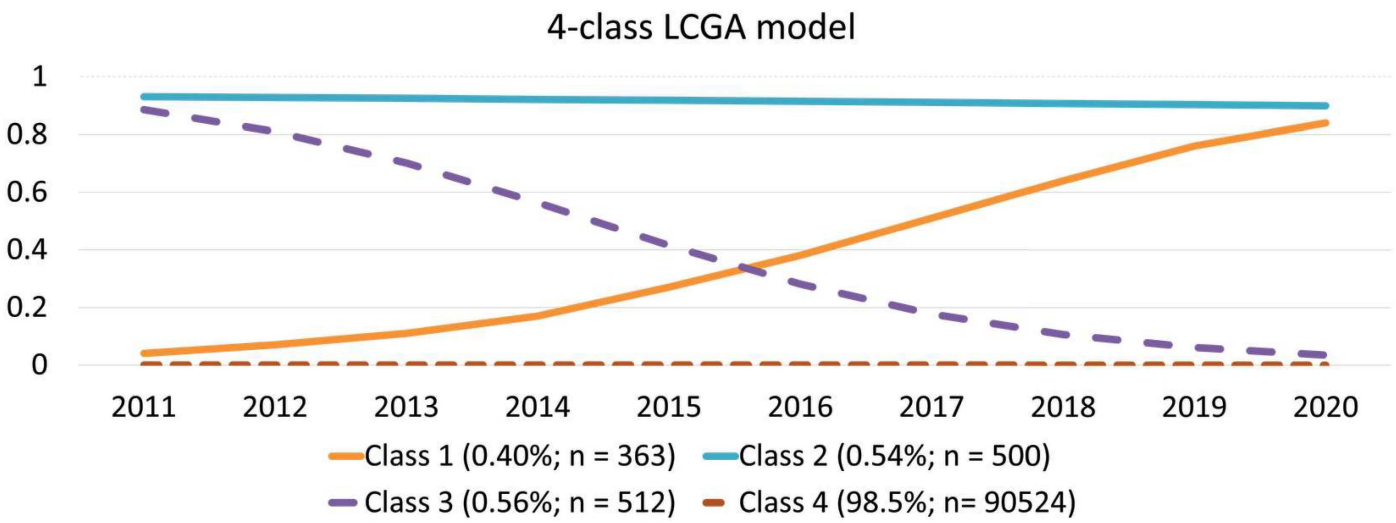


Figure 4.7 An example of showing the different trajectory classes identified visually

3.5.4.1. Predictors of ADHD medication trajectories

- Older children and females less likely to be in the medicated trajectory classes
- Those in the stable high trajectory more likely to come from families with fewer economic resources and a higher health burden
- Those in the stable high trajectory more likely to be economically inactive, lower education qualifications, poorer health, and receive other psychotropics

	Stable high (n = 500)		Increasing (n = 363)		Decreasing (n = 512)	
	OR	95% CI	OR	P	OR	P
Household tenure						
Rents or lives rent free	3.00	(2.52, 3.58)	1.67	(1.35, 2.07)	1.97	(1.65, 2.34)
Owns	-	-	-	-	-	-
Deprivation deciles						
1	**3.09**	(2.03, 4.47)	0.84	(0.56, 1.24)	1.29	(0.93, 1.81)
2	1.36	(0.87, 2.13)	0.74	(0.49, 1.11)	0.94	(0.66, 1.35)
3	1.53	(0.99, 2.38)	**0.65**	(0.43, 0.99)	0.85	(0.59, 1.22)
4	1.35	(0.87, 2.10)	**0.57**	(0.37, 0.87)	0.75	(0.52, 1.08)
5	1.20	(0.77, 1.87)	**0.40**	(0.25, 0.64)	**0.61**	(0.42, 0.90)
6	1.28	(0.82, 2.00)	**0.48**	(0.30, 0.75)	**0.44**	(0.29, 0.69)
7	1.26	(0.81, 1.97)	**0.51**	(0.33, 0.79)	**0.53**	(0.35, 0.79)
8	1.11	(0.7o, 1.76)	**0.49**	(0.31, 0.76)	**0.62**	(0.42, 0.91)
9	1.11	(0.69, 1.79)	0.70	(0.46, 1.06)	0.76	(0.52, 1.11)
10	-	-	-	-	-	-
Settlement band						
Urban	**2.11**	(1.70, 2.61)	**1.67**	(1.32, 2.11)	**1.71**	(1.41, 2.08)
Rural	-	-	-	-	-	-
Number of cars in household						
0	-	-	-	-	-	-
1 or more	**0.47**	(0.38, 0.58)	**0.71**	(0.54, 0.94)	**0.62**	(0.50, 0.77)
Number of carers in household						
0	-	-	-	-	-	-
1 or more	**2.75**	(2.30, 3.29)	**1.28**	(1.03, 1.59)	**2.23**	(1.87, 2.66)
Number of ill adults in household						
0 ill adults	**-**	-	**-**	-	**-**	-
1 ill adult	**2.12**	(1.76, 2.57)	1.17	(0.89, 2.09)	**1.69**	(1.39, 2.05)
2 or more ill adults	**1.90**	(1.33, 2.73)	1.36	(0.89, 2.09)	**1.81**	(1.29, 2.55)
Number of people with health condition in household						
0	**-**	-	**-**	-	**-**	-
1	**2.29**	(1.74, 3.01)	0.92	(0.71, 1.20)	**3.15**	(2.39, 4.15)
2 or more	**6.71**	(5.26, 8.57)	**1.81**	(1.43, 2.31)	**7.44**	(5.74, 9.63)
Number of employed adults						
0	**-**	-	**-**	-	**-**	-
1	**0.53**	(0.43, 0.65)	**0.71**	(0.54, 0.92)	**0.62**	(0.50, 0.78)
2 or more	**0.22**	(0.18, 0.28)	**0.42**	(0.32, 0.54)	**0.32**	(0.25, 0.39)

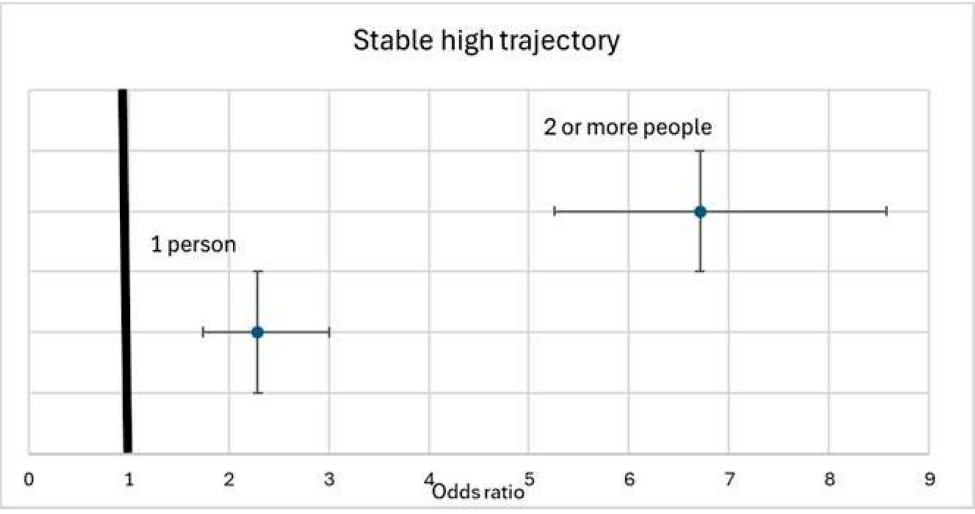


Figure 4.8 An example of showing the predictors of the different trajectory classes in different formats
Note: Reference group is Low Stable

3.5.4.2. Predictors of ADHD medication trajectories

- Those in the stable high trajectory more likely to be economically inactive, lower education qualifications, poorer health, and receive other psychotropics.

	None		Level 1		Level 2		Apprenticeship		Level 3		Other	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Stable high	8.03	(5.73, 11.27)	5.66	(3.71, 8.63)	3.17	(2.24, 4.48)	5.93	(3.64, 9.67)	1.72	(1.19, 2.49)	8.78	(4.52, 17.05)
Increasing	7.22	(4.89, 10.67)	5.98	(3.71, 9.64)	3.09	(2.07, 4.62)	2.89	(1.43, 5.84)	1.66	(1.19, 2.49)	6.30	(2.64, 15.03)
Decreasing	3.98	(2.84, 5.56)	4.59	(3.08, 6.85)	2.73	(1.99, 3.74)	4.71	(2.97, 7.45)	1.35	(0.95, 1.90)	8.23	(4.49, 15.10)

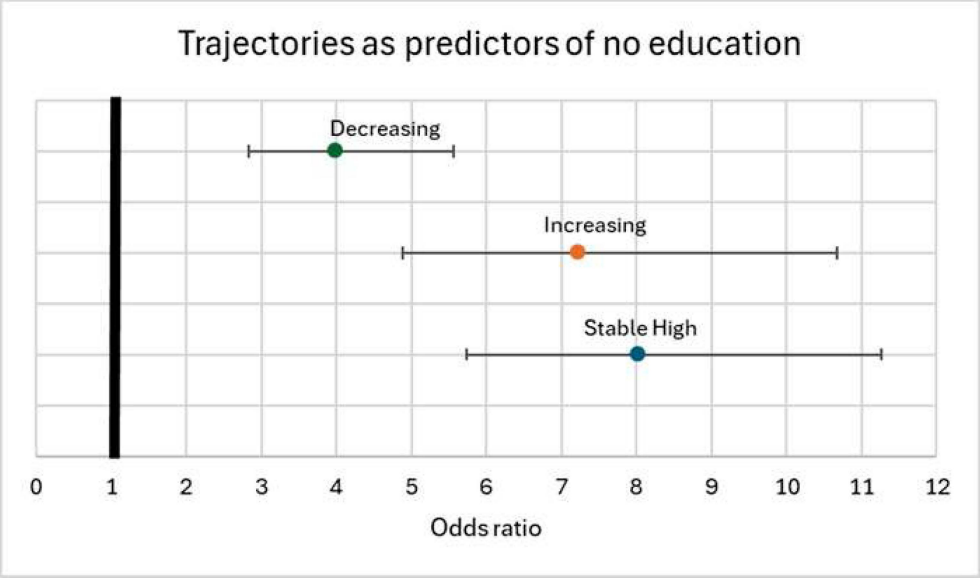


Figure 4.9. An example of showing the outcomes associated with the different trajectory classes in different formats

Note: Reference group is Low Stable

4.6 Limitations

- The NILS covers approximately 28% of the Northern Ireland population and is therefore not a complete population dataset. While broadly representative, findings may not fully reflect prescribing patterns across the entire population.
- Annual measurement of ADHD medication receipt obscures within-year variation in prescribing patterns.
- Deprivation and settlement bands measured in 2017, yet used to predict medication receipt across 2011 and 2020.
- Medication receipt does not equal medication use.
- If the cohort includes only those diagnosed, engaged with services, or captured in administrative records, results may not generalise to undiagnosed individuals or those outside formal care pathways.

4.7 Next steps

This evidence will be presented to our stakeholder members at the second WG meeting to be held at Ulster University, Belfast Campus on 8 May 2026.

4.8 Acknowledgements

The help provided by the staff of the Northern Ireland Longitudinal Study (NILS/NIMS) and the NILS Research Support Unit is acknowledged. The NILS is funded by the Health and Social Care Research and Development Division of the Public Health Agency (HSC R&D Division) and NISRA. The NILS-RSU is funded by the ESRC and the Northern Ireland Government. The authors alone are responsible for the interpretation of the data and any views or opinions presented are solely those of the author and do not necessarily represent those of NISRA/NILS.

The Honest Broker Service data has been supplied for the sole purpose of this project.

4.9 References

Jung, T., & Wickrama, K. A. (2008). An introduction to latent class growth analysis and growth mixture modeling. Social and Personality Psychology Compass, 2(1), 302–317.