EFFECTS OF DISPOSABLE DIAPER USAGE ON DEFECATION DYSFUNCTION IN CHILDREN AGED 2 TO 6 YEARS: A RETROSPECTIVE EPIDEMIOLOGICAL STUDY

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HYPOTHESIS / AIMS OF STUDY

DD (disposable diapers, DD) refers to disposable diapers and other infant products of the same category. DD was once voted by the US magazine "Time" as one of the 100 greatest inventions of the 20th century.

In the past two decades, with the rapid development of China's economy and the implementation of the second birth policy, it has been widely used in baby care. There is currently debate about the duration of DD use in infancy and the start of toilet training. Previous studies have confirmed that DD use is associated with increased prevalence of urinary control disorders such as enuresis in children [1-2], but its impact on the prevalence of defecation dysfunction in children has not been reported [3-4].

This study retrospectively investigated 6030 children aged 2-6 years with DD use and defecation control to explore the relationship between DD use and the prevalence of defecation dysfunction in children.

METHODS

The methods of stratified sampling and random sampling were used to extract 6030 2 ~ 6 years old children from 30 kindergartens in 6 districts of Shenzhen, Guangdong province and Zhengzhou , Henan province in China.

The form of anonymous questionnaire was used to investigate the age, sex, the use of DD and the length of use, and whether they could complete the defecation and start independently. Time, the existence of defecation dysfunction (constipation, fecal incontinence, rectal prolapse, etc.).

Inclusion criteria: Children aged 2 to 6 years with normal physical examination results.

Exclusion criteria: 1. meningocele, spinal cord hernia and appendectomy dysplasia , other congenital nervous system malformations and surgical history 2.congenital anorectal malformation, megacolon and phylopathies, anorectal trauma, anal fistula and surgical history 3.other diseases that are unknown but may affect the development of defecation function.

Diagnostic criteria for functional constipation in children (Rome III): 1.weekly bowel movements ≤ 2 times; 2.at least 1 fecal incontinence per week after you can control bowel movements (can not control bowel movements at will, rectal contents are involuntarily discharged); 3.have a history of stool retention; 4.have a history of pain or difficulty in bowel movements; 5.a large amount of fecal mass in the rectum; 6.huge feces enough to block the toilet outlet. At least 2 of the above symptoms occur in children under 4 years of age and can be diagnosed within 1 month. Children over 4 years of age meet ≥ 2 for more than 2 months and have at least 1 episode per week [5] .

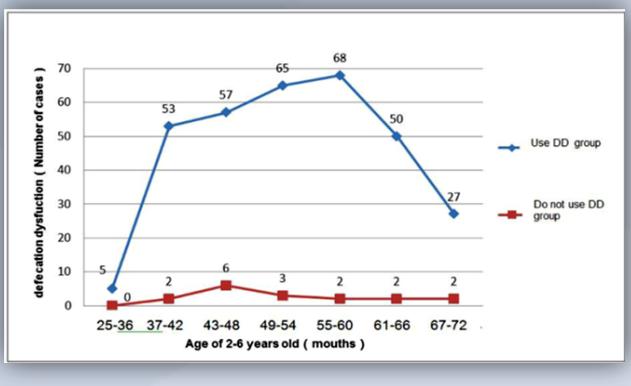
The $\chi 2$ test was used to compare the prevalence of defecation dysfunction in different genders and different DD use groups. Two independent samples were used to compare the t test DD and the non-DD group to control the defecation age.

RESULTS

1. In this study, 6030 questionnaires were actually distributed, 5,310 were collected, and 5,207 valid questionnaires (effective rate 86.35%). There were 2638 males (50.66%) and 2569 females (49.34%), Table 1.
2. A total of 4577 cases using diapers in early childhood (4577/5207, 87.9%); there was no significant difference in the usage rate and duration of diapers between male and female ($p>0.05$).
3. A total of 342 (342/5207,6.6%)cases of defecation dysfunction disorders were diagnosed in 5207 children aged 2 to 6 years, 325 cases using diapers and 17 cases without using diapers, the difference between the two groups was statistically significant ($p<0.001$).
4. Among the 342 cases of defecation dysfunction disorders, 206 cases of constipation (206/342, 60.2%), 93 cases of fecal incontinence(93/342, 27.2%), 43 cases of rectal prolapse (43/342, 12.6%).

Table 1 Distribution of gender composition of children aged 2-6 years

Age（year）	Use DD		Non-use DD		Total(n=)
	male	female	male	female	
2～	28	27	3	3	61
3～	760	735	85	87	1667
4～	883	855	112	120	1970
5～	660	629	107	113	1509
Total(n=)	2331	2246	307	323	5207



CONCLUSIONS

The defecation dysfunction is common in preschool children. The long-term use of DD and lack of defecation training after birth is a risk factor for preschool children's defecation dysfunction, which should cause social concern.

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