Babywalkers: prevalence of use and relationship with other safety practices

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Abstract

Objective—To examine the prevalence of walker use, and to compare sociodemographic factors, perceptions of the risk of injury and of household hazards, and safety practices in families by walker use. **Setting**—36 primary care practices across Nottingham, UK.

Method—Postal questionnaire to all parents of children aged 3–12 months registered at each practice (n=2152) to assess safety practices, perceptions of risk of injury, and of the risk associated with household hazards and sociodemographic factors. Data were analysed using χ^2 tests for categorical data, Mann-Whitney U tests for ordinal data, and logistic regression analysis.

Results—The response rate was 74%. Fifty per cent of parents used babywalkers. Receipt of means tested benefits (odds ratio (OR) 1.42, 95% confidence interval (CI) 1.02 to 1.99), non-owner occupation (OR 1.46, 95% CI 1.04 to 2.04), residence in a deprived area (OR 1.42, 95% CI 1.06 to 1.91), and unemployment (OR 0.64, 95% CI 0.41 to 0.99) were independently associated with use of walkers. Families using babywalkers were less likely to use stair gates ($\chi^2 = 4.36$, 1df, $p=0.037$), fireguards ($\chi^2 = 6.80$, 1df, $p=0.009$), and had a higher total number of unsafe practices (Mann-Whitney U test, $Z = -2.90$, $p=0.004$). Perceptions of risk of injury and of the risk associated with household hazards however, did not differ by walker use.

Conclusions—Babywalker use is common across all social groups and is associated with other unsafe practices such as not using stair gates or fireguards. Health professionals should support campaigns to limit the sale of babywalkers, but, in addition, they should ascertain each family's reasons for walker use and try to find acceptable alternatives. They should also make the family aware of the importance of properly fitted stair gates and fireguards and help the family to obtain and use such items of safety equipment.

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Keywords: babywalkers; safety practices; socioeconomic status

High rates of babywalker use in families with infants have been found in several recent studies, although none of these studies report findings from the UK.^{1–4} Rates of use range from 55% in a sample of attenders at child health

clinics for developmental assessment at 9 months of age in Dublin¹ to 92% among 1 year old infants in seven private practices in the US.² Several studies have demonstrated the risks associated with walker use. Parents report walker associated injury rates of between 12% and 50%.^{2–7} A prospective study in Virginia, US calculated an annual incidence of walker related injuries resulting in an emergency department attendance to be 8.9 per 1000 children,⁸ of which 1.7 per 1000 were serious injuries. Similar rates were found among attenders at a university hospital in Athens: 16 injuries per 1000 user years, or 3.5 injuries per 1000 babies per year.⁹ Falls down stairways or steps are the most common mechanism of injury,^{3 5 8–12} and that most often associated with serious injury.^{8 11 12} Walkers have also been implicated in burns and poisonings.^{8 9 12–18}

Previous studies have suggested that parents do not perceive walkers as dangerous,^{3 7 11} and that even the occurrence of a walker related injury does not prevent future use in the same child or siblings.^{2 3 11} Moreover, parents report benefits of walker use, for example keeping the child quiet, providing enjoyment, believing the walker to be “good for the baby”, encouraging mobility, providing exercise, and more worryingly, keeping the infant safe!^{3 7 11}

In view of the lack of data regarding walker use in the UK this study was undertaken to examine the prevalence of such use, the characteristics of families using walkers, their perceptions of the risk of the most common walker related injuries, and their associated safety practices and safety equipment possession and use.

Method

Data were collected as part of a larger data collection for the Nottingham Safe at Home project. This is a primary care based childhood unintentional injury prevention evaluation study. A questionnaire was designed to assess safety practices, safety equipment possession and use, perceptions of risk of injury and the risk associated with household hazards, knowledge and confidence in dealing with first aid, sociodemographic factors, and history of previous injury. The questionnaire used, wherever possible, questions validated in previous studies.^{19 20}

The questions on perceived risk of injury had two dimensions: perceived likelihood of an injury occurring and the perceived seriousness of an injury. The questions on perceived risk associated with hazards, also had two dimensions: perceived likelihood of an injury involving a hazard and perceived degree of danger associated with the hazard. Scales for

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Table 1 Prevalence of sociodemographic factors and history of previous injury among parents responding to questionnaire regarding babywalker use

Risk and sociodemographic factors	Frequency (%)
Receipt of benefits	508 (31.9)
Non-ownership of car	313 (19.6)
Overcrowding*	141 (8.8)
Residence in a deprived area†	222 (13.9)
Ethnic group non-white	102 (6.4)
Maternal age <20 at birth of first child	239 (15.0)
Single parenthood	189 (11.9)
Previous injury	90 (5.6)
Non-owner occupation	516 (32.4)
Four or more children in family	116 (7.3)
Unemployment of one or both parents	171 (10.7)

*Overcrowding defined as more than one person per room excluding bathrooms and kitchens less than 2 m wide.

†Residence in a deprived area defined as living in a ward with a Jarman score above 30.

perceptions of the risk of injury and of hazards were calculated by the method described by Glik and colleagues.¹⁹

Cronbach's α coefficient was calculated to assess internal consistency of these scales.²¹ For the scale for perceived risk of injury it was 0.77, and for perceived risk of hazard it was 0.85. The questionnaire was also subjected to a test-retest procedure with 53 parents attending a child health clinic at a practice not taking part in the study. Twenty six parents (49%) completed the test-retest procedure. κ Coefficients²² for the questions on sociodemographic characteristics and history of previous injury ranged from 0.87 to 1.00, and for all questions on safety practices, except one, ranged from 0.70 to 1.00.

The questionnaire was mailed to all parents or guardians of children aged between 3 and 12 months registered at 36 practices across Nottingham (n=2152). The questionnaire was mailed with a covering letter signed by the child's general practitioner and an offer of a £2 gift voucher for a local children's store on

receipt of the completed questionnaire. Non-responders were sent a reminder after two weeks, and a second questionnaire was sent to parents still not responding after a further two weeks. Health visitors identified families for whom English was not their first language or who they considered may need help interpreting the questionnaire. Trained interpreters carried out structured interviews with these families using the same questionnaire.

All questionnaires were pre-coded and data entered into the Epi-Info package and verified by repeated entry. Data were analysed using SPSS for Windows.²³ Deprivation was measured at the ward level by the Jarman score.²⁴ Categorical data were analysed using χ^2 tests and ordinal data using Mann-Whitney U tests. Logistic regression analysis was undertaken to assess the independent effect of sociodemographic variables.

Results

The response rate to the questionnaire was 74% (1594).

Eight hundred and four (50.4%) parents reported using a babywalker occasionally or often. The prevalence of sociodemographic characteristics and history of previous injury is shown in table 1. Walker use was more common in families with a range of risk factors for childhood unintentional injury, as shown in table 2. Families without access to regular help with child care (for example family, friends, child-minder, nursery, etc) were not more likely to use a walker than families with such help (odds ratio (OR) 0.81, 95% confidence interval (CI) 0.62 to 1.05). Logistic regression analysis demonstrated that receipt of benefits, non-owner occupation, and residence in a deprived area were all independently associated with walker use. However, the ORs, and the lower 95% CI in each case, were close to 1. Families where one or both parents were unemployed were less likely to use a walker, however, the upper 95% CI was very close to 1. The adjusted ORs for sociodemographic factors and history of previous injury are shown in table 2.

Families reporting walker use were significantly more likely to report a range of unsafe practices (table 3), and a larger number of unsafe practices (Mann-Whitney U test, $Z = -2.90$, $p=0.004$), than families not reporting walker use.

Mann-Whitney U tests demonstrated that families using babywalkers did not perceive head injuries ($Z = -0.92$, $p=0.36$), fractures ($Z = -1.57$, $p=0.11$), bruises ($Z = -0.47$, $p=0.64$), burns or scalds ($Z = -1.78$, $p=0.08$) to be more likely to occur than families not using a walker, but parents using walkers perceived lacerations to be less likely ($Z = -2.96$, $p=0.003$). There were no differences in the perceived seriousness of these injuries, except for fractures and lacerations, with parents using walkers perceiving both fractures ($Z = -2.35$, $p=0.02$) and lacerations ($Z = -3.18$, $p=0.002$) to be more serious than families not using babywalkers. Despite walker using families being less likely to have a stair

Table 2 Odds ratios (ORs) and adjusted ORs for babywalker use by sociodemographic factors and history of previous injury

Risk and sociodemographic factors	OR (95% CI)	Adjusted OR (95% CI)
Receipt of benefits	1.66 (1.34 to 2.06)	1.42 (1.02 to 1.99)
Non-ownership of car	1.77 (1.37 to 2.28)	1.20 (0.82 to 1.76)
Overcrowding*	1.25 (0.88 to 1.77)	0.94 (0.57 to 1.54)
Residence in a deprived area†	1.61 (1.29 to 2.02)	1.42 (1.06 to 1.91)
Ethnic group non-white	0.95 (0.64 to 1.43)	0.70 (0.40 to 1.21)
Maternal age <20 at birth of first child	1.98 (1.49 to 2.64)	1.39 (0.96 to 2.00)
Single parenthood	1.85 (1.35 to 2.54)	0.87 (0.54 to 1.41)
Previous injury	1.07 (0.70 to 1.63)	0.88 (0.54 to 1.42)
Non-owner occupation	1.84 (1.48 to 2.28)	1.46 (1.04 to 2.04)
Four or more children in family	1.25 (0.86 to 1.83)	0.96 (0.60 to 1.55)
Unemployment of one or both parents	1.21 (0.88 to 1.69)	0.64 (0.41 to 0.99)

*Overcrowding defined as more than one person per room excluding bathrooms and kitchens less than 2 m wide.

†Residence in a deprived area defined as living in a ward with a Jarman score above 30.

Table 3 Self reported safety practices among families using, and those not using babywalkers

Safety practice	Families using walker (%)	Families not using walker (%)	Significance
Uses duvet in baby's bed	413 (51.5)	263 (33.9)	$\chi^2 = 49.6$, 1df, $p<0.001$
Uses pillow in baby's bed	143 (17.8)	59 (7.8)	$\chi^2 = 37.0$, 1df, $p<0.001$
Uses dummy on string round baby's neck	151 (18.8)	99 (12.8)	$\chi^2 = 10.8$, 1df, $p=0.001$
Does not use stair gate*	117 (14.6)	86 (11.1)	$\chi^2 = 4.36$, 1df, $p=0.037$
Does not use fireguard*	162 (20.2)	118 (15.2)	$\chi^2 = 6.80$, 1df, $p=0.009$
Drinks hot drinks while holding baby	233 (29.0)	359 (46.1)	$\chi^2 = 49.5$, 1df, $p<0.001$
Reports leaving baby alone on high surface	99 (12.3)	129 (16.6)	$\chi^2 = 5.89$, 1df, $p=0.015$

*Families without a gas, electric, or open fire were excluded from the analysis of fireguard use. Families without stairs were excluded from the analysis of stair gate use.

gate or fireguard, they did not perceive injuries involving stairs ($Z = -0.22$, $p=0.822$) or fireplaces to be more likely ($Z = -0.14$, $p=0.893$). Similarly, they did not perceive stairs ($Z = -0.80$, $p=0.423$) and fireplaces ($Z = -1.24$, $p=0.215$) to be more dangerous.

Discussion

The results of this study suggest babywalker use is common among parents of infants in Nottingham, and its prevalence is similar to that found in attenders at a child health clinic in Dublin¹ but lower than that found in the US, Canada, or Singapore.²⁻⁴ Although some socio-demographic factors have been demonstrated to be associated with walker use, the strength of these associations are not great. Parents with walkers do not perceive the types of injury associated with their use to be more likely or more serious. Similarly, they do not perceive the parts of the home most commonly associated with walker related injuries to be more dangerous or to be more likely to be implicated in injuries to their children. They were also less likely to use stair gates and fireguards and to report a higher number of unsafe practices. Twenty one statistical tests were undertaken comparing safety practices, perceptions of risk and walker use, hence the possibility of a significant result arising by chance should be considered when interpreting these results.

Although the response rate to this survey was high, and responders were similar in socio-demographic characteristics to the population of Nottingham described in the 1991 census,²⁵ it is possible that non-responders may have differed in their likelihood of walker use, hence the estimate of prevalence may be inaccurate. The prevalence found in this study was, however, similar to that found by Laffoy and colleagues in attenders at a child health clinic in Dublin,¹ but non-attenders at the clinic may have also differed in their rate of walker use.

The finding in this study, of only weak associations between babywalker use and socio-demographic characteristics, confirms the report by Thein and colleagues⁴ and suggests that babywalker use may be prevalent across all social groups. In terms of injury prevention, interventions therefore need to be addressed to the whole population.

This study also suggests that families with walkers do not see their children as more at risk from the types of injury most commonly associated with walkers. This supports findings from previous research that suggests that families do not perceive walkers as dangerous.^{3 7 11} However, even when families are aware of the risks, such awareness may not deter use. Two thirds of children who suffered a walker related injury continued to be placed in walkers after their injury.¹¹ This suggests that simply making parents aware of the risks associated with walkers is unlikely to be an effective strategy for reducing use. If parents are aware of the risks, but continue to use a walker, there must be strong reasons for them to do so. The previous studies that examined attitudes towards walker

use found parents gave reasons such as keeping the child quiet and happy, they "used it for an older sibling", enjoyment, encouraging mobility, providing exercise, and even that it kept the child safe.^{3 7 11} If walkers are being used for "baby sitting" or to provide parents with some freedom from continuous child care, parents are likely to continue to use them unless alternatives can be found that fulfil the same function. Playpens may be one such alternative, and are not associated with a high rate of injury.²⁶

The finding that families using babywalkers undertake a higher number of unsafe practices and are less likely to have a stair gate or fireguard, indicates that walker use is not an unsafe practice that occurs in isolation. Reider and colleagues found that stair gates were only present in one third of stairway walker related falls,¹¹ and despite a fall down stairs, fewer than half of the homes without a stair gate had acquired one two months later. This being so, in terms of prevention, walker use should be addressed in the wider context of injury prevention. Families using walkers need to be made aware of the importance of properly fitted stair gates and fireguards and helped to obtain and use them.

Interestingly, families not using walkers were more likely to drink hot drinks while holding their baby and to report having left their child alone on a high surface. These findings may reflect activities parents undertake instead of placing their child in a walker, for example holding their child more frequently or for longer periods of time, or placing their child on a high surface instead of in a walker. Recommending playpens, may therefore also be an appropriate prevention strategy for parents not currently using walkers.

Implications for prevention

There have been repeated calls for a ban on babywalker manufacture and sale,^{1 5 13 27} and as health professionals we should support such campaigns. However, such a ban, were it to be introduced, would not have an immediate effect due to the large number of walkers in the population and the tendency for families to use them with subsequent children.^{2 3 11} Consequently other measures are also needed. Health professionals should inquire about walker use as part of their routine child health surveillance programme and discuss with parents, in as sensitive a manner as possible, their reasons for use of a walker. They must then attempt to address the needs currently being met by walkers in other ways, for example by recommending playpens. These could be included in local safety equipment schemes, or even be provided in return for trading in a babywalker. The use of playpens instead of babywalkers could also be promoted in antenatal classes, and could be suggested as gifts instead of walkers.

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FALLING OUT OF A WINDOW.

How important that those who have the charge of children should be constant in their attendance upon them, and ever on the alert lest some accident befall them. They always have a great desire to get upon the window-seats and look out, and hundreds of children are killed every year from leaning out of windows. They over-balance themselves, and then all the world cannot save them. What feelings of pity run through us as we behold the situation of this poor girl! In another moment she may be dashed upon the rocky pavement below, to be picked up by her affectionate parents a mangled corpse. What horror is depicted on her countenance as she looks forward to the impending ruin! But we hope that the calamity may be averted by the fortunate appearance of the chamber-maid, in whose care she was left, and who criminally neglected her charge.

From *The Book of Accidents; Designed for Young Children*, New Haven, 1830.