

Epidemic investigation on permanent tooth caries in 15-year age children in Anhui Province, P. R. China

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Purpose: To investigate the prevalence of permanent tooth caries in 15-year age children in Anhui Province, P. R. China.

Materials and Methods: Totally 2,325 children in 15-year age from four cities in Anhui province were investigated by non-proportional stratified cluster sampling method, including 1,163 males and 1,162 females, 1,472 urban and 852 rural people. The permanent tooth XDMF, the permanent caries prevalence rate, and the permanent tooth proportions of DMF were investigated. The results were compared with the national average level by U tests.

Results: XDMFT was 0.95, lower than the national level 1.42 significantly ($p < 0.001$). The permanent caries prevalence rate was 39.78%, lower than the national level 52.43% significantly ($p < 0.001$). The permanent tooth proportions of DMF were 86.78% (D), 4.30% (M), and 8.92% (F) respectively. Compared with the national level of 82.84% (D), 1.21% (M), and 15.95% (F), Anhui province's caries but not filled proportion was almost the similar ($p > 0.05$), missed teeth proportion was higher significantly ($p < 0.001$) but filled teeth proportion was lower significantly ($p < 0.001$).

Conclusion: Within the limitation of this study, Anhui province's XDMFT and permanent caries prevalence rate were lower than the national level in 15-year age children. However, Anhui province's missed teeth proportion was higher but filled teeth proportion was lower. It indicates that government planners should adopt more effective ways to detail with the permanent caries in children in Anhui province.

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Clinical Significance: Epidemic investigation on permanent tooth caries in 15-year age children in Anhui Province was performed, and the result was compared with that of the national level.

Key Words: child, dental caries, epidemic investigation, permanent tooth.

Introduction

There is an important growing stage for children at 15-year age. Epidemic investigation¹ was taken on permanent tooth caries in 15-year age children from 1999 to 2001 in Anhui Province, P. R. China.

Materials and Methods

According to the economic development in Anhui province, four cities were selected in this study. They

were Hefei, Wuhu, Fuyang, and Tongcheng cities. The local residents who never leave their born place were investigated. Residents moving from other place are not included in this study. Totally 2,325 local residents in 15-year age from four cities in Anhui province were investigated by non-proportional stratified cluster sampling method, including 1,163 males and 1,162 females, 1,472 citizens and 852 rural people.

The permanent tooth XDMF, the permanent caries prevalence rate, and the permanent tooth proportions of DMF were investigated. Diagnostic standard is following the national standard, which is translated from WHO oral cavity health survey method. The investigated tooth was classed into the following; 1) health tooth, 2) decayed tooth, 3) filled tooth with caries, 4) filled tooth without caries, 5) lost tooth for caries, and 6) tooth out of above. Investigation quality is coordinated by two dentists and controlled by the leader of each investigation group. The investigation coordinators and group leaders were selected by consistent test whose Kappa value is above 0.60. The group leaders trained the investigators until they passed the consistent test. Statistical analysis was carried with SPSS software. The permanent caries prevalence rate and the permanent tooth proportions of DMF were compared by U test.

Results

The permanent tooth XDMF in this study showed the total average is 0.95, urban 1.10, rural 0.68, male 0.86, female 1.03, which are lower than the corresponding national level 1.42 ($p<0.001$), 1.54 ($p<0.001$), 1.17 ($p<0.001$), 1.22 ($p<0.001$), and 1.61 ($p<0.001$) significantly.

The permanent caries prevalence rate showed the total average is 39.78%, male 36.63%, female 42.94%, urban 43.89%, rural 32.71%, which is lower than the corresponding national level 52.43% ($p<0.001$), 47.74% ($p<0.001$), 57.11% ($p<0.001$), 55.70% ($p<0.001$), and 45.89% ($p<0.001$) significantly.

Table 1. The permanent tooth XDMF in 15-year age children.

Group	Sex	n	D	M	F	XDMF
Urban	Male	735	0.87±1.39	0.03±0.20	0.09±0.40	0.99±1.67
	Female	737	1.01±1.49	0.07±0.42	0.14±0.55	1.21±2.03
	Total	1,472	0.94±1.44	0.05±0.33	0.11±0.48	1.10±1.86
Rural	Male	428	0.59±1.18	0.02±0.19	0.03±0.20	0.64±1.33
	Female	425	0.65±1.14	0.04±0.27	0.04±0.27	0.72±1.36
	Total	853	0.62±1.16	0.03±0.23	0.04±0.24	0.68±1.34

Table 2. The permanent caries prevalence rate in 15-year age children.

Group	n	D		M		F		DMF	
		n	Rate (%)	n	Rate (%)	n	Rate (%)	n	Rate (%)
Male	1,163	426	36.63	25	2.15	58	4.99	426	36.63
Female	1,162	499	42.94	35	3.01	70	6.02	499	42.94
Urban	1,472	646	43.89	38	2.58	96	6.52	646	43.89
Rural	853	279	32.71	22	2.58	32	3.75	279	32.71
Total	2,325	925	39.78	60	2.58	128	5.51	925	39.78

Table 3. The permanent tooth proportion of DMF in 15-year age children.

Group	Sex	n	D		M		F	
			n	%	n	%	n	%
Urban	Male	735	639	87.77	21	2.88	67	9.20
	Female	737	744	83.41	50	5.61	103	11.55
	Total	1,472	1,383	85.42	71	4.39	162	10.01
Rural	Male	428	253	92.34	9	3.28	14	5.11
	Female	425	276	90.20	15	4.90	17	5.56
	Total	853	529	91.21	24	4.14	31	5.34

The permanent tooth proportion in this study showed that D (Decayed tooth) is 86.78%, M (Missed tooth) 4.30%, F (Filled tooth) 8.92%. Compared with the corresponding national level D: 82.84% ($p>0.05$), M: 1.21% ($p<0.001$), F: 15.95% ($p<0.001$), the missing tooth proportion in Anhui province is higher and the filling tooth proportion is lower significantly.

Discussion

Epidemic investigation was taken on permanent tooth caries in 15-year age children from 1999 to 2001 in Anhui Province, P. R. China. It showed that the permanent tooth XDMF in 15-year age children, the permanent caries prevalence rate and the filling tooth proportion are lower than the national level in Anhui province, however, the missing tooth proportion is higher than the national level.

It indicates that government planners should adopt more effective ways to detail with the permanent caries in children in Anhui province.

References

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