Quantifying the Association Between Family Homelessness and School Absence in Wales, UK

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Abstract

Using administrative data linkage, this paper sought to quantify the impacts of family homelessness on pupil absence from school. It addresses a gap in United Kingdom (UK) homelessness research, which draws predominantly on qualitative methods and where there is a greater focus on people who fall outside of the statutory system, i.e., single people living on the streets, rather than families. Education records for the academic years 2012/13 to 2015/16 relating to pupils aged 5 to 15 years old living in a coastal city in Wales, UK, were linked to data on households assessed by the statutory housing service operating across the same region. Analysis of mean half-day sessions absent from school, and Poisson panel regression were used to explore associations between absenteeism (authorised, unauthorised, and total), and whether pupils were living in a household making a statutory homelessness application, i.e., experiencing family homelessness. On average, in any given academic year, pupils experiencing family homelessness (PEFH) missed 5 days more of school than pupils not experiencing family homelessness (PnEFH). Adjusted regression analysis found that the rate of total absence was 7% higher amongst PEFH compared to PnEFH, whilst for unauthorised absence it was 13% higher. When a student experienced family homelessness, this led to an increase in their rate of total absences by 5%—adjusting for other factors—compared to when they were not homeless. Findings have implications for statutory education and housing provision, specifically the need for greater cross-disciplinary working to prevent and alleviate the harms caused when families experience homelessness.

Keywords
Family homelessness; school absenteeism; education; quantitative analysis; Wale

Introduction

Family homelessness is a ubiquitous social issue around the globe. In Wales, of households assessed by local government-operated ('statutory') housing services in 2018-19 who were homeless, roughly 23% (2,664/11,715) were families. An even greater proportion (44%) of households assessed as threatened with homelessness in the same year were families (4,716/10,737) (Welsh Government, 2019). Though data are not collected on the number of children and young people in these households, following the methodology of others (Reynold &

Dzalto, 2019), an estimated 4,662 children were affected by homelessness, whilst 8,253 were threatened with homelessness. Despite these appreciable numbers, very little evidence exists quantifying the impact of experiencing family homelessness and housing precarity on children in Wales and other devolved UK nations (Grimshaw, 2008), part of a larger evidence deficit on the topic in Europe (Baptista et al., 2017; Pleace, 2016).

Homelessness research in the UK is skewed toward qualitative methods (Pleace, 2016).

Where quantitative data collections take place, these are largely designed to meet the needs of campaigning organisations and policymakers, rather than permitting more broader theoretically informed research on the nature of homelessness (Grimshaw, 2008, p.23; Pleace & Quilgars, 2003). Consequently, much of the research quantifying the impact of family homelessness on children originates from the United States (US), facilitated by a richer data landscape, particularly the use of administrative data and data linkage (Culhane et al., 2020; Fitzpatrick & Christian, 2006). This paper, therefore, fills a gap in Welsh and UK quantitative research by focusing on the association between family homelessness and children's absence from school in a single local authority area in Wales, UK.

Absence from school is conceptualized as a manifestation of difficulties faced by children in the family home (Pyne et al., 2021). This conceptual framework is discussed in the background section, along with an overview of mainly US-based literature on the impacts of family homelessness on pupil absenteeism from school. The legislative and policy landscape driving assistance for people experiencing homelessness ('homelessness systems') are outlined and contrasted between the US and Wales in order to situate the need for this study in a Welsh context. The paper then describes the administrative data sets used in this analysis and how they were combined to generate a linked data set of pupils aged between 5 and 15-years old living in the local authority study area and enrolled at state-maintained schools. The results are outlined and discussed in terms of their potential implications for housing and education policy and practice.

Background

A large body of evidence links poor attendance to negative educational outcomes, including lower academic attainment (Aucejo & Romano, 2016; Cattan et al., 2017; Claymore, 2019; Gottfried & Kirksey, 2017). School attendance issues, including early dropout and truancy, have been implicated in a range of studies in the UK as early factors associated with homelessness in adulthood (Bramley & Fitzpatrick, 2018; England et al., 2022; Fitzpatrick et al., 2012; Mabhala et al., 2021). In terms of

devolved education policy in the four UK nations, attendance is conceptualised as affecting education outcomes through missed learning—epitomised in a press release made in 2016 by the then education secretary Nick Gibbs, just one day off can hamper children's life chances (Department for Education, 2016). Improving attendance is therefore viewed as a mechanism for addressing inequalities in education (Claymore, 2019; Welsh Government, 2011).

By contrast, Pyne et al. (2021) suggest that poor attendance at school, particularly unexcused absence, can be a 'signal' of out-of-school conditions experienced by pupils. The harm in excessive absence, they argue, is not missed learning, but difficulties that pupils face outside of school—of which absence is one manifestation. This 'signaling' perspective links in with childhood development literature, where difficult home environments, particularly during early years, can lead to negative coping behaviors and low emotional resilience (Marsh et al., 2020). Negative coping behaviours, in turn, affect the propensity to disengage from school by impacting emotional and cognitive engagement (Garrett-Peters et al., 2019). There is a diverse range of evidence to suggest that the causes and conditions experienced when families are homeless, or threatened with homelessness, are potential sources of difficult home environments.

In addition to the loss of settled accommodation, displacement into temporary accommodations, and the general disruption this may cause to the home/family, the other main reasons given by families approaching statutory housing teams in Wales were domestic violence and the breakdown of relationships (Welsh Government, 2019). These triggers of family homelessness have been found to negatively impact children's emotional development and coping strategies, leading to issues with schooling (Garriga & Pennoni, 2020; Lloyd, 2018; Nusinovici et al., 2018). Parents may also be affected by homelessness in ways that can compound negative schooling outcomes. For example, worries over financial difficulties from rent arrears, loss of their home, or fear of continued domestic violence, may lead to a worsening of parent-child interactions (Bradley et al., 2018; Lindsey, 1998). Though there is evidence of the association between homelessness and pupil absence from school, as

outlined in the following section, the literature from the UK is limited.

The Evidence Gap: Family Homelessness and School Attendance in the UK

UK-based studies exploring associations between family homelessness and school attendance are limited in number and scope to mostly self-reported 'missed schooling'. Rice (2006), using data from the Family and Children survey, found that roughly 23% of children living in 'acutely bad' housing—being homeless, or in overcrowded or unfit accommodation—admitted to skipping school in the past year, compared to 10% of children not in bad housing. Pleace et al. (2008), using random sample surveys of families approaching statutory services in England, found that children missing school were reported for a minority of families (<10%), with truancy being reported by roughly 2% of parent responders. Surveys with children in the same study found that roughly a quarter of children reported missing some school due to moving home.

However, despite the rigorous designs of the UK studies outlined above, families experiencing homelessness may be categorically different from those not experiencing homelessness, and the lack of controls for these factors is problematic when attempting to assess the impact of family homelessness. Furthermore, prevalence rates of self-reported absence and truancy, being so generally defined, fail to provide an indication of the intensity of the effects of homelessness on absences, i.e., number of days/sessions of school absence.

In the US, far greater research has been conducted quantifying the impacts of homelessness on school engagement and outcomes, often using multivariate analyses to control for baseline differences in pupil characteristics (Cowen, 2017; Cutuli, et al., 2013; de Gregorio et al., 2020; Fantuzzo et al., 2012; Low et al., 2017; Pavlakis et al., 2017). Of studies focusing on attendance, homelessness has been found to be associated with higher rates of absences.

For example, Nolan et al. (2013), using adjusted survival analysis of data for a single school district (N = 16,418), found that pupils experiencing homelessness aged 6 to 18 years old

were between 4.91 and 9.00 times as likely to be truant—defined as missing school on 3 or more days without a valid excuse—than 'not-homeless' pupils. Canfield et al. (2016), using data from a Midwestern pupils school district (N = 19,261), found significant differences between pupils experiencing homelessness and the general not-homeless student population at the highest level of economic status—9.19 vs 5.6 days absence, respectively. Similarly, Pavlakis et al. (2020) enumerated the difference in days of absence between pupils experiencing homelessness (n = 27,827) and a matched comparator group among Houston Independent School District pupils, finding that homeless pupils attended 3.2 fewer days of school per year. However, transferring this evidence into a Welsh context may be problematic due to the nature of data underpinning these and other US-based quantitative studies in this field.

As referenced in the introduction, the US has an extensive history in the use of administrative data and data linkage in homelessness research (Culhane et al., 2020). In order to flag pupils experiencing homelessness, researchers in the US often use administrative data from local homelessness management information systems—usually related to placements of people in shelters (Deck, 2017; Fantuzzo et al., 2012)—or data collected by schools as part of statutory requirements to monitor and assist pupils experiencing homelessness (Cowen, 2017; Cutuli et al., 2013; de Gregorio et al., 2020; Nolan et al., 2013; Pavlakis et al., 2020). However, the homelessness system in the US, which leads to these different data sources being generated, differs from that in Wales. These differences are now discussed in greater detail in order to contextualise the US data and evidence derived from it, highlighting possible ways it may diverge from evidence on families experiencing homelessness in Wales.

Contrasting Homelessness Systems in the US and Wales

In the US, the Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act outlines the formation and funding of the Continuum of Care (CoC) Program, though the CoC approach pre-dated the HEARTH act. CoC are collections of

organisations operating across geographic areas, or communities, committed to ending homelessness through the coordination of their activities at the community level (The US Department of Housing and Urban Development [HUD], 2009). The definition of homelessness adopted by HUD in driving federal housing policy, including CoC, has largely focussed on people literally homeless, i.e., unsheltered people on the streets or staying in emergency shelters, and people experiencing entrenched (chronic) homelessness. CoC, and the data they collect at a community level, have therefore evolved around the provision of shelters and hostels as emergency housing solutions for a homeless population framed in terms of being unsheltered—though shifts towards Housing First and Rapid-Rehousing have de-emphasised long-term use of shelters (Pavlakis, 2014). However, shelters have been found to be detrimental places, potentially causing more harm than good (Keenan et al., 2021), with there being some evidence of the acute impacts of shelters on children and young people's education versus other experiences of homelessness.

Deck's (2017) study of children in homeless families found that sheltered pupils had lower attendance, reading, and writing proficiency compared to pupils whose families were "doubled-up", i.e., living with others. Similarly, Herbers et al. (2020), using propensity score matching methods for a multi-city data set of families in the US, found that experiencing literal homelessness in childhood lead to a greater increased odds of poor mental health than being doubled-up. Outcomes of pupils in homeless families in the US may differ markedly from those in Wales, where shelters and hostels are less commonly used as a form of temporary accommodation (compared to private and social rented housing) and are not seen as a reasonable accommodation for long-term occupation (Welsh Government, 2016). This is not to suggest that the temporary accommodation provision in Wales is better for the people living in them, merely different, possibly leading to a different set of disruptions than pupils in the US.

Whereas people in family households experiencing homelessness in Wales have a stronger legal right to both temporary and settled accommodation, in the US, additional legislation generally pays more regard to the wider needs of young people in homeless households. The McKinney-Vento Homelessness Assistance (MVA) Act requires local education authorities (LEAs) to proactively monitor and engage with pupils experiencing homelessness to ensure continuity and access to education. As part of the MVA Act, LEAs are required to have homelessness liaison officers in place to assist personnel in identifying and meeting homeless pupils' needs (US Department of Education, 2016). It is this monitoring data on pupils eligible for assistance under the MVA Act that is used in homelessness research to flag pupils in families experiencing homelessness (e.g., Canfield et al., 2016; Low et al., 2017).

The MVA Act considers a child homeless if they lack a fixed, regular, and adequate night-time residence, i.e., living on the streets, and in shelters, much like HUD's regulatory definition of homelessness. However, distinguishing the MVA Act, is the inclusion of doubling-up in the definition of children experiencing homelessness. Doubling-up is defined as "being forced to share housing with others" (Miller, 2011, p.309) due to the loss of housing, economic hardship, or other similar reasons. By including doubled-up households, this extends the homelessness definition of the MVA Act, bringing it more in line with the broader definition of homelessness underpinning the legislation and homelessness system in Wales.

The Housing (Wales) Act (2014) (HWA) brought into effect legal duties to help prevent homelessness amongst households threatened with homelessness within 56 days. The WHA also restructured duties to help people who were deemed homeless, including a final duty to assist homeless households, which retained the prioritisation of families from older housing legislation. Homelessness has been defined in the HWA as situations where a household does not have accommodation, cannot access their accommodation, or where it would not be acceptable to expect people in the household to inhabit accommodation. Whilst doubling-up may be synonymous with overcrowding, and therefore falls under situations where it would be unacceptable for a household to occupy accommodation under the HWA, this clause also extends to situations of domestic violence, and households facing imminent homelessness,

making the population of families the HWA describes unique.

As Gomm (2004, p.140) notes, administrative data reflect how bureaucratic systems make decisions, document, and ultimately categorise people. Given the differences between the US and Welsh homelessness systems outlined in this section, in the ways they categorise and assist people, and the administrative data they ultimately generate, the populations of families experiencing homelessness described by these systems will differ, along with the disruptions to the home environment these families face. As a result, the size of the effect of family homelessness on educational outcomes in Wales may vary from that found in the US. By undertaking analysis using newly available statutory homelessness administrative data, this study sought to contribute evidence of the impacts of families experiencing homelessness on school absenteeism under the Welsh homelessness system.

Data and Linkage

Analysis was conducted using a linked administrative data set, containing information on children and young people living in a single local authority in Wales and attending an education establishment during the academic years 2012/13 to 2015/16. All administrative data sets were accessed via the Secure Anonymised Information Linkage (SAIL) Databank (Jones et al., 2014). Data held by SAIL are de-identified by assigning each record a linkage key, the Anonymised Linkage Field (ALF), which is a unique number for every person in Wales. Records are assigned an ALF using a combination of deterministic(/exact) and probabilistic matching (Lyons et al., 2009). To reduce potential false matches, i.e., the incorrect information being assigned to an individual, records in this study were retained where the ALF was assigned either based on an exact match or where the probabilistic match rate was >90%.

Deriving the Study Population

The Pupil Level Annual Schools census (PLASc) and Welsh Demographic Service (WDS) were linked to form the e-cohort. The PLASc is a census conducted in January of each academic year of pupils registered with publicly funded schools in Wales. The WDS contains address histories for people registered with a primary-care provider in Wales, along with dates of birth, and death where this has occurred. Addresses in the WDS are anonymised as Residential Anonymous Linking Field's (RALFs) and are provided along with other geographic information. Entries in the PLASc were retained if they related to the academic years 2012/13 to 2015/16, the pupil was aged between 5 and 15 years old at the start of the academic year (1st September), they had not lived outside the Swansea area during the academic year (1st September to 31st July the following year) and were alive on 31st July 2016.

Outcome Measures: Total, Unauthorised, and Authorised Sessions Absent

Counts of total, authorised, and unauthorised half-day sessions absent in an academic year were obtained from the attendance data collection for Wales. Counts of sessions were summed per pupil (ALF) per academic year. Where a pupil did not have an entry in the attendance data collection, their record was removed for that academic year. Absence data also include a count of the total sessions a pupil could possibly be present in school, which was used to remove pupil-year observations where the number of possible sessions was greater than 400 sessions—being the absolute maximum number of sessions a pupil could be in school, factoring in 12 weeks of a yearly cycle missed due to summer holiday and half terms/inter-term breaks.

Authorised absences relate to occasions where a pupil's absence from school has been agreed with the school. Examples of authorised absence include holidays where the absence is agreed upon prior to taking place, medical and dental appointments, and exclusions where no alternative learning arrangement was made. Though at the discretion of the school, guidance suggests that the reason for the absence should be considered, whether the parent gave advance notice, and the pupil's overall attendance pattern (Welsh Government, 2010). Unauthorised absences are those where a valid reason could not be established by the school, ideally within a 2-

week timescale, and include late registration at school and truancy.

Main Independent Variable: Family Homelessness Indicator

Pupils experiencing family homelessness (PEFH), were identified using data relating to households who had made a statutory homelessness application to the City and County of Swansea housing team ('housing team data'). Records within the housing team data were considered in scope for this analysis if the application for support was ongoing at any point during an academic year. An application was said to be from a family if the household type was recorded as either a single parent or couple with dependents, or where the application was deemed to be in a 'priority group' due to the presence of one or more children. All applications for support were used in this analysis, regardless of the legal decision made by the authority regarding the application. This was necessary as the data covered two different legislative periods, and although underlying populations of people applying to the housing team were similar in scale, how the statutory system categorised applicant households differed markedly. For all records in the original housing team data, 4,969 (/16,971) were identified as relating to families, of which 72% (n = 3,578) had a useable ALF match.

RALFs contained in the WDS were used to identify young people living in the same residence as housing support applicants on the date of application. The RALF is based on postcode address data. People resident in a RALF may not therefore belong to a family or household unit. This analysis defined a household unit as people who registered or de-registered as living at a RALF on the same date as the main applicant. The assumption was that these individuals have some form of association, more so than simply living in the same address, and are therefore likely to be homeless along with the main applicant.

An additional method for identifying young people in homeless families used a linkage between the Swansea housing team data and the National Community Child Health Database (NCCHD). The NCCHD contains information related to birth registrations, including mothers'

ALF, and therefore enabled linkage between Swansea housing team records, where the main applicant was female, to biological offspring. As 85% of applications from families had a female lead applicant, the introduction of bias due to the gendered nature of this linkage methodology is likely to be minimal—when combined with the WDS method. This additional approach was adopted as the WDS-method relied on GP registration data being up to date, i.e., that applicants to the housing team and their children were registered with a GP at the same address, which may not have been the case in all instances.

Multivariate Controls

As the characteristics of pupils experiencing family homelessness (PEFH) were likely to differ from those of pupils not experiencing family homelessness (PnEFH), various control variables were generated, which captured a range of pupil, schooling, and area characteristics. Controls were chosen based on previous literature and exploratory analysis, which suggested that these variables were either associated with absence from school and/or experiencing family homelessness (see Cutuli et al., 2013; Hutchings et al., 2013; Klein et al., 2020; Sosu et al., 2021). Control variables included age, gender, ethnicity, Special Educational Needs (SEN), Free School Meal (FSM) eligibility as a measure of family socio-economic status, area deprivation measured using the 2014 Welsh Index of Multiple Deprivation (WIMD), school type (primary or secondary school), exclusions from school within the academic year, and frequency of moving home in the academic year. The WIMD is a measure of the relative deprivation of areas in Wales, usually expressed as a rank. However, quartiles are used in this analysis.

Pupil characteristics, including gender, ethnicity, SEN, and FSM eligibility, were derived from the PLASc, whilst a separate data collection pertained to exclusions. The WDS was used to generate counts of house moves in an academic year (1st September to 31st July the following year), defined as registering as living at a new RALF. A binary indicator was set to one where the pupil had experienced two or more house moves/new registrations, and zero otherwise. The WDS contains geographic information for the area within which a RALF is situated, which

was used to assign the WIMD 2014 quartile for the RALF the pupil was living in on 1st January each academic year.

Analytical Methods

Descriptive Statistics and Initial Group Comparisons

The characteristics of PEFH and PnEFH were summarised through proportions and means for the multivariate control variables for each academic year, which included: age, gender, ethnicity, SEN status, FSM eligibility, school type, WIMD quartile, and frequent house moves. Due to disclosure reasons (i.e., low cell counts), ethnicity had to be re-coded as white vs other (including unknown), whilst descriptive statistics for exclusions could not be provided.

Mean total, authorised, and unauthorised sessions absent were calculated for PEFH and PnEFH for each academic year. 95% confidence intervals are provided for means as a measure of dispersion. Welch's t-tests were used to explore the statistical significance of differences in means between study groups in each academic year. Following group-level analysis, regression analyses were conducted to examine the individual-level effects of experiencing family homelessness on rates of sessions absent, controlling for other factors that may influence attendance, whilst taking advantage of the longitudinal nature of the data.

Poisson panel regression models were chosen to predict sessions absent as it produces less biased regression coefficients when predicting count data—in this case, counts of half-day sessions absent—than Ordinary Least Squares regression (Hutchinson & Holtman, 2005). Fixed Effects (FE) and Random Effects (RE) panel regression were run with robust standard errors. RE regression enabled an assessment of the differences in half-day sessions absent between pupils based on experiencing family homelessness. With FE regression, pupils are compared to themselves at different points in time, thereby enabling an assessment of the effects of a family becoming homeless on the pupils' absence from school, and therefore, some indication of a causal link.

Unadjusted and adjusted FE and RE regressions were run predicting counts of total, authorised, and unauthorised half-day sessions absent. Adjusted regressions were used to control for baseline differences between PEFH and PnEFH. Table 1 summarises the variables included in each of the unadjusted and adjusted FE and RE regressions. Because FE regressions explore within person change over time, adjusted FE analysis did not include the time-invariant variables gender and ethnicity. WIMD 2014 deprivation quartile was also not included in FE regressions as it measures area deprivation at a static point in the academic year, which would ignore movement between areas in the intervening time-period.

Poisson Panel Regression

Table. 1
Variables Included in Fixed and Random Effects Poisson Regression Models

	Random Effects		Fixed Effects	
	Unadjusted	**Adjusted**	**Unadjusted**	**Adjusted**
Main independent variable:				
Family homelessness	x	x	x	x
Controls:				
Age		x		x
Female		x		
Ethnicity		x		
Secondary School		x		x
Special Educational Needs		x		x
Free School Meal eligible		x		x
Moved house (2+ times)		x		x
Excluded in year		x		x
2014 WIMD quartile		x		

The total number of possible sessions absent from school can vary by school and year group, thereby affecting rates by changing the denominator. Poisson regressions, therefore, included total possible sessions in school as an 'exposure' variable, i.e., the number of sessions a pupil was exposed to school and could potentially have been absent.

The effects of independent variables on the rate of total, authorised, and unauthorised half-day sessions absent are presented using Incidence Rate Ratios (IRR). If IRR = 1, or the 95% CI for the IRR estimate crosses 1, there is no effect of a characteristic on the rate of half-day sessions absent compared to the reference characteristic. IRR > 1 indicates that the characteristic increases the rate of absence, whilst IRR < 1 would indicate a reduced rate of absence. Unadjusted IRR and adjusted IRR (aIRR) are reported. Where significance tests were used, the cut-off value was $p \leq 0.05$ for considering an effect statistically significant.

Analysis covered 35,263 unique pupils, or 105,355 pupil-year observations over the four academic years, 2012/13 to 2015/16. Roughly 2% of pupils in any given academic year had experienced family homelessness—505 in 2012/13, 495 in 2013/14, 487 in 2014/15, 446 in 2015/16. Table 2 provides breakdowns of pupil and area characteristics for each academic year, split by homelessness status. In summary, PEFH were more likely to be from socio-economically deprived households (i.e., FSM eligible) and were over-represented in more deprived areas. PEFH also appear to be more mobile than PnEFH, in terms of the proportion of pupils moving residence two or more times in the academic year. SEN rates were approximately 10% points higher amongst PEFH compared to PnEFH. Finally, there were small but consistent differences in ethnicity between PEFH and PnEFH, with the proportion of people from a non-white ethnic background being roughly 4% points in each academic year.

Results

Table. 2

Cohort Characteristics by Academic Year and Whether Pupil Had Experienced Family Homelessness (PEFH) Or Not (PnEFH)

		2012/13		2013/14		2014/15		2015/16	
		PnEFH	PEFH	PnEFH	PEFH	PnEFH	PEFH	PnEFH	PEFH
Age, single year (S.D.)		10.4 (3.2)	9.9 (3.2)	10.3 (3.2)	10 (3.3)	10.3 (3.2)	9.6 (3.2)	10.3 (3.2)	9.8 (3.3)
Gender									
	Male	13271 (51.5)	252 (49.9)	13230 (51.2)	251 (50.7)	13245 (51.3)	249 (51.1)	13334 (51.3)	219 (49.1)
	Female	12506 (48.5)	253 (50.1)	12600 (48.8)	244 (49.3)	12586 (48.7)	238 (48.9)	12650 (48.7)	227 (50.9)
Ethnicity, n (%)									
	White	23524 (91.3)	443 (87.7)	23526 (91.1)	431 (87.1)	23432 (90.7)	427 (87.7)	23471 (90.3)	389 (87.2)
	Non-white	2253 (8.7)	62 (12.3)	2304 (8.9)	64 (12.9)	2399 (9.3)	60 (12.3)	2513 (9.7)	57 (12.8)
SEN status, n (%)									
	Yes	18834 (73.1)	321 (63.6)	18542 (71.8)	285 (57.6)	18336 (71.0)	294 (60.4)	18624 (71.7)	267 (59.9)
	No	6943 (26.9)	184 (36.4)	7288 (28.2)	210 (42.4)	7495 (29.0)	193 (39.6)	7360 (28.3)	179 (40.1)
FSM eligibility, n (%)									
	Yes	20608 (79.9)	239 (47.3)	20880 (80.8)	220 (44.4)	20914 (81.0)	214 (43.9)	21113 (81.3)	213 (47.8)
	No	5169 (20.1)	266 (52.7)	4950 (19.2)	275 (55.6)	4917 (19.0)	273 (56.1)	4871 (18.7)	233 (52.2)
School type, n (%)									
	Primary	13821 (53.6)	310 (61.4)	14170 (54.9)	301 (60.8)	14266 (55.2)	316 (64.9)	14378 (55.3)	274 (61.4)
	Secondary	11956 (46.4)	195 (38.6)	11660 (45.1)	194 (39.2)	11565 (44.8)	171 (35.1)	11606 (44.7)	172 (38.6)
WIMD quartile, n (%)									
	1st / most deprived	8065 (31.3)	253 (50.1)	8160 (31.6)	253 (51.1)	8233 (31.9)	264 (54.2)	8346 (32.1)	214 (48)
	2nd	5498 (21.3)	118 (23.4)	5467 (21.2)	121 (24.4)	5452 (21.1)	114 (23.4)	5454 (21.0)	133 (29.8)
	3rd	3786 (14.7)	73 (14.5)	3812 (14.8)	70 (14.1)	3763 (14.6)	53 (10.9)	3792 (14.6)	52 (11.7)
	4th / least deprived	8428 (32.7)	61 (12.1)	8391 (32.5)	51 (10.3)	8383 (32.5)	56 (11.5)	8392 (32.3)	47 (10.5)
Frequent house moves, n (%)									
	Yes	25670 (99.6)	480 (95.0)	25707 (99.5)	475 (96)	25746 (99.7)	472 (96.9)	25867 (99.5)	424 (95.1)
	No	107 (0.4)	25 (5.0)	123 (0.5)	20 (4.0)	85 (0.3)	15 (3.1)	117 (0.5)	22 (4.9)
Total, n (%)		25777 (98.1)	505 (1.9)	25830 (98.1)	495 (1.9)	25831 (98.1)	487 (1.9)	25984 (98.3)	446 (1.7)

Across all academic years, PEFH had higher mean sessions absent than PnEFH for all types of absence, with these differences being statistically significant (Table 3). Furthermore, the mean levels of authorised absences were greater than unauthorised absences in all academic years. The

difference in mean total sessions absent between PEFH and PnEFH was 11.6 in 2012/13, 10.3 in 2013/14, 13.5 in 2014/15 and 10.4 in 2015/16. The difference in mean unauthorised sessions absent between PEFH and PnEFH was 4.6 in 2012/13, 4.4 in 2013/14, 5.1 in 2014/15, and 5.8 in 2015/16.

The difference in mean authorised sessions absent between PEFH and PnEFH had a greater degree of variability year-on-year than other absence types and was 7.0 in 2012/13, 5.9 in 2013/14, 8.4 in 2014/15, and 4.6 in 2015/16.

Table. 3

Mean Sessions Absent from School by Whether Pupils Experienced Family Homelessness, With Statistical Tests of Significance for Differences Between Means

		Experiencing family homelessness	Mean (95% CI)	Test statistic & p-value
Total absences	2012/13	No	24.3 (24.1 - 24.6)	t(x) = -8.977; p < 0.001
		Yes	35.9 (33.4 - 38.4)	
	2013/14	No	20.2 (20 - 20.5)	t(x) = -7.983; p < 0.001
		Yes	30.5 (28 - 33.1)	
	2014/15	No	18.6 (18.4 - 18.9)	t(x) = -10.058; p < 0.001
		Yes	32.1 (29.5 - 34.7)	
	2015/16	No	18.2 (18.0 - 18.5)	t(x) = -7.454; p < 0.001
		Yes	28.6 (25.9 - 31.4)	
Unauthorised absences	2012/13	No	2.6 (2.4 - 2.7)	t(x) = -5.698; p < 0.001
		Yes	7.2 (5.6 - 8.8)	
	2013/14	No	4.3 (4.2 - 4.4)	t(x) = -5.165; p < 0.001
		Yes	8.7 (7.0 - 10.4)	
	2014/15	No	3.9 (3.8 - 4.0)	t(x) = -6.019; p < 0.001
		Yes	9 (7.4 - 10.7)	
	2015/16	No	4.1 (4.0 - 4.3)	t(x) = -5.519; p < 0.001
		Yes	9.9 (7.9 - 12.0)	
Authorised absences	2012/13	No	21.8 (21.5 - 22.0)	t(x) = -7.373; p < 0.001
		Yes	28.7 (26.9 - 30.6)	
	2013/14	No	15.9 (15.7 - 16.1)	t(x) = -6.742; p < 0.001
		Yes	21.8 (20.1 - 23.5)	
	2014/15	No	14.7 (14.5 - 14.9)	t(x) = -8.601; p < 0.001
		Yes	23.1 (21.2 - 25.0)	
	2015/16	No	14.1 (13.9 - 14.3)	t(x) = -5.653; p < 0.001
		Yes	18.7 (17.1 - 20.3)	

The following discussion outlines the findings of RE and FE Poisson panel regression analyses. For ease of presentation, Table 4 provides only the Incidence Rate Ratios (IRRs) and adjusted Incidence Rate Ratios (aIRRs) for the effect of experiencing family homelessness on sessions absent from school in RE and FE regression models. The effect size for RE models gives an indication of between group differences in sessions absent from school, i.e., rates for PEFH compared PnEFH. Effect sizes for FE models give a within person difference measure, i.e., an indication of the effect that becoming family homeless has on a pupil's absence rate. FE models therefore seek to provide some causal

evidence of the effects of family homelessness on the rate of sessions absent from school.

Unadjusted RE models found that PEFH had higher rates of all forms of absence compared to PnEFH, though the effect of family homelessness on rates of unauthorised absence was greater than authorised and total absence ($IRR_{total} = 1.08$; $IRR_{unauthorised} = 1.13$; $IRR_{authorised} = 1.06$). The effect of family homelessness was significant for all types of absence ($p \leq 0.05$). After adjustment, the effect size of experiencing family homelessness remained roughly similar, though rates were reduced by 1% for total and authorised absence ($aIRR_{total} = 1.07$; $aIRR_{authorised} = 1.05$) and remained the same for unauthorised absence ($aIRR_{unauthorised} = 1.13$). Effect sizes remained significant after adjustment ($p \leq 0.05$).

Unadjusted FE models found that when a pupil experienced family homelessness, this increased their rate of absence from school across all absence types, by 6%, 10%, and 5% for total, unauthorised, and authorised absences respectively ($IRR_{total} = 1.06$; $IRR_{unauthorised} = 1.10$; $IRR_{authorised} = 1.05$). The unadjusted effect size of experiencing family homelessness on change in pupil absence reached significance for total and authorised absence ($p \leq 0.05$). After adjustment, the effect size for family homelessness remained relatively unchanged for total and unauthorised sessions absent ($aIRR_{total} = 1.05$; $aIRR_{unauthorised} = 1.11$), with the effect decreasing by 2% points in terms of authorised absence ($aIRR_{authorised} = 1.03 < IRR_{authorised} = 1.05$). However, the effect size for family homelessness only reached significance for total absences ($p \leq 0.05$).

Table. 4

Effect Size (IRR/aIRR, 95% CI) of Experiencing Family Homelessness on Rates of Half-Day Sessions Absent from School, by Effect Type and Adjustment for Background Characteristics

	Total absences	Unauthorised absences	Authorised absences
Between group effects (RE):			
Unadjusted	1.08*	1.13*	1.06*
	(1.03 - 1.12)	(1.01 - 1.26)	(1.02 - 1.11)
Adjusted	1.07*	1.13*	1.05*
	(1.03 - 1.12)	(1.01 - 1.26)	(1.01 - 1.09)
Within person effects (FE):			
Unadjusted	1.06*	1.10	1.05*
	(1.02 - 1.11)	(0.98 - 1.24)	(1.00 - 1.09)
Adjusted	1.05*	1.11	1.03
	(1.01 - 1.10)	(0.99 - 1.24)	(0.99 - 1.08)

* $p \leq 0.05$

Discussion and Policy Implications

Consistent with the literature from the US and Europe on the origins of family homelessness in poverty (Baptista et al. 2017; Grimshaw, 2008; Shinn 2010), PEFH were more likely to originate from socio-economically deprived households and to live in more deprived areas compared to PnEFH. There was also a higher prevalence of SEN statementing amongst PEFH compared to PnEFH. These factors, on their own, are associated with school disengagement (Lereya et al., 2022; Sosu et al., 2021). The finding that PEFH had higher absences compared to PnEFH,

indicated by both the comparison of means and unadjusted RE Poisson regression models, possibly reflects these between group differences.

An important finding of this study was that differences in rates of absence between PEFH and PnEFH remained after RE models were adjusted. The rate of absences changed by roughly 1% point across all absences, thereby giving greater confidence that the family homelessness indicator was capturing something other than baseline differences in pupil characteristics between PEFH and PnEFH. The results of the adjusted FE regressions, which controlled for time-variant factors—and where all other individual characteristics are accounted for by

comparing the person to themselves over time—adds support for a causal link between experiencing family homelessness and absence from school. However, not all absences appeared to be affected to the same degree.

The effect of experiencing family homelessness was greater on rates of unauthorised than authorised absence—$aIRR_{unauthorised} = 1.13 > aIRR_{authorised} = 1.05$ in adjusted RE regression, and $aIRR_{unauthorised} = 1.11 > aIRR_{authorised} = 1.03$ in adjusted FE models. This acute effect on unauthorised absence could be interpreted as a signal that homelessness disrupts the home environment leading to greater levels of pupil disengagement in the form of truancy, i.e., pupils purposefully missing school. However, taking a more critical approach, unauthorised absences are an administrative label assigned to any absence where the school and parents/guardians cannot agree that the absence should be validly excused. The distinction between authorised and unauthorised absence, therefore, may not reflect pupil behaviours, instead being an indicator of parental attitude towards schooling. For example, Broadhurst et al.'s (2005) study of children missing from school systems found that for families who had become temporarily mobile and socially dislocated, schooling was de-prioritised. Parents of children experiencing family homelessness may therefore become disengaged from schooling processes; leading to absences being recorded as unauthorised.

The study's consistent finding of higher rates of all absence types among PEFH compared to PnEFH provides some evidence that family homelessness in Wales is disruptive to children's and young people's engagement with schooling. Though local authorities are advised to develop protocols and processes between education and housing departments (Welsh Government, 2017, p.36), as noted by Grimshaw (2008, p.113), 'Housing authorities and [Local Education Authorities] do not have a good track record of working together'. Greater statutory provisions bringing together education and housing, drawing on the example of the MVA Act in the US, could therefore help minimise the disruption to pupil learning caused by family homelessness. However, the MVA Act largely works to ameliorate the structural issues within the education system that can disrupt learning when

families experience homelessness, such as school catchment areas precluding students from attending if they are forced to move home to another area. Working within a framework of attendance as a signal of disruption within the home suggests that to truly help pupils, then a family's homelessness needs to be directly addressed in order to prevent disruption in the first instance, or if a household become homelessness, undertake actions to limit its duration and negative effects.

The recent proposal in the Welsh Government's (2021) action plan on ending homelessness to adopt 'rapid rehousing'—though ill-defined as to what rapid means—has the potential to limit the disruption caused by long duration homelessness and use of unsuitable temporary accommodations. Furthermore, housing and education services could take advantage of duties to co-operate under the HWA, to strengthen cross-sector work with families to maintain or improve parental engagement with their children's education—a strategy that shows promising evidence of having a positive impact on educational outcomes (See & Gorard, 2015).

In Wales, assistance for families experiencing homelessness or threatened with homelessness largely occurs after the household presents to a housing team. Higher rates of absence amongst PEFH implies that schools could provide a site for the detection and early prevention of family homelessness, for example, based on indications of pupil disengagement such as absenteeism. This form of family homelessness prevention could sit alongside and complement current school-based 'Upstream' homelessness prevention efforts being piloted in Wales framed around the prevention of 'youth homelessness' (MacKie et al., 2021), i.e., young people living apart from their families of origin. Extending Upstream may require slight changes to the package of interventions available to suit families experiencing homelessness, for example, to include improving parental engagement in schooling.

Study Benefits and Limitations

Currently, there is no centralised individual level data collection on statutory homelessness in Wales. Access to such data requires negotiations

with individual local authorities. The availability of administrative data from the City and County of Swansea housing team meant that population level analysis could be conducted, whilst controlling for baseline differences between pupils based on their experience of family homelessness. However, acquiring the Swansea housing team data took roughly two years. Resource limitations meant that it was not feasible to acquire the remaining 21 local authority housing team data sets to achieve coverage of Wales. Though individual level statutory homelessness data exist in other UK nations, these data are beset by issues that make their current use in replication studies problematic. For example, at the time of writing, the Scottish Government lack personal data necessary to onward link the homelessness data they hold; whilst in England, only a subset of local authorities have agreed to allow the use of their data in data linkage-based studies—and the data linkage process is in a nascent form.

A limitation inherent to the use of administrative data for research is that, by definition, they are generated when people interact with services. In the context of homelessness research, biases may arise when people intentionally avoid certain organisations, leading to their under-representation in administrative data (Thomas & Tweed, 2021). However, during the time-period covered in this analysis, Wales' statutory homelessness system prioritised households with dependents. As a result, it can be assumed that families would be less likely to purposefully avoid such statutory services—given their prioritisation—thereby potentially limiting their under-representation in this study.

This study's use of FE regression provided important evidence related to the causal impact of experiencing family homelessness on a pupils' absence from school, thereby addressing a key criticism of UK-based quantitative homelessness research: that there is a preponderance of cross-sectional compared to longitudinal analyses (Grimshaw, 2008, p.23). However, FE regression measures within-person change, and either large sample sizes or long periods of observation are required to capture these changes. Data limitations in the current study meant that the observation period was relatively short at four academic years, with 82% of pupils in the study

being observed over 2 or more academic years. With more local authorities and/or more years of observation, this would increase the number of changes in homelessness status observed, improving the power of FE models.

An issue with all data linkage studies relates to missed linkages and incorrect linkages. Whereas this study was able to limit the impact of incorrect linkages by choosing ALF-matches with a high probability of accuracy, 1,391 records relating to families making a statutory homelessness application were not assigned an ALF. It is unlikely that estimates for PnEFH are biased by the potential inclusion of PEFH who could not be flagged due to a missing ALF. Missed linkages could be a potential source of bias for estimates for PEFH if pupils with missed linkages had low levels of absence. However, as international evidence points towards an association between homelessness and absence, it is unlikely that the general patterns will be reversed or nullified, though the effect size may be reduced.

Conclusion

This study is unique to the UK research literature in linking statutory homelessness service and education data, enabling a population level analysis quantifying the effect of experiencing family homelessness on absence from school. Its main finding—pupils in families experiencing homelessness had greater levels of absence than pupils not experiencing family homelessness—is consistent with the US-based literature. However, making use of the longitudinal nature of the statutory data, this article's contribution is in highlighting a potential cause-effect relationship between a pupil's family becoming homelessness and increased rates of absence from school. Overall, evidence would suggest that limiting the disruption of homelessness on the family and home environment should receive greater attention from policy and practice to improve attendance, but, more importantly, limit the harms that homelessness and housing precarity have on pupil's emotional and developmental wellbeing—of which absence from school may be one manifestation. Future research would benefit from repeating this study in other local authority areas in Wales and other devolved nations in the

UK, to boost sample sizes and account for local area effects. However, this type of data linkage will not be possible unless advances are made across devolved UK nations to collect and make accessible homelessness administrative data for linkage-based research.

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