



Caries Prevalence in Korean Children Using National Health Insurance Database

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INTRODUCTION

Dental caries is one of the major causes of tooth loss and a chronic disease that can have a negative impact on the quality of life for children, and severe cases can affect their growth. The global burden of oral diseases remains high, and the traditional approach of focusing on treatment is proving costly in terms of human and financial resources, especially as demand increases. In 1981, the World Health Organization declared that a DMFT index (the average number of decayed, missing, or filled teeth) of less than 3 was both an indicator of dental caries experience and a health goal for 12-year-old children worldwide. Looking at DMFT indices for each country in health data released by the Organization for Economic Cooperation and Development (OECD) in 2017, Korea had an average DMFT index of 1.8, which was higher than the OECD average of 1.2 and the fourth highest among 19 countries. The DMFT index for 12-year-old children in Korea decreased from 3.30 in 2000 to 1.84 in 2012, then showed a slight increase to 1.90 in 2015 and decreased again to 1.84 in 2018. Despite this decrease, the DMFT index for 12-year-olds in Korea remains higher than that of children in other countries, where it has decreased to less than 1.0. Furthermore, the polarization of tooth decay prevalence is increasing. The purpose of this study was to investigate the prevalence of caries among children based on the 2018 Korea National Children's Oral Health Survey and compare it with the data of Health Insurance Review and Assessments (HIRA).

MATERIAL & METHOD

This study utilized the National Health Insurance Service-National Sample Cohort database (NHIS-NSC 2011-2020) provided by the Health Insurance Review and Assessment (HIRA), referencing all claim data except for treatments not covered by insurance during the given period in South Korea. The sample included one million individuals, which is 2% of the national population, stratified by gender and age.

The study analyzed the gender and age distribution of pediatric and adolescent patients under 14 years old diagnosed with the K021 disease code from 2011 to 2020, as well as the gender and age distribution of the U0239, U0240, U0241 insurance reimbursement codes and the U0060 glass ionomer treatment code. The age groups were classified as 0-4 years, 5-9 years, and 10-14 years, and chi-square tests were performed to determine whether significant differences existed between groups. Additionally, this study utilized data from the Ministry of Health and Welfare's Oral Health Survey, which is conducted every three years by the Korean government. The survey included 9,784 5-year-old children and 22,371 12-year-old children.

CONCLUSION

In the 0-4 and 10-14 aged groups, the rate of caries treatment was lower than the rate of diagnosis of caries. The rate of caries treatment in the 0-4 aged group was 23.7%, but the HIRA omitted data which is not covered by insurance, so higher rate of caries treatment is expected in clinical practice. In the 5-9 aged group, which is the period when permanent teeth appear, the rate of caries diagnosis and caries treatment were higher than those of other age groups. However, the prevalence of caries in the mixed dentition was not investigated in the oral survey. In addition, the HIRA data showed a large difference in rate of caries diagnosis according to age, so it is essential to include the 8-year-old group in the oral survey in order to investigate the prevalence of caries of mixed dentition.

RESULTS

Fig. 1. Annual trend in rate of dental caries diagnosis regarding gender.

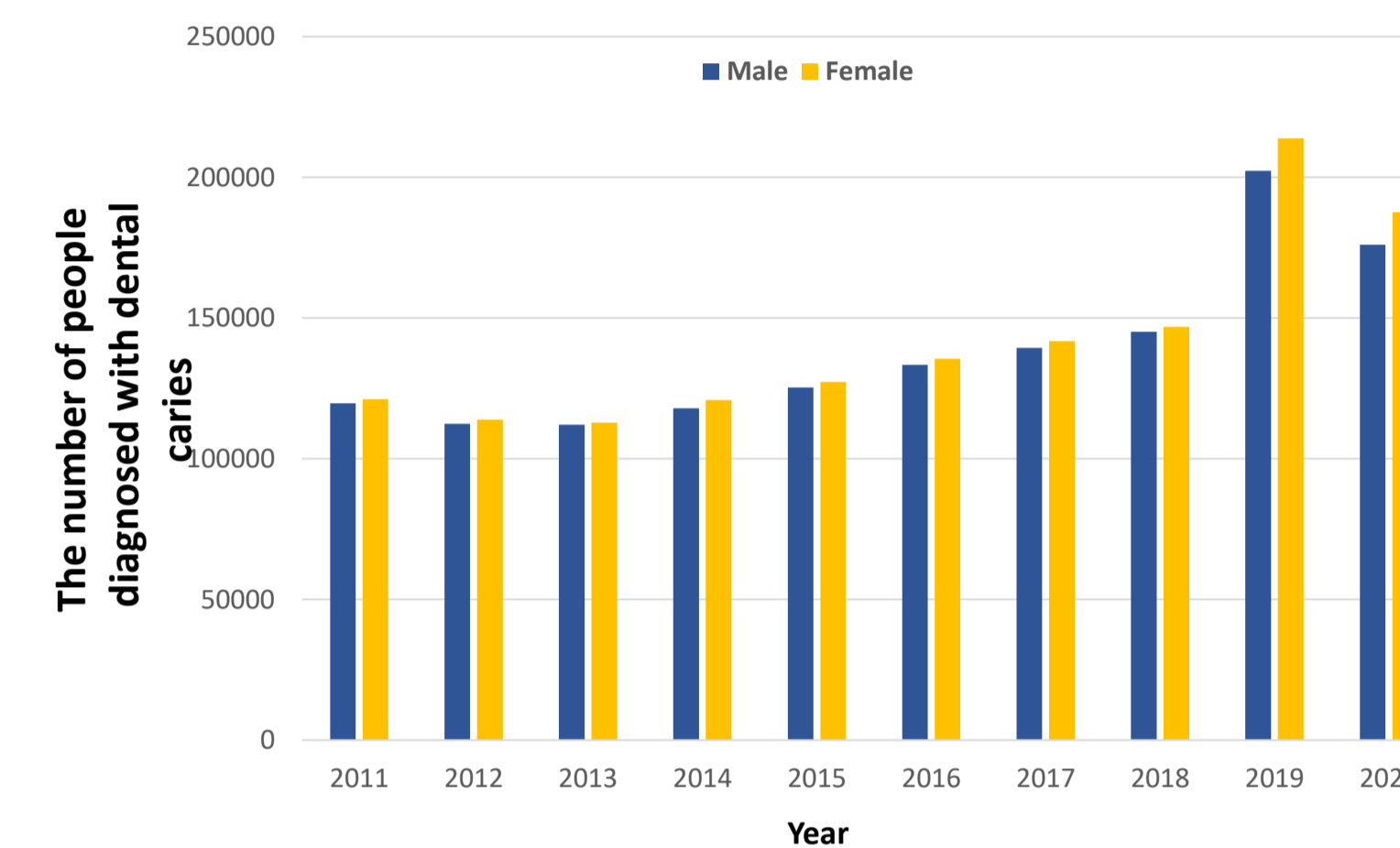


Fig. 2. Annual trend in rate of dental caries diagnosis regarding age.

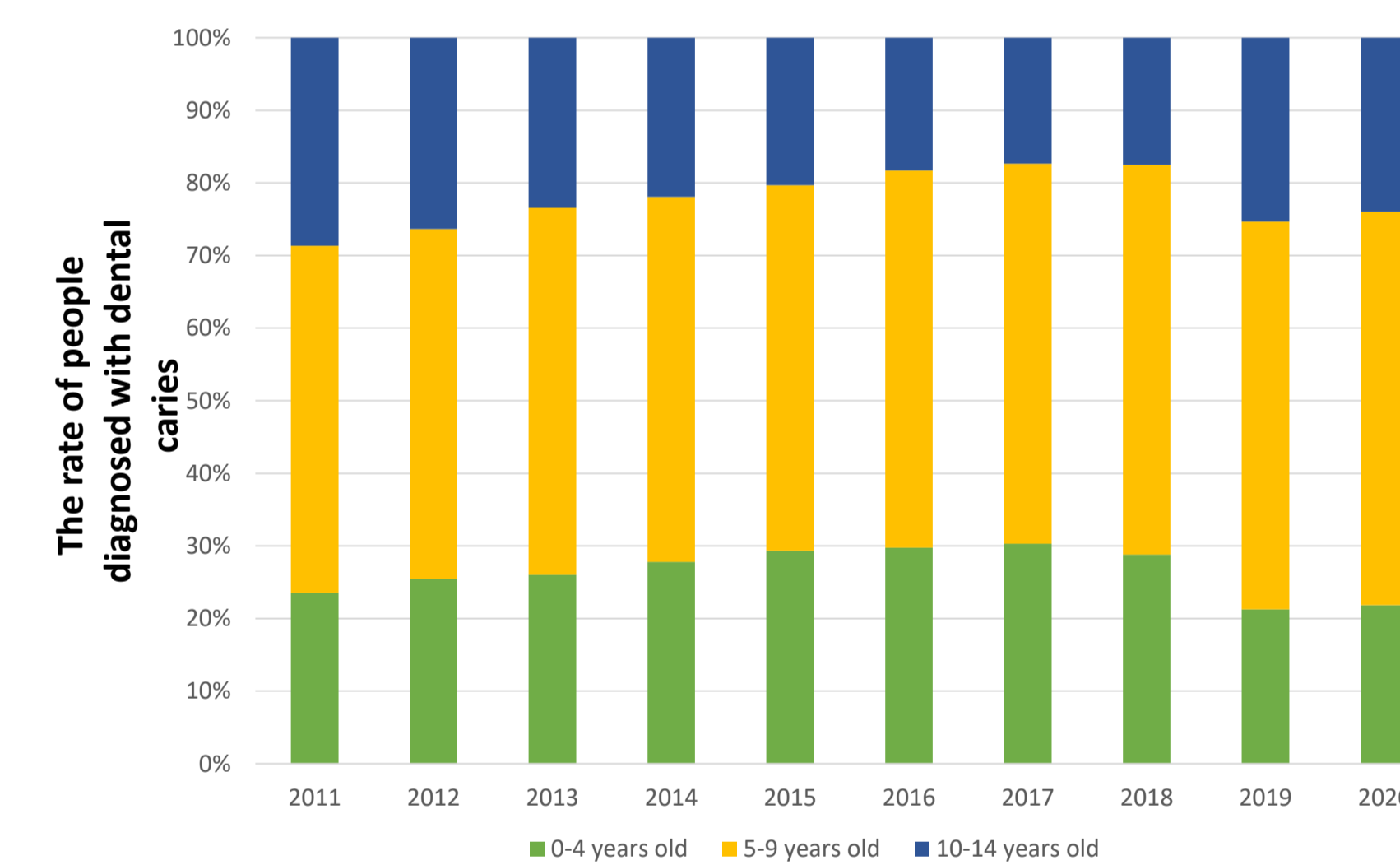


Fig. 5. 5-year-old and 12-year-old caries experience group in 2018

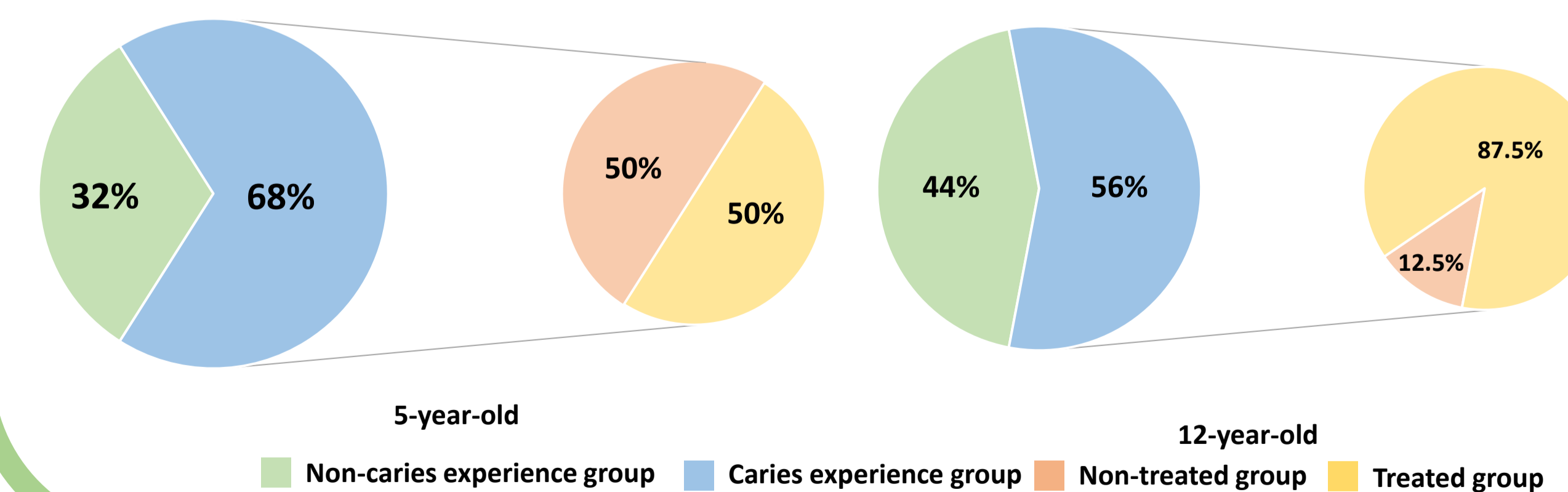


Fig. 3. Annual trend in rate of patients who received clinical dental caries treatment regarding gender.

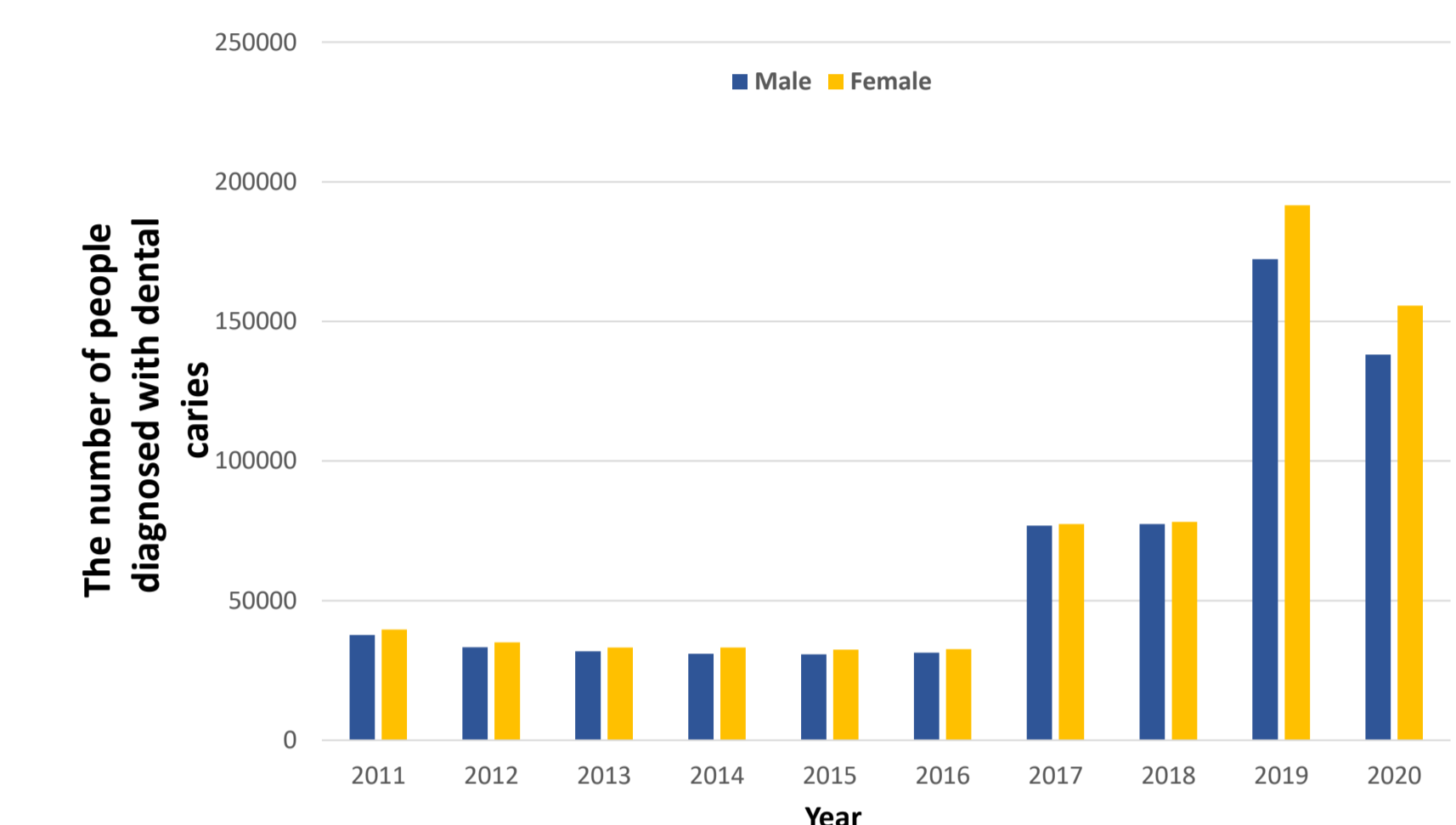


Fig. 4. Annual trend in rate of patients who received clinical dental caries treatment regarding age.

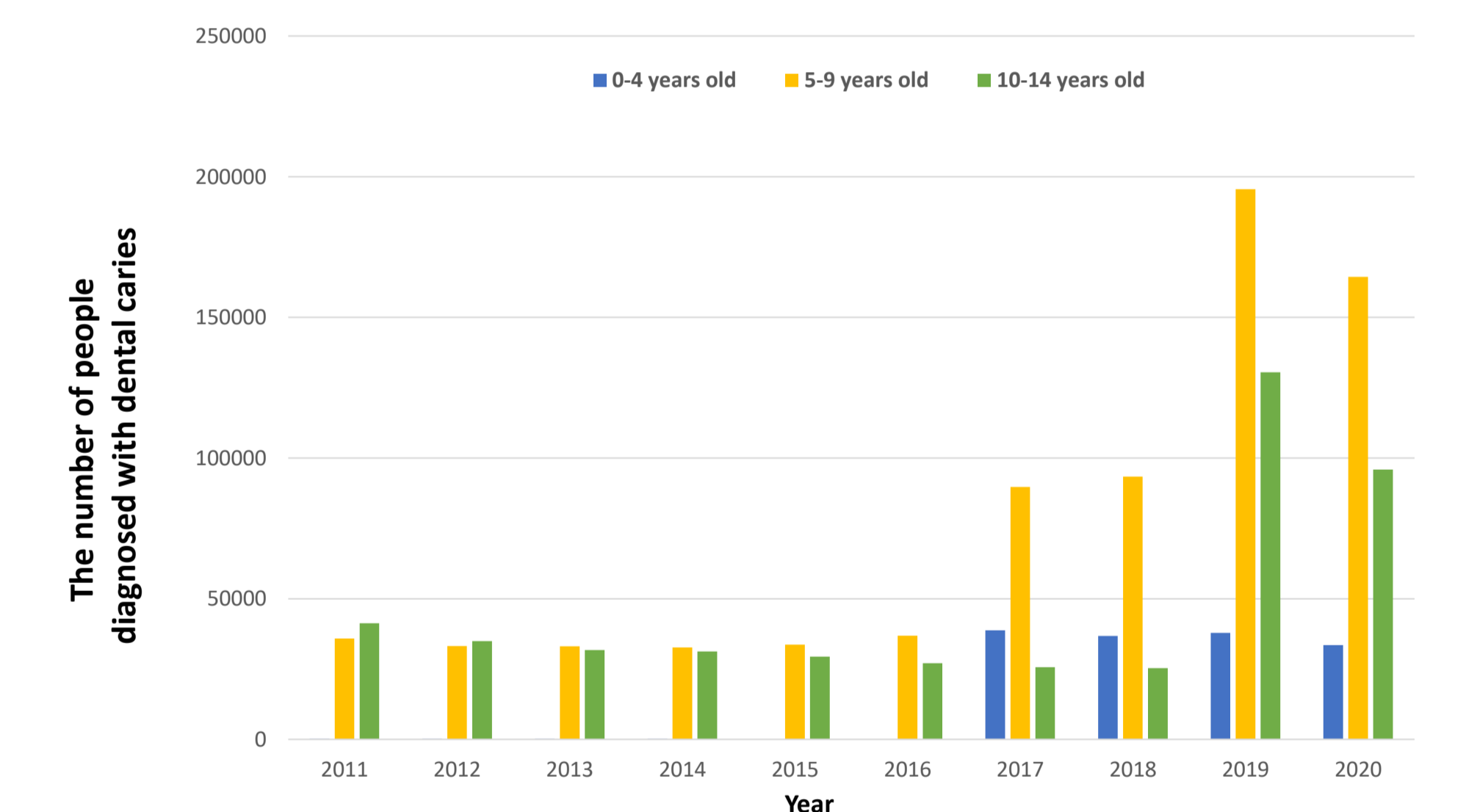


Fig. 6. 5-year-old dft index and 12-year-old DMFT index in 2018

