**Table 1**. Extraction and synthesis of data from the studies included in the review.

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| **Population studied**  **(reference)** | **Subgroups**  **ethnic/racial and sample** | **Study objective** | **Methodology used** | **Assessment of tooth loss** | **Results** | **Variables associated with tooth loss/black race** |
| Elderly ≥65 years  (Drake et al., 1995) | n=491 elderly people living in the community  263 non-Hispanic Blacks  228 non-Hispanic Whites | Longitudinal investigation of the distribution and predictors of tooth loss in elderly blacks and whites. | Data from the Piedmont 65+ Dental Study, from a random subsample stratified into edentulous vs. tooth and race. following a random sample of North Carolina seniors for three years. Stratified sampling in clusters into categories, based on racial/ethnic composition. | Count of missing teeth obtained from oral examination. Third molars were included in the scores for present or absent teeth. | In the three years, blacks were more likely to lose teeth, (53% vs. 29%) p<0.001 compared to whites. The mean number of missing teeth was significantly higher for blacks than for whites (2.2 vs. 0.9). Blacks lost (13%) of their remaining teeth and whites lost (4%) within three years. | Tooth loss among blacks was associated with higher levels of S. mutans, greater periodontal pocket and increased levels of P. intermedia in the subgingival plaque, high blood pressure, depression. Partial tooth loss was significant between races/ethnicity p<0.001. The other variables were not adjusted for tooth loss and race. |
| Elderly ≥65 years  (Hunt et al., 1995) | n=619 elderly people living in the community  335 Black  284 White | Provide information on tooth loss among the elderly, especially blacks. | Data for this study were collected from the Piedmont Health Study of the Elderly, subjects participated in 18-month follow-up. The data were taken from a larger study of oral health in older adults in North Carolina. Stratified sampling in clusters into categories, based on racial/ethnic composition. | Missing tooth counts were obtained from oral examination. Edentulism was determined by the loss of all teeth. Third molars were included in the scores for present or absent teeth. | Blacks (3.5%) and whites (1.8%) became totally edentulous. (4%) of blacks and less than (1%) of whites lost more teeth. Compared with whites, blacks were more likely to lose at least one tooth (36% vs 19%) blacks had fewer teeth present at baseline (17.0 vs 20.7). | Number of retained roots, loss of periodontal attachment, and experiencing toothache were associated with tooth loss among blacks. Race/ethnicity was associated with tooth loss between races p<0.01. The other variables were not adjusted for tooth loss and race. |
| Elderly ≥65 years  (Caplan and hunt, 1996) | n=490 elderly people living in the community  263 Black  227 Whites | To investigate the relationship between salivary flow and tooth loss in elderly people aged 65 years and older living in a 5-county area of ​​North Carolina. | Data were collected as part of the Piedtnont 65-Dental Study, a dental sub-study of the Piedmont Elderly. Stratified sampling in clusters into categories, based on racial/ethnic composition. | Interviews and dental examinations were performed, a total of 32 teeth were considered and tooth fragments were counted as teeth. | Blacks lost more teeth 51% compared to whites 29% p<0.01. Blacks were more likely to lose teeth due to low salivary flow < 1.0 ml/min compared to whites (OR=1.93) (CI=1.26-2.96). | Reduced salivary flow was associated with tooth loss in blacks. Race/ethnicity was associated with tooth loss across races. The other variables were not adjusted for tooth loss and race. |
| Elderly ≥65 years  (Gooch et al., 2003) | n=48.886 elderly people living in the community  non-Hispanic blacks  non-Hispanic whites  Hispanics  Non-Hispanic Multiracial  Others | To estimate the prevalence of tooth retention in the elderly in 2002 in the USA. | CDC analyzed data from the Behavioral Risk Factor Surveillance System (BRFSS) survey which is a  State-based random-dial telephone survey of the non-institutionalized US civilian population. | Tooth retention was self-reported by study participants (having 5 or more natural teeth) and also  clinically evaluated with strong agreement between the number of teeth. | Prevalence data for tooth retention for non-Hispanic blacks was (30.4%) lower than non-Hispanic (52.7%) or Hispanic whites  (53%), non-Hispanic multiracial (38.9%) Others (46.4%). | Dental retention was lower among blacks. Blacks lost more teeth compared to other racial groups (descriptive data)  The other variables were adjusted only for tooth retention. |

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| **Population studied**  **(reference)** | **Subgroups**  **ethnic/racial and sample** | **Study objective** | **Methodology used** | **Assessment of tooth loss** | **Results** | **Variables associated with tooth loss/black race** |
| Elderly aged 70-79 years  (Lee et al., 2004) | n=3.068 elderly/living in the community  1279 Black  1789 Whites | To examine whether edentulism is associated with nutritional status and whether there is an interaction between race and edentulism on nutritional status among community-dwelling older adults. | Participants were randomly recruited from a sample of the Medicare Health ABC Study in Pittsburgh and Memphis, which represent the northeastern and southern regions of the United States, respectively. | Edentulism was determined by self-reported information about whether a participant had any remaining natural teeth. | Blacks were (PR=1.41) times more likely to be edentulous than whites (95% CI: 1.13-1.75) / p<0.05. Blacks were twice as likely to lose as whites (30.0% compared to 15.9%). Black dentate older adults were more likely to wear dentures (P 0.0001) and report chewing pain (P 0.0019) than white dentate older adults. | Dental insurance, age, lack of appetite, pain when chewing, nutritional status, education, self-assessed oral health status, need for dentures, alcoholism and smoking were associated with edentulism for the black race (dentate vs. edentulous) p<0, 05. The other variables were not adjusted in the model of tooth loss between races. |
| Elderly ≥65 years  (Taiwo and Omokhodion, 2006) | n=690 elderly blacks living in long-term care homes | To determine the cause of tooth loss and edentulism, and pattern of tooth loss in the elderly in the Southeast Local Government Area (SELGA) in Ibadan. | The study was carried out with elderly residents of several wards at SELGA in Ibadan, Nigeria. Subjects were included regardless of whether they were dentate or edentulous. | For tooth loss, counts of missing teeth were obtained from oral examination. | (71.88%) of the participants had low social status (52%) lost one or more teeth, edentulism was (1.3%). Tooth loss between age groups was statistically significant (v2 ¼ 13.10 p <0.0001). Periodontal disease was the main cause of tooth loss, resulting in the loss (98.7%) of teeth. The difference in tooth loss between males and females was not statistically significant (v2 ¼ 0.07 p ¼ 0.7). The study showed caries was not the main cause of tooth loss. The percentage of elderly people with tooth loss increased with age. | Social status, age and periodontal disease were associated with partial partial tooth loss in blacks. The other variables were not significant for tooth loss in the population group. |
| Elderly ≥60 years  (Quandt et al., 2009) | n=635 elderly people living in the community  african american  american indian  White | To compare oral health status by ethnicity and socioeconomic status among African American (AA), American Indian (AI), and elderly white people. | Participants were selected from the Rural Nutrition and Oral Health Study (RUN-OH) that was conducted in two rural North Carolina counties. Multistage cluster sampling in (clusters). | Missing teeth were obtained from oral examination for tooth loss and edentulism for total tooth loss. The participant who refused the exam the number self-report of teeth obtained in the survey was used. | African Americans were (OR=2.5 times) likely to have only 11-20 teeth, compared to whites (95% CI: 1.5-4.3) / p<0.05. | There was a significant difference in partial tooth loss between races p<0.05. Edentulism was not associated with race/ethnicity, there was no significant difference. The rest variables were adjusted for race/ethnicity only. |

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| **Population studied**  **(reference)** | **Subgroups**  **ethnic/racial and sample** | **Study objective** | **Methodology used** | **Assessment of tooth loss** | **Results** | **Variables associated with tooth loss/black race** |
| Elderly ≥60 years  (Wu et al., 2011a) | n=4.355/living in the community  742 non-Hispanic blacks  934 Mexican-Americans  2,679 Non-Hispanic Whites | Examine racial/ethnic disparities in oral health among older Americans. | Data obtained from National Health (NHANES) conducted in the period (1999–2004). Multi-stage stratified sampling. | Tooth loss performed by counting missing teeth and edentulism complete tooth loss. Third molars were excluded because of their frequent extraction. | Blacks (OR= 0.63, CI) = 95%; 0.47-0.84) p<0.01 and Mexican-Americans (OR = 0.29, 95% CI= 0.21-0.41) p<0.001 were more likely to lose all teeth compared to whites. Partial tooth loss in non-Hispanic blacks was (M=16.3%/) RBN=0.21 (0.05) Mexican American (M=12.0%/) RBN=-0.23(0.05) and non-Hispanic whites (M=12.7%). /p<0.001. | Tooth loss was significant between races/ethnicity, the other variables were adjusted only for partial tooth loss and edentulism. |
| Elderly 60-85 years  (Wu et al., 2011) | n=4.859 elderly/living in the community  811 Black  1.202 Hispanics  2.846 Whites | To compare differences in self-rated oral health status among blacks, Hispanics, and whites residing in the community. | Data obtained from National Health (NHANES) conducted in the period (1999–2004). Stratified, multi-stage sampling. | Tooth loss performed by counting missing teeth and edentulism complete tooth loss. Third molars were excluded because of their frequent extraction. | Blacks had more missing teeth (M=16.25) followed by Hispanics (M=14.72) compared to whites (M=12.71) /p.0.01. Poor oral health and more missing teeth (OR=0.41; CI=0.31-0.54) for blacks and Hispanics (OR=0.66. CI=0.46-0.94) compared to whites (p<0.001). Blacks (OR = 0.65, CI: 0.47, 0.90, p < 0.01) and Hispanics (OR = 0.56, CI: 0.33-0.97, p < 0.001) with greater edentulism had worse oral health than edentulous whites. | Poor self oral health status was associated with partial tooth loss in blacks. The other variables were not adjusted for race/ethnicity. Partial tooth loss and edentulism were significant between races/ethnicity. |
| Elderly ≥65 years  (Northridge et al., 2012) | n=639 elderly/living in the community  41.3% Non-Hispanic Blacks  4.4% Other non-Hispanic  37.4% Hispanics  16.9% Non-Hispanic Whites | To examine tooth loss and caries by sociodemographic characteristics and oral health screenings of seniors in the Northern Manhattan community of the Elder Smile Program. | Dados obtidos do programa de saúde bucal ElderSmile, um centro de prevenção para idosos do Harlem e Comunidades de Washington Heights / Inwood do Norte de Manhattan. | Data obtained from the ElderSmile oral health program, a prevention center for seniors in the Harlem and Washington Heights/Inwood Communities of Northern Manhattan. | Non-Hispanic whites (M=8.9%) had less tooth loss than non-Hispanic (M=16.4%,) Hispanic (M=16.1%) and non-Hispanic (M=10.4%) blacks). Edentulism: Non-Hispanic Whites (OR=1) Non-Hispanic Blacks (OR=2.42 CI=1.06-5.56) and Other Non-Hispanics (OR=0.62 CI=0.07-5.40) Hispanics (OR=3.06 CI=1.28-7.30) / p<0.01. | Race/ethnicity was associated with tooth loss across races. The other variables were adjusted only for edentulism or oral condition. |

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| **Population studied**  **(reference)** | **Subgroups**  **ethnic/racial and sample** | | **Study objective** | | **Methodology used** | | | **Assessment of tooth loss** | | | **Results** | | **Variables associated with tooth loss/black race** | | | |
| Elderly ≥65 years  (Liang et al., 2013) | n=810 elderly people living in the community  448 Blacks  362 White | | Tracing the trajectories of tooth decay, missing teeth, and fillings among older Americans over a 5-year period. | | Data obtained from the Piedmont Dental Study a subsample of Populations for Elderly Epidemiological Studies (Duque EPESE) in the US with 5-year follow-up. Based on a stratified random pooled sample. | | | Tooth loss performed by counting the missing teeth. | | | In relation to blacks (b=-2.409) (White vs Black) /p < 0.001 whites had fewer missing teeth (b = −4.100; 95CI = −5.178, −3.021), as well as a lower rate of increase in missing teeth (b = −0.224; CI95 = −0.315, −0.132) over time. Blacks had more missing teeth (M=16.4) than whites (M=11.8). | | Education, age and income were associated with black race. The other variables were adjusted only for oral condition. Tooth loss was significant between races. | | | |
| Elderly 65-74 years  (Gomes et al., 2014) | n=5435 elderly people living in the community  black  brown  Yellow  Indigenous  White | | To estimate the prevalence and geographic distribution of edentulism in the elderly population in Brazilian capitals and the Federal District, as well as to test the association of contextual and individual socioeconomic inequalities with edentulism. | | Data referring to the state capitals and the Federal District), totaling 27 geographic domains equivalent to the 26 capitals plus the Federal District that participated in the National Oral Health Survey – SB Brazil 2010. Sampling by clusters in various stages and the units were census sectors and families. | | | Edentulism was evaluated by complete loss of teeth and observed individuals with or in need of complete dental prosthesis in one or both arches. | | | Browns had a prevalence of 72.9% (OR=1.02) p<0.05 of edentulism followed by blacks 72% (OR=0.78) Whites 65.6% (OR=1) yellow 64.7% (OR=0.85) indigenous 54.6% (OR=0.83). Pardos with lower incomes in cities with a low. HDI were more likely to have edentulism. Blacks with less schooling and fewer assets in the household were more likely to have edentulism. | | Income, living in cities with a low HDI, schooling, and fewer possessions in the household were associated with edentulism in blacks and browns. There was a significant difference in edentulism between races. | | | |
| Elderly (60-87) years  (Natto et al., 2014) | n=259 elderly people living in the community  25 African Americans  218 Whites | | To assess the influence of different demographic, health, personal and clinical factors on the number of missing teeth in the elderly sample. | | Tufts Geriatric Outreach Program Volunteers or Tufts Dental Clinics. The Tufts Geriatric Outreach program provides dental and nutritional screening and educational sessions for seniors. | | | Partial tooth loss performed by counting missing teeth and edentulism by complete tooth loss. Third molars were excluded from the examination. | | | Single, African-American, and women with diabetes or cardiovascular disease were more likely to demonstrate increased tooth loss than black men (descriptive data). Older white males and smokers had greater clinical attachment loss, probing depth and missing teeth/p<0.05. | | Gender and marital status, diabetes, heart disease were associated with tooth loss in blacks. Race/ethnicity was not associated with tooth loss between races p=0.1318 | | | |
| **Population studied**  **(reference)** | **Subgroups**  **ethnic/racial and sample** | **Study objective** | | | | **Methodology used** | **Assessment of tooth loss** | | | **Results** | | | | **Variables associated with tooth loss/black race** | |
| Elderly ≥65 years  (Huang and Mijung, 2015) | n=2,745 elderly/institutionalized  8.5% Non-Hispanic Blacks  5.9% Hispanics (Mexican Americans)  85.5% White | To examine whether elderly people living in poverty and from a racial/ethnic minority experienced high rates of poor oral health outcomes as measured by quality of health life (OHQOL) and number of permanent teeth. | | | | Residents of the National Health and Nutrition Examination Survey (NHANES) 2005–2008. Oral health was assessed by questionnaire using the NHANES-Oral Health Impact Profile for OHQOL and standardized examination for dentition. Multi-stage stratified sampling. | Tooth loss performed by counting missing teeth and edentulism complete tooth loss. Third molars were excluded because of their frequent extraction. | | | Blacks (78.7%) were poorer, chewing difficulties, teeth shame, employment difficulties, lost more teeth than whites (50.8%) and Hispanics (59.4%) p<0.001. Blacks with the worst self-rated oral health status (OR=1.75, CI=1.36-2.23) had the highest number of missing teeth followed by Hispanics (OR=2.07, CI=1.51-2 .84) and blanks (reference). Blacks with chewing difficulties had more missing teeth (OR=2.73 CI=1.98-3.79), Hispanic (OR=0.76 CI=0.51-1.14) and whites (reference) | | | | Renda, dificuldade de mastigação, status de saúde oral vergonha dos dentes, dificuldade de emprego estiveram associados à perda dentária parcial na raça negra. Raça/etnia foi associado à perda dentária entre raças. | |
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| Elderly ≥65 years  (Shariff et al., 2018) | n=1130 elderly people living in the community  44.7% Hispanics  30.4% Black  23.3% Whites | To assess the prevalence, extent, and severity of periodontitis in a triethnic cohort of Washington Heights Inwood Community Aging Project (WHICAP) participants. | | | | Data obtained from (WHICAP) which is a longitudinal multiethnic study of older adults residing in Northern Manhattan conducted between December 2013 and June 2016 that included periodontal examination. Sampling was based on defined ethnic categories. Eligible participants were contacted by telephone or mail by the study coordinator. | Edentulism was determined by the loss of all teeth including the third molars. | | | Advanced age, being black or Hispanic, male, low education, smoking history, and absence of dental visits were associated with lower tooth retention (number of teeth present) between races. Whites (reference), Blacks (OR=-5.4 IC -6.9 to -3.9) Hispanics (OR=-6.0 IC -7.6 to-4.3) p<0.001. Higher rates of edentulism with advancing age were found in blacks and Hispanics p<0.001. | | | | Advanced age, male gender, low education, smoking, no visits to the dentist in the last 12 months, probing depth and level of clinical attachment were associated with lower tooth retention in blacks. There was a significant difference in tooth retention between races. | |
| Elderly between 65 and 74 years  (Prado et al., 2018) | n=7619 elderly people living in the community  3577 White  879 Black  2970 Browns  193 Others | To investigate the association of tooth loss and edentulism with periodontal disease, socioeconomic and demographic factors, need and use of health services and theeffect of oral health on the daily life of the elderly. | | | | This study was carried out with secondary data from the SB (Brasil 2010) provided by the National Oral Health. Cluster sampling in various stages and the units were census tracts and households. | Tooth loss performed by counting missing teeth and edentulism complete tooth loss. | | | Browns had a higher risk (PR=2.07 CI=1.29-3.33) of tooth loss, followed by blacks (PR=1.16 CI=0.64-2.11). Whites (PR=1) and others (PR=0.61 CI=0.23-1.58) /p<0.001. | | | | Edentulism was not adjusted for race/color. An important risk factor for tooth loss was race. | |
| Elderly ≥65 years  (Lin et al., 2019) | n=25.566 elderly people living in the community  non-Hispanic black  Hispanic/Mexican American  Non-Hispanic white. | To assess the percentage of seniors aged 65 and over who lost all their natural teeth, by selected characteristics, Survey obtained from the United States National Health and Nutrition Examination, 1999-2004 and 2011-2016. | | | | This report used data from NHANES over six years: (1999-2000, 2001-2002, 2003-2004, 2011-2012, 2013-2014 and 2015-2016) to compare changes in oral health status. Stratified, multistage and pooled sampling. | Tooth loss performed by counting missing teeth and edentulism complete tooth loss. | | | Non-Hispanic blacks had greater edentulism (1999-2004) p<0.05=33.7%, Mexicans 24.4% and whites 25.9%. Non-Hispanic blacks had higher edentulism (2011-2016) = 30.7%, Mexicans 16.7% and whites 15.2%. In the year (1999-2004) the retention rate for non-Hispanic whites was 19.4%, non-Hispanic blacks =15.1% and Mexican Americans=18%. in (2011-2016) non-Hispanic whites 21.6%, non-Hispanic Black 16.0% and Mexican American 17.9%. | | | | Race/ethnicity was associated with edentulism across races. Age, income, lower education and smoking were associated with lower tooth retention in black and Mexican Americans. | |
| **Population studied**  **(reference)** | **Subgroups**  **ethnic/racial and sample** | | | **Study objective** | | **Methodology used** | | | **Assessment of tooth loss** | | | **Results** | | | **Variables associated with tooth loss/black race** |
| Elderly ≥65 years  (Griffin et al., 2019) | 3.539 in NHANES 1999/2004, and 3,514 in NHANES 2011/2016/living in community  Blacks  American Mexicans  Whites | | | To examine changes in tooth loss and untreated tooth decay among low- and high-income older adults in the United States and whether ethnic disparities persist. | | Representative data from 1999 to 2004 and 2011 to 2016 from the NHANES National Health and Nutrition Examination Survey Multistage stratified sampling. | | | Counts of missing permanent teeth were obtained from the oral examination for tooth loss. | | | Tooth loss in Blacks was P=60.3 (3.1), Mexican American P=49.2 (2.7) and non-Hispanic whites P=25.9 (1.4) Edentulism in Blacks was P=30, 7 (2.1) Mexican American P=16.7 (1.9) P= 15.2 (1.7). Blacks with untreated caries lost more teeth M=11.9 (0.5) Mexican Americans M=9.8 (0.5) and Whites: M= 6.0 (0.2) p <0.05. | | | Untreated caries was associated with tooth loss in blacks. The other variables were adjusted only for tooth loss. Tooth loss was significant among races. |
| Elderly  ≥60anos years  (Silva and Teixeira, 2020) | n=185 elderly/institutionalized  Blacks 50.2%  Whites 49.8% | | | To evaluate the oral health situation and associated factors in elderly people living in Long Stay Institutions for the Elderly (ILPI) in Fortaleza, Ceará. To assess the relationship between edentulism and tooth loss and sociodemographic characteristics. | | Epidemiological survey in oral health carried out with elderly people living in Long Stay Institutions for the Elderly in the city of Fortaleza, Ceará. Data collection was carried out from April to June 2019. | | | Edentulism was assessed by the complete loss of teeth through oral examinations and the use and need for dental prosthesis were observed. The exam was modeled on Projeto Brasil 2010 through the CPO-D index (indicating the number of decayed, missing and filled permanent teeth. | | | Blacks presented 63% of edentulism and whites 59.6% PR=0.91 CI =0.73-1.13/ p=0.426. | | | Edentulism was adjusted, but not associated with race. The other variables were adjusted only for edentulism. Tooth loss was adjusted for quality of life only. |
| Elderly 65 a 74 years  (Vettore et al., 2020) | n=5435 elderly/living in community  black  Brown  Yellow  Indigenous  White | | | To test the association of contextual and individual socioeconomic status with tooth loss linked to municipal data for 27 capitals states and the Federal District. | | Data obtained from the last National Oral Health Survey (SB Brazil Project) carried out in 2010 and data from the Brazilian Agency of the United Nations Development Program. Multistage stratified cluster sampling and units were census tracts and households. | | | Tooth loss performed by counting missing permanent teeth. | | | The average number of missing teeth for blacks was higher (M=24.8) and similarly for browns (M=24.8), indigenous (M= 20.2), yellow (M= 23.9) and white (M= 23.2). For tooth loss Browns (ARR=1.01 CI=0.98-1.04) had a higher risk of tooth loss followed by Blacks (ARR=0.96 CI CI=0.92-1.00) Yellow (ARR=O, 96 CI=),85-1.08) Indigenous (ARR=0.93 CI+0.98-1.04), White (reference). | | | There was no significant difference in tooth loss among racial minorities (p=004). The other variables were not adjusted for race, only for tooth loss. |
| Elderly  ≥65anos  (Fleming et al., 2020) | n= not reported/living in the community  non-Hispanic blacks  Hispanics  non-Hispanic whites | | | To examine disparities in total tooth loss among US adults 65 and older by sex, age, race, and education in 2015–2018 and trends from 1999–2000 to 2017–2018. | | Data obtained from National Health (NHANES) conducted by the National Center for Health Statistics (NCHS). Stratified, multi-stage sampling. | | | Edentulism was assessed as complete tooth loss. | | | Edentulism was higher among non-Hispanic blacks (25.4%) compared with Hispanics (15.3%) and non-Hispanic whites (10.9%). Partial tooth loss in non-Hispanic black men was (23.4%) compared to non-Hispanic black women (26.8%), non-Hispanic white men was (12.5%) compared to non-Hispanic white women (9.5%), was Hispanic men (11.9%) compared to Hispanic women (17.8%). | | | Gender was associated with tooth loss in blacks. There were significant differences in tooth loss between races. |

Source: The authors (2021)

OR=Odds ratio, M=mean, PR=prevalence ratio, ARR=adjusted rate ratio, CI=confidence interval, p=statistically significant difference, RBN=negative binomial regression