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► To cite this version:

Anna Pearce, Leah Li, Jake Abbas, Brian Ferguson, Hilary Graham, et al.. Does childcare influence socio-economic inequalities in unintentional injury? Findings from the UK Millennium Cohort Study. *Journal of Epidemiology and Community Health*, 2010, 64 (2), pp.161-n/a. 10.1136/jech.2009.092643 . hal-00499245

HAL Id: hal-00499245

<https://hal.science/hal-00499245>

Submitted on 9 Jul 2010

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Does childcare influence socio-economic inequalities in unintentional injury? Findings from the UK Millennium Cohort Study

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Word count- 2999

ABSTRACT

Background

In recent decades the proportion of infants and young children being cared for in childcare has increased. Little is known about the impact that non-parental care has on childhood unintentional injury and whether this varies by socio-economic group.

Methods

Using data from a contemporary UK cohort of children at age 9 months (N=18,114) and 3 years (N=13,718), we used Poisson regression to explore the association between childcare type (parental, informal, formal) and the risk of unintentional injury, overall and by socio-economic group.

Results

At age 9 months there was no overall association between childcare and injury. However, when stratifying the analyses, infants from higher socio-economic groups were less likely to be injured if they were cared for in formal childcare (compared to being cared for only by a parent), whereas those from lower social groups were more likely to be injured. At age 3 years informal childcare was associated with an increased risk of injury overall; in the stratified analyses this increased risk occurred only in less affluent groups. Formal childcare was no longer associated with injury at age 3 in any strata.

Conclusions

Previous findings have shown that childcare can have a positive influence on childhood injury; however, a recent UNICEF report highlighted that a lack of access to high quality childcare could lead to a widening of inequalities. Our analyses indicate that childcare does have the potential to widen inequalities in injury; further research is required to understand why childcare has a differential impact on unintentional injury and how this might be prevented.

Keywords- childcare, childhood injury, socio-economic inequalities, public policy

INTRODUCTION

Female employment has increased dramatically¹. Approximately 80% of 3-6 year-olds and 25% of under threes living in OECD (Organisation for Economic Co-operation and Development) countries are now cared for in early childhood education or childcare settings². An assessment of formal childcare in these countries highlighted the potential for childcare to become a new and potent source of inequality, if children from more affluent families benefit from high quality childcare whilst those from disadvantaged backgrounds are at risk of harm from lower quality childcare². Under the UK government childcare strategy, free early years education places are available to all children aged 3-4 years for 12.5 hours a week, being extended to 15 hours a week by 2010³. There are also plans to extend a free entitlement of 10 hours a week to 2 year-olds living in the most deprived areas in England⁴.

Formal childcare (childcare delivered through public, private or voluntary institutions such as nurseries or childminders⁵) can have a beneficial effect on children's learning and development^{6:7} as well as on long term outcomes such as crime and teenage pregnancy rates^{7:8}. Less is known about the impact childcare may have on physical health, including unintentional injury⁷. Formal childcare might decrease the risk of injury through providing safer environments. It may also promote safety awareness in mothers of young children through health education. A small number of studies have explored the impact of childcare upon unintentional injury, and in general they have indicated that the risk of unintentional injury was lower when in childcare⁹⁻¹². However, all of these studies were based outside the UK and few have explored informal childcare (care by relatives, friends or neighbours, often on an unpaid basis)⁵. Furthermore, despite unintentional injury being one of the most socially patterned causes of disability and ill health in children^{13:14}, no studies have explored whether childcare has a differential impact on

injury according to socio-economic background.

We explored the association between formal and informal childcare and unintentional injury (referred to only as injury hereafter) and whether it differed by socio-economic group in a recent cohort of preschool children.

METHODS

Participants

We examined data from the Millennium Cohort Study (MCS), a longitudinal study of children born in the UK between September 2000 and January 2002. The first contact with the cohort was at age 9 months, when information was collected (usually from the mother) on 72% of those approached, giving 18,296 singleton infants¹⁵. Of the original 18,296 singleton infants, 14,630 (80%) took part in the second sweep when the children were approximately 3 years old. Further information about the data collection and survey design can be found elsewhere^{15,16}. Ethical approval was received from the South West and London Multi-Centre Research Ethics Committees¹⁷.

Our analysis excluded children of respondents who were not natural mothers, leaving a sample size of 18,259 infants at age 9 months and 14,434 at 3 years. Of these, 18,114 (99%) infants had information on both childcare and injuries at age 9 months and 13,718 (95%) at 3 years.

Measures of childcare

Mothers were asked about their main childcare arrangement and other childcare arrangements they had regularly used between the child's birth and age 9 months and between age 9 months and 3 years. If the main childcare type given was 'parent' but an

additional arrangement involved non-parental childcare, then this additional childcare type was used in order to assess any regular exposure to non parental childcare. Childcare type was classified as 'parent' if the infant was only cared for by the mother, father or the mother's partner; 'informal' if they were also cared for by a friend, neighbour, grandparent or other relative, babysitter or unregistered childminder; and 'formal' if they were cared for in a nursery or childcare centre, or by a registered childminder, nanny or au-pair. In cases where the main childcare type stopped and been replaced, the childcare which the child had been in for the longest duration was used.

Measures of injury

Infants were classified as having been injured if their mother reported them being taken to a general practitioner (GP) or a hospital Accident and Emergency department (A&E) as the result of an injury one or more times between birth and 9 months and between 9 months and 3 years of age. Whether the injuries occurred in childcare or elsewhere was not reported.

Measures of socio-economic background

Measures of socio-economic background were chosen to represent both the household and area in which the child lived. Social class of the mother was assessed using the National Statistics Socio-economic Classification (NS-SEC) at the first sweep, collapsed into three categories: managerial and professional, intermediate, and routine and manual occupations. Mothers who were long term unemployed or had never worked were excluded from the analyses stratified by NS-SEC but were included in all other analyses. Maternal education, again collected at the first sweep, was classified according to the highest educational qualification achieved. Mothers who had 'other' qualifications, such as qualifications from overseas, were excluded from the analyses

stratified by maternal education. Lone parenthood was categorised as being a lone mother or being part of a couple household at both surveys. Finally, area deprivation was explored using the Index of Multiple Deprivation (IMD) 2004 measured at the Super Output Area (SOA) level¹⁸. Infants in the MCS were classified, using their home postcode at the first and second sweeps, according to the national deprivation quintiles.

Analysis

The following analyses were conducted at the two time points. We estimated the percentage uptake of childcare (parent, informal, formal) and also the percentage of children who had attended a GP or A&E due to an injury. Poisson regression was then used to estimate risk ratios (RR) for being injured according to whether children were regularly cared for in informal or formal childcare, compared to those who were cared for only by a parent. The child's gender and age, maternal age at first live birth, the mother's ethnicity, and the number of children living in the household were explored as potential confounders. Those which were significantly associated with both childcare type and injury were included in the adjusted analyses.

The analyses were repeated for each stratum of the socio-economic measures to explore whether the association between childcare and injury varied in different socio-economic groups. All analyses were conducted in STATA/SE 10.0 (Stata Corporation, TX), using survey commands to take into account the sampling design and attrition at the second sweep. Data were obtained from the UK Data Archive, University of Essex in April 2008.

RESULTS

Description of the cohort

At age 9 months almost half of infants were cared for only by a parent; by 3 years this had fallen by one fifth (Table 1). Approximately one third were cared for in informal childcare at age 9 months and this declined slightly by age three. Formal childcare use increased between the two sweeps. Between birth and age 9 months 8.1% of infants, and between 9 months and 3 years just over one third, had been taken to a GP or A&E for an injury. Most reported attending a GP or A&E for an injury only once.

Table 1- Childcare uptake, injury and socio-demographic characteristics at age 9 months and 3 years

	9 months		3 years	
	%*	N	%*	N
Main childcare since birth/ last contact				
Parent	49.7	9,096	40.6	5,681
Informal	34.6	6,649	31.1	4,449
Formal	15.7	2391	28.3	3,621
Injured since birth/ last contact?				
No	91.9	16,794	64.4	9,270
Yes	8.1	1,443	35.6	5,108
<i>1 time</i>	7.7	1373	27.5	3,914
<i>2 times</i>	0.3	59	5.8	858
<i>3 times+</i>	0.1	11	2.3	336
<i>Hospitalised</i>	0.5	95	2.3	330
NS-SEC				
Managerial & Professional	26.3	4,742	28.7	4,087
Intermediate	20.5	3,684	21.3	3,033
Routine & Manual	42.5	7,660	41.0	5,841
L/T unemployed/never worked	10.7	1,925	9.1	1,297
Maternal education				
Degree or above	15.7	2,858	17.1	2469
Diploma	8.4	1,522	9.1	1317
A levels	9.3	1,694	9.8	1408
GCSE A-C	33.5	6,092	33.7	4855
GCSE D-G	10.8	1,955	10.6	1524
None	19.5	3,544	17.2	2471
Other qualifications	2.9	528	2.5	359
Lone parenthood				
Couple family	82.8	15,117	83.7	12081
Lone parent	17.2	3,142	16.3	2353
Area Deprivation (quintiles)				
Least deprived	12.3	1,397	15.6	1,447
2nd quintile	13.3	1,510	15.1	1,367

3rd quintile	17.1	1,944	18.1	1,637
4th quintile	21.8	2,472	20.8	1,887
Most deprived	35.5	4,027	30.1	2,729
Ethnicity				
White British	82.1	14,945	83.9	12,086
Other white	1.9	341	1.8	260
Mixed	1.0	188	0.9	126
Indian	2.6	473	2.5	365
Pakistani or Bangladeshi	6.9	1,254	6.2	897
Black or Black British	3.5	629	2.9	417
Other	2.1	381	1.8	252
Maternal age (years)				
14-19	21.0	3,696	19.0	2,665
20-24	28.5	5,024	27.4	3,832
25-29	27.8	4,886	28.9	4,049
30-34	17.5	3,088	19.1	2,677
35-39	4.7	831	5.1	720
40 plus	0.5	81	0.5	63
Number of children in household				
1 child	42.0	7,673	41.5	5,992
2-3 children	49.8	9,099	50.7	7,313
4 or more children	8.1	1,487	7.8	1,129

*Percentages are weighted for childcare and injury so that they can be extrapolated to the UK. All other percentages are unweighted in order to demonstrate the socio-economic characteristics of the Millennium Cohort Study members. Missing at 9 months: injury 22, childcare 123, NS-SEC 245, maternal education 66, area deprivation 2, maternal age 653, ethnicity 48. Missing at 3 years: injury 9, childcare 683, NS-SEC 176, maternal education 31, area deprivation 1, maternal age 428, ethnicity 31.

Table 1 also contains the un-weighted socio-demographic characteristics of the MCS, which is as expected given the sampling design, with larger proportions from less affluent backgrounds than seen in the UK population.

Table 2 provides unadjusted and adjusted RRs for reported injury by childcare type, at age 9 months (columns B and C) and 3 years (columns E and F), overall and stratified by social group.

Table 2- Association between main childcare type and reported injury at age 9 months and 3 years: unadjusted, adjusted and stratified risk ratios (RR) (95% CIs)

Childcare	Age 9 months			Age 3 years		
	% (N) injured A	Unadjusted RR B	Adjusted RR** C	% (N) injured D	Unadjusted RR E	Adjusted RR** F
Overall association						
Parent	8.2 (709)	1	1	34.8 (1953)	1	1
Informal	8.4 (542)	1.03 (0.91, 1.17)	0.93 (0.81, 1.06)	37.4 (1651)	1.07 (1.00, 1.15)*	1.05 (0.98, 1.13)
Formal	7.5 (188)	0.92 (0.77, 1.11)	0.89 (0.73, 1.08)	35.0 (1268)	1.00 (0.93, 1.08)	1.03 (0.95, 1.11)
Stratified associations						
NS-SEC						
<i>Managerial & Professional</i>						
Parent	9.0 (136)	1	1	33.2 (287)	1	1
Informal	8.1 (123)	0.89 (0.69, 1.16)	0.82 (0.63, 1.05)	33.8 (442)	1.02 (0.87, 1.19)	0.99 (0.85, 1.15)
Formal	6.6 (111)	0.73 (0.55, 0.97)*	0.67 (0.50, 0.90)*	33.1 (571)	1.00 (0.88, 1.13)	0.98 (0.87, 1.11)
<i>Intermediate</i>						
Parent	8.7 (132)	1	1	34.6 (320)	1	1
Informal	6.6 (106)	0.76 (0.57, 1.02)	0.70 (0.52, 0.93)*	35.6 (409)	1.03 (0.90, 1.17)	1.03 (0.90, 1.17)
Formal	8.2 (41)	0.95 (0.64, 1.40)	0.87 (0.59, 1.29)	35.0 (267)	1.01 (0.85, 1.20)	1.01 (0.86, 1.20)
<i>Routine & Manual</i>						
Parent	8.4 (375)	1	1	37.1 (1073)	1	1
Informal	9.6 (273)	1.15 (0.95, 1.38)	1.04 (0.86, 1.26)	41.4 (727)	1.12 (1.02, 1.22)*	1.09 (1.00, 1.20)*
Formal	12.5 (31)	1.50 (1.03, 2.17)*	1.47 (1.01, 2.14)*	40.6 (362)	1.09 (0.98, 1.23)	1.11 (0.99, 1.25)
Maternal education						
<i>GCSE A-C plus</i>						
Parent	9.0 (466)	1	1	34.7 (1099)	1	1
Informal	8.4 (381)	0.93 (0.80, 1.08)	0.85 (0.73, 0.98)*	38.0 (1284)	1.09 (1.00, 1.19)*	1.08 (0.99, 1.18)
Formal	7.0 (166)	0.78 (0.64, 0.95)*	0.76 (0.62, 0.94)*	34.4 (1029)	0.99 (0.91, 1.08)	1.03 (0.93, 1.13)
<i>GCSE D-G or less</i>						
Parent	6.8 (228)	1	1	35.6 (794)	1	1
Informal	8.7 (153)	1.27 (0.99, 1.62)	1.14 (0.89, 1.45)	35.9 (345)	1.01 (0.89, 1.14)	0.95 (0.84, 1.08)
Formal	15.6 (19)	2.28 (1.45, 3.56)*	2.18 (1.37, 3.46)*	39.4 (217)	1.10 (0.96, 1.27)	1.07 (0.93, 1.24)
Lone parenthood						
<i>Couple family</i>						
Parent	7.9 (530)	1	1	33.7 (1569)	1	1
Informal	8.1 (440)	1.03 (0.90, 1.19)	0.91 (0.79, 1.05)	36.7 (1372)	1.09 (1.01, 1.17)*	1.06 (0.98, 1.14)
Formal	7.4 (173)	0.94 (0.77, 1.15)	0.87 (0.71, 1.08)	33.9 (1041)	1.01 (0.93, 1.09)	1.02 (0.93, 1.10)
<i>Lone parent</i>						
Parent	9.5 (179)	1	1	40.3 (384)	1	1
Informal	10.2 (102)	1.07 (0.78, 1.47)	1.01 (0.74, 1.39)	40.9 (279)	1.02 (0.88, 1.18)	1.01 (0.88, 1.18)
Formal	8.5 (15)	0.89 (0.51, 1.54)	0.99 (0.57, 1.74)	40.9 (227)	1.02 (0.88, 1.17)	1.08 (0.94, 1.25)
Area deprivation[^]						
<i>Least deprived</i>						
Parent	8.6 (55)	1	1	31.1 (133)	1	1
Informal	8.6 (31)	1.00 (0.66, 1.53)	0.92 (0.61, 1.40)	27.5 (95)	0.88 (0.71, 1.11)	0.87 (0.69, 1.09)
Formal	6.8 (26)	0.79 (0.50, 1.24)	0.75 (0.47, 1.18)	31.8 (186)	1.02 (0.85, 1.23)	1.04 (0.86, 1.26)

<i>2nd quintile</i>							
Parent	8.4 (55)	1	1	32.4 (139)	1	1	
Informal	6.4 (32)	0.76 (0.50, 1.18)	0.68 (0.44, 1.04)	34.8 (143)	1.07 (0.88, 1.31)	1.08 (0.88, 1.32)	
Formal	7.4 (26)	0.89 (0.56, 1.41)	0.83 (0.52, 1.33)	34.1 (165)	1.05 (0.87, 1.27)	1.04 (0.86, 1.27)	
<i>3rd quintile</i>							
Parent	7.4 (67)	1	1	35.5 (210)	1	1	
Informal	7.6 (51)	1.03 (0.71, 1.48)	0.89 (0.61, 1.30)	39.6 (202)	1.12 (0.95, 1.31)	1.09 (0.92, 1.28)	
Formal	5.5 (16)	0.74 (0.43, 1.28)	0.62 (0.34, 1.11)	36.2 (152)	1.02 (0.85, 1.22)	1.00 (0.84, 1.20)	
<i>4th quintile</i>							
Parent	8.9 (106)	1	1	37.2 (250)	1	1	
Informal	10.4 (91)	1.17 (0.88, 1.56)	1.07 (0.80, 1.43)	40.3 (246)	1.08 (0.93, 1.26)	1.09 (0.94, 1.27)	
Formal	9.1 (23)	1.02 (0.65, 1.61)	1.01 (0.63, 1.62)	36.5 (151)	0.98 (0.82, 1.17)	1.05 (0.88, 1.26)	
<i>Most deprived</i>							
Parent	7.4 (159)	1	1	34.1 (481)	1	1	
Informal	10.2 (114)	1.38 (1.08, 1.77)*	1.22 (0.94, 1.58)	42.1 (238)	1.23 (1.08, 1.41)*	1.15 (1.00, 1.31)*	
Formal	10.3 (18)	1.38 (0.81, 2.35)	1.36 (0.79, 2.34)	36.8 (170)	1.08 (0.92, 1.26)	1.05 (0.89, 1.23)	

*P<0.05. ** Adjusted for maternal age, ethnicity, family size. ^Analyses include children living in England only.

Missing at 9 months: injury 22, childcare 123, NS-SEC 245, maternal education 66, area deprivation 2, maternal age 653, ethnicity 48. Missing at 3 years: injury 9, childcare 683, NS-SEC 176, maternal education 31, area deprivation 1, maternal age 428, ethnicity 31.

Association between childcare and injury at age 9 months

At age 9 months there was no overall association between childcare and injury in the unadjusted (column B) or adjusted analysis (column C). However, this concealed significant associations which were seen when stratifying by social group. Among infants whose mothers were from the managerial and professional group, those who were cared for in formal childcare were less likely to be injured than those who were cared for only by a parent, and this association strengthened after controlling for confounders. In intermediate groups children cared for in informal childcare had a reduced risk of injury after controlling for confounders. Infants from the routine and manual group who were cared for in formal childcare were more likely to be injured than those being cared for only by a parent. Similarly, infants whose mothers had higher levels of education and were cared for in formal and informal childcare were less likely to be injured, whereas those whose mothers were less educated were more likely to be injured if they were

cared for in formal childcare. There were no associations in the analyses stratified by lone parenthood status. Infants living in the most deprived fifth of areas in England were more likely to be injured if they were cared for in informal childcare, although the association was no longer significant after controlling for confounders.

Association between childcare and injury at age 3 years

At age 3 years informal childcare was associated with a slight increased risk of injury (column E), although this was no longer statistically significant after controlling for confounders (column F). However, in the stratified analyses this elevated risk seen in informal childcare reappeared in certain groups. Children whose mothers were from routine and manual backgrounds and those living in the most deprived fifth of areas in England were more likely to have been injured since the age of 9 months if they were cared for in informal childcare. Children living in couple families and whose mothers were educated to GCSE A-C level and above who were cared for in informal childcare were also more likely to be injured compared to children cared for only by a parent, although these elevated risks were not significant after controlling for confounders.

DISCUSSION

Summary of findings

Overall, childcare use was not associated with the risk of injury at age 9 months. However, when stratifying by socio-economic background, childcare appeared to have a protective effect against injury for those from higher socio-economic groups and a detrimental effect for those from lower social groups. At age 3 years informal childcare was associated with a small increased risk of injury. In the stratified analyses the increased risk of injury remained only for children from lower socio-economic backgrounds. There was no difference in risk for children cared for in formal childcare

compared to those cared for only by a parent. There were no associations when stratifying by lone parenthood status.

Strengths and limitations

The data from the MCS allowed us to differentiate between informal and formal childcare, to explore the association between childcare and injury in different socio-economic groups and to control for a range of potential confounding factors, using a large sample size in a contemporary UK setting. We used survey and response weights to take into account the sampling design and differential response between the two sweeps. Although there was no significant difference in injury rates at age 9 months between children who did not respond to the second sweep and those who did (un-weighted risk difference of 0.48% (95% CI -0.52, 1.47%)), infants who did not take part in the second sweep were more likely to be cared for only by a parent (6.5% (4.7, 8.3)) and less likely to be cared for in formal childcare (-5.3 (-6.4, -4.3)).

Injury was based on maternal report of the child having attended a GP or A&E, therefore injuries for which no professional advice was sought have not been explored.

Attendance at a GP or A&E does not give an indication of the seriousness of the injury. It is possible that the propensity to seek professional advice about injuries, or to recall them, may vary by socio-economic background. Studies have shown a reasonable to high level of agreement between maternal recall of injury and medical records, with no differences by socio-economic characteristics¹⁹⁻²¹. However evidence suggests that parents from more advantaged backgrounds are more likely to take their child to A&E for minor injuries than those from less advantaged backgrounds^{22;23}. If such biases exist in the MCS and if they operate differently according to childcare type, then it is possible that the associations we have found may be confounded.

We were not able to determine whether the injuries occurred when in childcare.

Therefore, we were unable to establish whether childcare influenced the risk of injury for the time when the child was in childcare, or if health education occurring in the childcare setting influenced risk taking behaviours elsewhere or safety within the home. Whilst most studies have compared the incidence of injury in childcare to the incidence of injury at home⁹⁻¹¹, one US study found that the children who attended childcare centres had a slightly reduced risk of being injured anywhere¹². This implies childcare has an influence through health education.

We used a simple categorisation of informal and formal childcare. For example nannies and au pairs were classified as formal childcare, although they might be considered informal carers. We investigated the main childcare type used across the periods in question; approximately one third of mothers using informal or formal childcare used at least one additional childcare arrangement (either with the main childcare type or as a replacement) and our analyses have not taken this into account. We repeated our analyses excluding children who attended more than one type of childcare and also excluding nannies and au pairs and the associations were little changed (data not shown). Finally socio-economic status may have changed between the two sweeps, therefore underestimating the associations in the stratified analyses.

Comparison with other findings

Several studies found that the risk of injury was lower in children cared for in formal childcare compared to those cared for at home. A US study from the mid-1980s recording injuries using telephone surveys found that, in children aged 18-59 months, rates of injury were significantly lower in childcare (defined as any out-of-home childcare)

than at home¹¹. A Norwegian study using hospital registration data found formal childcare to be protective for children aged 2 years or less, although not for those aged 3-6¹⁰. One US study, like ours, explored the risk of injury occurring anywhere (based on maternal report) according to childcare use and found that children who were cared for in registered childcare centres were less likely to be injured than those who were only cared for at home¹². However, another US study conducted in the 1980s using surveillance data on injuries in children aged 5 years and under found that rates of injury were consistently lower in childcare than at home, in all age groups (in 1 year intervals), although none reached statistical significance⁹. Our study also found that children cared for in formal childcare at age 9 months and 3 years were not significantly less likely to be injured. These inconsistencies might be explained by the different age groups or time periods in which the observations were made.

At age 3 we found that informal childcare was associated with a small increased risk of injury. This contradicts previous findings from two studies exploring informal childcare in the US in the 1990s; the first found that children cared for in family based childcare settings (mostly unlicensed) had lower rates of injury¹², whilst the second study which sought to explore whether care by grandparents increased the risk of injury in young children concluded that it did not²⁴.

It has been hypothesised that increasing childcare use may widen inequalities due to higher socio-economic groups being able to afford higher quality childcare^{2;6}. Our study is the first, to our knowledge, to have explored the association between childcare and childhood injury in different social groups, and our findings go some way to support this hypothesis. It is possible that the overall beneficial effect of childcare observed in

previous studies is explained by more affluent study samples. Future studies should explore the effects of childcare for different groups.

The differential associations we have found might be explained by infants from poorer households experiencing lower quality formal childcare than those from more affluent backgrounds. Information on childcare quality was not available in the MCS so we were unable to test this hypothesis. Studies which have explored formal childcare quality found no overall association with injury in children aged 2-6 years²⁵ and 6 months to 5 years¹², although no study to our knowledge has focussed on the issue of quality specifically in infants. Alternatively, the differential associations might be explained by variations in the ability of families to transfer the health promoting benefits of childcare to the home and other settings. Further research into formal childcare quality and injury in infants could add to this debate.

Implications for policy and practice

Our analyses and findings from existing literature imply that childcare can reduce injuries occurring both in childcare and elsewhere. We have shown that the association of childcare with injury varies by social group. Increasing the number of infants cared for in formal childcare without addressing the factors that may be causing these differential effects, such as quality and affordability, could widen inequalities in injury. This requires further research.

The UK government's proposal to improve education and training for childcare staff³ could help to raise the standard of formal childcare received by infants from lower socio-economic groups, and therefore has the potential to reduce inequalities in infant injury. Current proposals to extend the provision of free childcare places to two-year-olds living

in deprived areas⁴ may help to equalise the quality of formal childcare received by this younger age group, although our findings suggest that extending this provision to infants may also help to reduce inequalities in injury. The government's move to increase the proportion of childminders who are registered³ might reduce the detrimental impact of informal childcare upon injury in children from lower socio-economic groups, by decreasing exposure to informal (or unregulated) childcare. Efforts focussed on increasing awareness and improving the safety of home environments of informal carers living in more deprived areas and poorer households could have a beneficial effect for children cared for by friends, neighbours and relatives.

WHAT THIS PAPER ADDS

What is already known on this subject?

- There has been a dramatic increase in childcare use in recent decades. There is some evidence to suggest that the risk of unintentional injury is lower when in childcare, however little is known about the impact that childcare might have on unintentional injury in different social groups.

What does this study add?

- Childcare use was associated with an increased risk of injury for infants from disadvantaged backgrounds and a reduced risk for those from more affluent backgrounds. Childcare therefore has the potential to widen inequalities in injury; further research is required to understand why these differential effects might be occurring.

COMPETING INTERESTS

All authors have no competing interests to declare.

ETHICS

Ethics approval was not required for this study since it was conducted using secondary data.

ACKNOWLEDGEMENTS

We would like to thank all the Millennium Cohort families for their participation, and the director of the Millennium Cohort Study and colleagues in the management team at the Centre for Longitudinal Studies, Institute of Education, University of London.

FUNDING

This work was undertaken as part of the Public Health Research Consortium. The Public Health Research Consortium is funded by the Department of Health Policy Research Programme. The views expressed in the publication are those of the authors and not necessarily those of the Department of Health. Information about the wider programme of the PHRC is available from www.york.ac.uk/phrc. The Centre for Paediatric Epidemiology and Biostatistics was supported in part by the Medical Research Council in its capacity as the MRC Centre of Epidemiology for Child Health. Leah Li is funded by a Medical Research Council Career Development Award in Biostatistics. Research at the University College London Institute of Child Health and Great Ormond Street Hospital for Children receives a proportion of the funding from the Department of Health's National Institute for Health Research Biomedical Research Centres funding scheme. The Millennium Cohort Study is funded by grants to Professor Heather Joshi, Director of the study, from the Economic and Social Research Council and a consortium of government funders. The study sponsors played no part in the design, data analysis and

interpretation of this study, the writing of the manuscript, or the decision to submit the paper for publication, and the authors' work was independent of their funders.

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