Assessing oral health status in North Western Syria January -2019

White Smile Organization
Turkey-Gaziantep
2013-2019

Syrian crisis
January-2019
Assessing oral health status
Syria – (15 sub districts in Idlib and Aleppo governorates)
Data collected by "*White Smile*"

White Smile Organization
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Clarification

The information in this report provides an overview of the situation of dental care in the covered area, and should be read in integration with other humanitarian needs information and reports.

White Smile is a Syrian non-governmental organization, specialized in the provision of dental care services and in advocating for the integration of dental care into the broader humanitarian health response in Syria.

The White Smile mission is to inspire, encourage, facilitate and promote quality oral care with the goal to prevent and alleviate human suffering, and thereby contribute to maintaining human dignity. White Smile's activities are guided by the ethics of health profession and also by the four humanitarian principles: humanity, neutrality, impartiality and independence.

White Smile seeks to sustain oral care services by empowering the local community. train more dentists, develop the capabilities of current dental staff, represent their aspirations and influence legislation and dental care policies at all levels.

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Abbreviations

KII	Key informant interview
HH	Household
HeRAMS	Health Resources and Services Availability Monitoring
DALYs	Disability Adjusted Life Years DALYs
WHO	World Health Organization
FDI	International Dental Federation
WS	White Smile Organization
IDPs	Internally-displaced people
NGO	Non-governmental organization
PHC	Primary healthcare center

Syria Administrative division

The administrative division in Syria depends on five administrative levels

Governorates : Syria consists of 14 governorates

Districts : Each governorate is divided into districts and the total number of these districts in all Syria is 62.

Sub-districts : Each district is divided into sub-districts and the total number of these sub-districts in all Syria is 272.

Communities : Each Sub-district consist of communities and the total number of these communities in all Syria is 6522.

Neighborhoods : The main communities (Capitals of governorates) are divided into neighborhoods, major 13 communities are divided to 456 neighborhoods.

EXECUTIVE SUMMARY

This document outlines the findings of the January 2019 needs assessment of the status of oral health in north Western Syria (in Idleb and Aleppo governorates), Syria. The results of this study aim to guide White Smile (WS) and other health care professionals to monitor and develop better programs for dental relief and promote oral care in the region. This assessment has employed the oral health self-assessment standardized tool, which was designed by WHO for the performance of such exercise. White Smile adopted the STEPS guidelines to calculate an appropriate sample size and to select a representative sample for the north west region. With a confidence set at 95% and confidence interval at 3%, respectively. The total sample size estimate was 1,067, sample was then stratified in four main age/sex groups (children, Adolescents, Adults, and elderly people).
A total of 1095 questionnaires were validated and data were obtained from 1095 individuals in the 15 subdistricts in Aleppo and Idleb governorates.

Key Findings

Self-reported oral status

self-reported number of teeth present

(25.54%) indicated they do miss almost one third of there all teeth, with (0.95%) having no teeth at all, (3.70%) having less than 10 teeth, and the rest (74.46%) do have more than 20 teeth.
age is progressively affecting the overall number of teeth, while the average sample individual would have (85.29%) chance to have more than 20 teeth when he/she is adolescent, this percentage would drop to only (29.41%) when he/she passes the age of 50.

self-assessment of status of teeth and gums

almost (55%) described their oral status as average (33.65%), poor (15.27%), and very poor (7.04%).
the elderly group is having (75.32%) falling under the average or worse gum health categories. (16.48%) as very poor, (22.36%) as poor, and (36.48%) as average.

wearing of removable dentures

Among those having removable dentures: (67.82%) wears a partial denture. (17.24%) wears a complete mandibular (lower) denture, and (14.94%) wears a complete maxillary (upper) denture.
almost half of the elderly people therefore are subjected to have a removable denture, this is particularly concerning as most of the charity clinics available in the area do not provide prosthodontic services as part of their primary dental care service.

Dental care service coverage

frequency of dental visits

(39.14%) of the interviewed sample did not visit the dentist since more than 1 year, Children was the worst group, only (21.62%) visited the dental clinic in the last 6 months. While the majority (45.95%) did not visit for more than one year.

reason for dental visit

Reasons for visiting the dental clinics also shows that without a real pain, routine checks are very little and represents only (4.10%) from the overall visits, pain in teeth or in gum represented the major reason for consultations (45.84%), this decreases the ability of dentists to anticipate

preventive measures and make these people more susceptible to time and resource consuming dental therapies.

Oral hygiene awareness and habits

Frequency of tooth cleaning

Only (21.12%) of the interviewed population brush their teeth once or more per day, (8.27%) said that they never brush their teeth, (11.69%) brush once a month, (10.38%) brush a couple of times per month. (25.54%) Brush once a week. This reveal the important lack in oral hygiene awareness in the sampled group.

We had a very concerning (43.18%) from the children group who never brush their teeth, those who brush once or more among the children does not exceed (4.55%), which means that these children will be susceptible to worsening in their oral hygiene soon.

Usage of aids for oral hygiene

Among those who take care of their oral hygiene, (85.68%) answered that they use toothbrush as their main cleaning tool, and when they use the toothbrush, all participants answered that they would use a toothpaste while brushing, Siwak notably occupied the second position with (22.20%), interdental toothbrush came last with only (3.46%) mostly because of their high price compared with the other tools, flossing was not a frequent cleaning method, it was only reported to be used by (7.28%)

use of toothpaste containing fluoride

it is noticed that only (18.93%) answered that they would use a toothpaste that contains fluoride, (64.69%) stated they did not really think about it and they are unaware if their toothpaste contains fluoride or not.

Oral health-related quality of life

experience of pain/discomfort while chewing food

when asked about pain and discomfort associated with their teeth when they chew food, (36.16%) answered that they do have difficulties sometimes, those who often face pain on chewing represents (19.69%), and those have the pain very often represents (4.77%) of the sample.

elderly groups naturally showed as the most groups with mastication difficulty (17.65%), (28.24%), very often, and fairly often respectively. Followed by the children (6.82%) and (25.00%) in the very often and fairly often groups respectively. Which reveals that they might be suffering from teeth and periodontal pathologies

Experience of pain/discomfort while biting food

When questioned about discomfort on biting, the pattern observed in the previous question continues, with females having more difficulties than males, elderly and children groups having more difficulty than adults and adolescents. answers for the elderly and children groups were (24.44%), and (11.11%) respectively in the very often group, and (15.97%), and (4.20%) respectively in the fairly often group.

Difficulty with speech/trouble pronouncing words

(22.79%) confirmed having a pronouncing problem to a certain extent: (2.15%) stated that they have very often a pronouncing problem, (4.06%) have this issue fairly often, and (16.59%) sometimes, elderly group showed the highest percentage (38.82%) of total pronouncing issues (most probably related with the high prevalence of removable dentures in this group) among of which (7.02%) are very often, (4.71%) are fairly often, and (27.06%) sometimes. Children group

comes second after the elderly (31.82%) in total had pronouncing issues (could be mostly explained by growth, new permanent teeth eruption and the change in their occlusion, etc.), (4.55%) have very often issues, and (25.00%) had pronouncing issues sometimes.

Dry mouth

elderly group are the most concerned with this issue, (9.41%) suffers from mouth dryness very often, (15.29%) suffers fairly often, and (28.24%) suffers sometimes. It was interesting to observe that all groups express some sort of mouth dryness sometimes (24.96%) from the adults, (20.59%) from the adolescents, and (15.91%) of the children, this should also be considered in light of lack of proper drink water sources and the breakdown of the municipal water grid. In north-western Syria.

Embarrassment by the shape of teeth, avoiding smiling

(31.62%) of the studied sample developed an embarrassment feeling about their teeth, (27.09%) reported that they have tried to avoid smiling more or less. Females are more sensitive for this issue compared with males, the percentage of females embarrassed by their teeth shapes in the groups of very often, fairly often, and sometimes are (5.12%), (6.01%), and (25.39%) respectively, compared with males (3.60%), (5.14%), and (17.22%) respectively. Smiling avoidance shows the same pattern and almost a matching numbers per categories. the percentage of females hiding their smiles in the groups of very often, fairly often, and sometimes are (4.01%), (7.57%), and (20.27%) respectively, compared with males (2.06%), (4.63%), and (14.91%) respectively.

Had sleep that is often interrupted because of oral pain

Results shows that adolescents, adults, and elderly have very often sleeping disorder results as (5.88%), (2.65%), and (3.65%) from each group respectively, the children's group shows a peak in the fairly often category with (27.27%) experiencing sleep disorders. Mostly related with tooth decays.

Had to take days off work or school

Results did not indicate a major difference between groups, those who had to cut off work or study very often represented (0.60%), fairly often represented (2.27%), sometimes was (15.99%). We need to consider here the high un-employment ratio, and the intermittent attendance to school due to security situation, lack of schools, and the constant displacement, all of these factors might be affecting this indicator.

Difficulty doing usual activities

those who had difficulty in doing regular activities because of their oral pain very often represented (1.07%), fairly often represented (2.74%), sometimes was (22.08%). except for the female group in the sometimes unable to perform normal activities category, the percentage is (25.61%) versus (17.99%) in the male's group of the same category. The percentage also mounts up by age group, elderly people tend to be more obstructed by their oral health status than the younger populations.

Felt less tolerant of people

males are less subject to lose temper and tolerance to people in the sometimes category (18.25%) versus (30.07) in female group. The overall percentage of reported loss of temper reaches to (35.08%) in the highest three categories (very often, fairly often, and sometimes), age plays an important role also, as the overall percentage of elderly in the highest three categories reaches to (49.41%) , followed by the adults (35.10%), then the adolescents (25.00%) , and children (22.73%).

Have reduced participation in social activities

(17.18%) of the studied sample have expressed social reduced activities in the highest three categories, females are more affected by this factor with (1.56%), (4.23%), and (14.02%) in the very often, fairly often, and sometimes categories respectively, versus (1.03%), (2.31%), and (9.77%) in the males' respective groups.

Behavioral risk factors analysis

The key findings of behavioral risks present the baseline data on various health behaviour, including smoking, and the type of nutritional diet

consumption of sugary foods and drinks

Bread is the most source of carbs that is consumed on a daily basis for at least once or more (88.90%), followed by fruits and vegetables (36.63%) in the same category, consumption of other food categories tends to become popular on a weekly basis or longer, bakeries for examples is consumed in (24.82%) of the interviewed sample on a weekly basis. Jam, honey, and other sweetened treats are consumed by (30.91%) of the interviewed sample on a weekly basis. While deserts and sweets are consumed by (27.80%) on a weekly basis, and by additional (27.33%) many times a month.

Frequently consumed sweetened hot drinks (coffee, tea)

Tea is more frequently consumed in all categories (92.96%) versus (64.80%) for coffee. those who drinks sweetened tea on a daily basis are almost double those who drinks coffee with the same rate (51.07%) versus (27.57%). Coffee is more expensive and the difference in price could explain why it is consumed more less.

use of tobacco: type and frequency

(29.00%) of the interviewed population smokes cigarettes every day, (5.49%) smokes several times a week, Nargile smoking comes as the second type of tobacco that is consumed, (4.30%) stated smoking Nargile every day, and (5.73%) smoke it several times a week. (2.15%) smokes hand rolled cigarettes every day, and (1,79%) smokes it once a week.

The consumption of other types of tobacco products reveals low, less than (4%) smokes pipe, among of which only (0.95%) smokes it every day, (3.86%) smokes electronic cigarettes, out of which (0.48%) on a daily basis.

Important difference has been observed between males and females (almost double in the two highest categories). (42.35%) of the elderly groups smokes daily, compared with (31.51%) from the adult's group, and (5.88%) of the adolescent's group. Adolescents group on the other hand has the highest percentage of interrupted smoking several times a week (8.82%) mostly for economic reasons, compared with (5.62%) adults and (3.53%) elderly. Children's smoking rate recorded was less than (2.27%) in daily smoking, but still reaches (9.14%) in all smoking categories combined.

level of education

Because the level of education usually reflects the level of oral health awareness, we can deduct that most of the knowledge people of this sample have acquired were in school phase (81.74%) and therefore, investment in oral care awareness campaign at this stage would probably become important at the long term.

Opportunities for intervention and action

The high level of risk factors observed in the survey can only result in more disability and reduced quality of life if preventive measures are not effective. The findings also provide an opportunity for a "risk approach" to oral health surveillance and control with a shift in emphasis from individual to public health. High priority must be given to establish an ongoing oral health surveillance, prevention and control of oral pathologies as part of the non-communicable diseases in north western Syria. Which is almost completely absent from most of the public health monitoring indicators currently applied.

Key Recommendations

Specific recommendations emanating from the survey are:

- Disseminate and utilize findings of survey to inform oral health planning and actions
- Provide more support to existed dental services and create new ones to respond for the increasing need of local populations.
- Set up a community-based risk factor surveillance system
- Design an advocacy campaign to inform the public about oral pathologies and their risk factors.
- Bring awareness to the health risks associated with smoking and benefits of smoke cessation. Specially with youth.
- Ensure that the health system adequately monitors compliance with ESHP standards for the management of oral pathologies
- Explore policy measures for decreasing consumption of sugar

BACKGROUND

Oral diseases are major public health problems. The impact of oral diseases on individuals and communities, as a result of pain and suffering, causes impairment of function and reduced quality of life. Untreated tooth decay is now known to be the most prevalent of the 291 conditions (studied between 1990 and 2010) within the frame of the international Global Burden of Disease Study. Severe periodontitis, which is estimated to affect between 5 and 20 percent of populations globally, was found to be the sixth most common condition. Oral cancer is among the 10 most common cancers in the world. Globally, oral conditions accounted for 15 million DALYs (Disability Adjusted Life Years) in 2010. This is an average health loss of 224 years per 100,000 people[1].

several oral diseases are related to chronic diseases, such as cardiovascular disease, bacterial pneumonia, diabetes mellitus, and low birth weight. Infective endocarditis is a serious and often fatal systemic disease that has been associated with dental diseases and treatment.[2]

the correlation between oral diseases and Non-Communicable Diseases is primarily a result of common risk factors, such as smoking tobacco. Tobacco use is the most common cause of preventable death globally. Cigarettes kill half of all lifetime users and in the 20th century tobacco use caused 100 million deaths. This number is expected to rise to 1 billion in the 21st century if smoking patterns remain unchanged. Moreover, exposure to secondhand smoke accounts for approximately 600,000 deaths each year. Additionally, smokeless tobacco use is a growing global problem.[3]

Key facts

- Worldwide, 60–90% of school children and nearly 100% adults have dental cavities[4].
- Dental cavities can be prevented by maintaining a constant low level of fluoride in the oral cavity[4].
- Severe periodontal (gum) disease, which may result in tooth loss, is found in 15–20% of middle-aged (35-44 years) adults[4].
- Globally, about 30% of people aged 65–74 have no natural teeth[4].
- Oral diseases in children and adults is higher among poor and disadvantaged population groups[4].
- Risk factors for oral diseases include having an unhealthy diet, tobacco use, harmful alcohol use, poor oral hygiene, and social determinants.[4]

Status of oral care in North West Syria

Situation analysis

Over the course of 2018, following a series of changes in territorial control owing to military operations. North west Syria has become more distinct as an area with different humanitarian needs and access dynamics. It has become a last resort site of IDPs coming from several areas including eastern Ghouta, southern Damascus, northern Homs, and southern Syria. While the political agreement signed in September 2018 led to a significant reduction of conflict in the north west De-Escalation Zone, However, a reduction in the level of hostilities does not translate to the absence of humanitarian needs, hostilities continued to collect civilian casualties, and caused damage and destruction of civilian infrastructure, including attacks on healthcare facilities and medical staff.

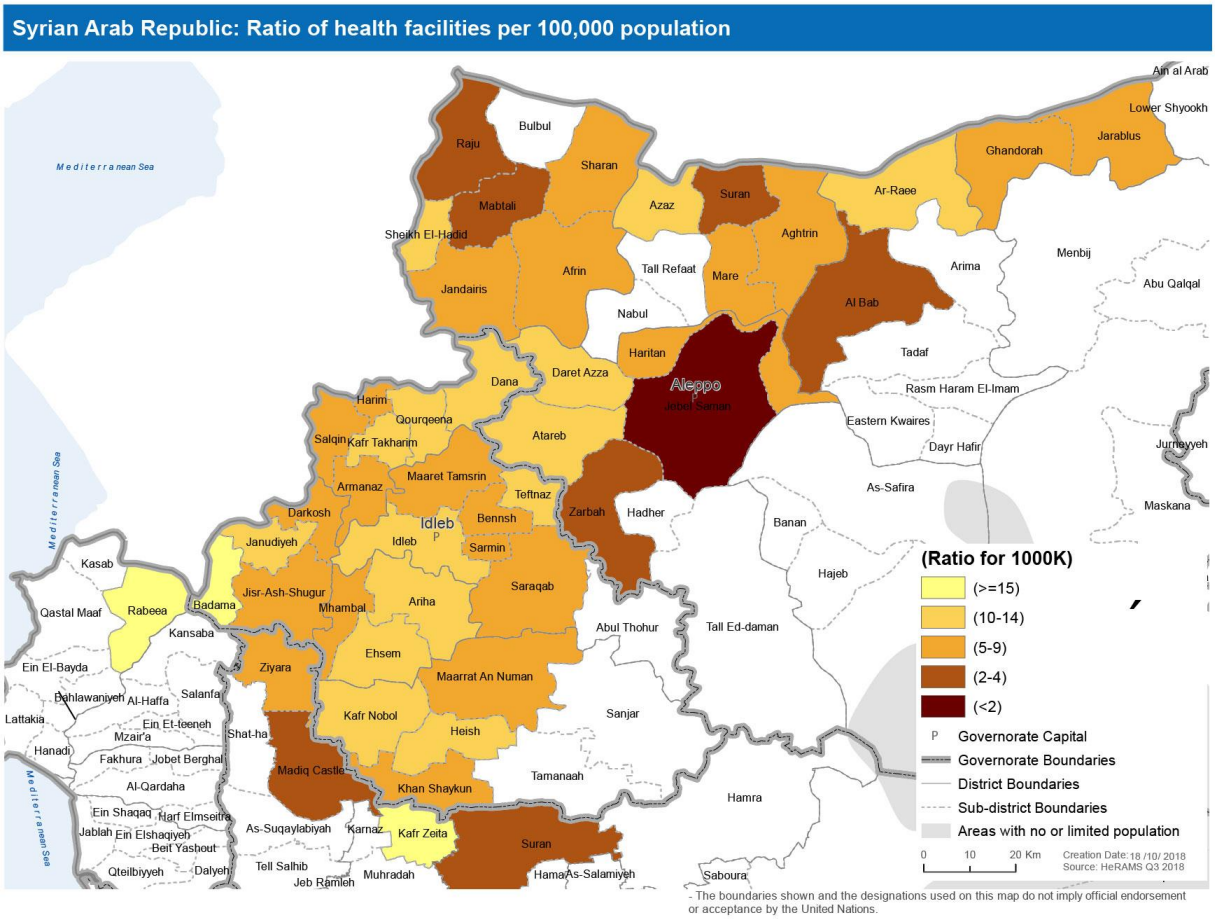
Humanitarian context

And with a population that exceeded 4.2 million. 2.7 million people are in need, Severity index shows also that people in highest severity of needs, or 1.9 million people, are in Aleppo and Idleb Governorates, across areas of control[4].

The total number of IDPs in the region is estimated as 1.8 million, many of whom have been displaced multiple times and are particularly vulnerable due to sustained and direct exposure to hostilities.

Oral health status

Compared with the status of oral care in pre-crisis, an important dichotomy in service delivery model and service modality is observed[1]. Displaced populations and host communities in northwest Syria are facing an increased insufficiency in accessing to existing dental clinics. Existing dental services are overstretched and unable to deal with the increasing load of patients because of either a lack of proper dental/medical materials and supplies or the unavailability of dental clinics[5]. The inclusions of dental services at the PHC level remained significantly compromised and



[1] For more information about dental care status before 2011, read white Smile's Mapping dental services in north east and north western Aleppo (2017). Available at: (https://www.whitesmilengo.org/needassessment)

a major gap. Despite being part of the Essential Health Services Package (EHSP), adopted by the Gaziantep Health Cluster in September 2016.

As an indicator, there are 72 health partners managing and supporting health facilities in north west Syria. with a total number of 377 functional Health facilities reported in November 2018 [6], among of which 82 (22%) are Hospitals, 163 (43%) are fixed PHCs, 69 (18%) are mobile clinics, 45 (12%) are specialized care facility[2], while 18 (5%) others health facilities [3]. In this reporting system, dental clinics reporting falls under the category of Specialized care facility and not under Primary health care centers, as many does not have this capacity and therefore, including them within PHC would bias the real number of existing dental clinics.

Health facilities (including dental clinics) have been subject to attacks, and making 46 per cent of hospitals and primary health facilities in Syria as either partially functional or not functional [7]. at least 814 health care providers were killed in Syria since 2011[9–11]. Consequently, qualified health care professionals (including dental professionals from all dental specialties) are increasingly leaving the area. By the end of 2018, the availability of essential health care workers per 10,000 people in Idleb and Aleppo is just 26% of sustainable development goal index.[8]

There are few studies[4] addressing the status of oral health in north west Syria, Except for white Smile series of oral health assessments that have started[9] in August 2017 and which was made within host communities and IDPs with aim to assess status of oral health and map existing dental services in north west and north Aleppo.

The findings of the assessment indicate the dire situation of oral status, most of the survey participants (80%) reported having dental pain, (40%) reported having bleeding gum, (31%) reported swelling abscesses, cavities and dental fillings are the most dental issues reported by most survey participants. (28%) of the asked participants would use extra pain-killers when access to dental care is not available. Several access challenges were reported (42%) indicated absence of public transport to the very few dental clinics, (39%) mentioned that clinics were overcrowded and they couldn't have a chance to receive treatment.

On the other hand, 94% of survey participants did not witness any oral awareness campaigns or smoking risks education in their areas, which suggests that there is a chance that if adequate oral health education is given, that the ratio of having oral pathologies would consequently decrease.

[2] Specialized care facility: health center provides one health service (Dental clinic, Physical Rehabilitation centers, Leishmaniosis centers., Nutrition center, Dialysis center Etc.)

[3] Ambulance network, Blood Bank, Central Lab

[4] White Smile has raised concerns regarding the gap of information about dental services provided during this humanitarian crisis, and asked for the inclusion of these data collection in needs assessments conducted by health partners, such as the Multispectral needs assessments and HeRAMS. The lack of prioritization, partially derived from the lack of data, has led to a limited financial support from governmental and non-governmental organizations for dental initiatives. As this humanitarian crisis worsens there is a desperate need for action from the dental community to build more awareness and strengthen efforts in mitigating the tragic medical and dental consequences[13]

Purpose of Assessment

In light of this lack of information and the minimal consensus for primary oral health services required in crisis, the objectives of this need's assessment are the following:

1. To understand the oral health needs of communities and engage in community service.
2. To understand the special needs and plan and provide oral health care for a wide variety of patients including vulnerable groups, including patients with special needs. Children, Elderly people, and women.
3. To apply scientific principles to the provision of oral health care. In a principled, evidenced -based clinical decision-making and information retrieval systems.
4. To contribute in the delivery of information about oral health status in Syria to improve quality and provide to a dynamic dental health care response.
5. To function effectively while providing emergency and primary oral health care in the outpatient setting while in the middle of a conflict zone.
6. to conduct an assessment that complies with the standardized oral health surveys, making it comparable internationally. And share the data with WHO Global Oral Health Data Bank, which collates the data gathered through country surveys on the burden of oral disease

METHODOLOGY

Approach

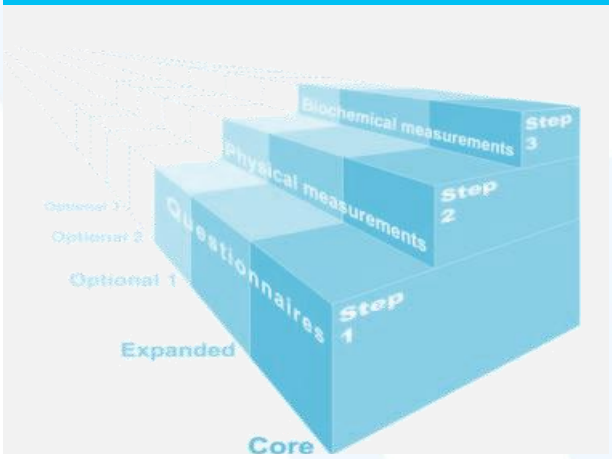
Following WHO global approach to chronic disease surveillance, for integration of oral health into chronic disease surveillance systems. We have utilized the STEP-wise approach to Surveillance (STEPS)[10], Adoption of this approach will:

- encourage systematic reporting of data on oral diseases and conditions in Syria;
- ensure that the data collected are reliable and comparable within other regions in Syria, and comparability with other countries, where white smile is mostly focusing on comparing collected data with oral health status of Syrian refugees in south west Turkey;
- encourage collection of data on self-reported oral health and risk factors consistent with STEPS framework; in addition to epidemiological information.

The WHO STEPwise approach to Surveillance (STEPS) is a sequential process Figure 1, it starts with the compilation of key information on risk factors and self-reported health using a questionnaire, and then moves on to simple physical measurements, followed by more complex measurements for biochemical analysis. The instruments may include core, expanded and optional data. STEPS emphasize that fewer good-quality data are more valuable than large quantities of poor-quality data. By using the same standardized questions and protocols, countries can use the information produced by STEPS both for assessment of within-country trends as well for comparisons across countries. The approach encourages the collection of small amounts of useful information on a regular and continuing basis.

STEPwise application of oral health principles has three steps:

Figure 1 Step wise framework



- Step 1:

the acquisition of information on self-assessment of oral conditions, oral health practices, measurements of diet, tobacco use and alcohol consumption, quality of life, and social position, all of which are based on standard WHO definitions.

- Step 2:

the clinical data collected in Step 2 add to those obtained in Step 1. Which is intended to be implemented later on by White Smile.

- Step 3:

this comprises information obtained from biochemical analysis, e.g. collection of saliva to study its buffering capacity or for microbial assessment (e.g. Streptococcus mutans). However, it is not foreseen for White Smile to conduct an advanced oral health measurement in an ongoing conflict zone such as Syria.

Once these steps are completed, and when data on oral health status and risk factors are collected systematically and on a regular basis. an Oral health surveillance for north west Syria would become possible, and it would enable us to do a better planning and evaluation of oral health intervention.

Sampling

White smile collected data from its areas of operation in an approximate 22 community, located in 15 sub-districts in Idleb and Aleppo governorates. These communities contain primary health care centers, where white smile team were able to access and conduct the interviews with people from different age and gender, from both IDP and host communities.

The sampling aimed to have a balanced percentage of gender and age groups that matches the demographics of the populations in the selected communities. Information about population disaggregated data (Based on the HNO 2019 data) in table 1, table 2, and table 3.

Table 1 populations in the selected communities.

Communities	Total Population (August 2018)
Idleb	175,032
Ma'arrat An Nu'man	55,102
Hbit	4,796
Talil Elsham	10,547
Ariha	49,565
Kansafra	7,558
Jarablus	30,671
Rayan	4,939
Kafr Janna	933
Atareb	46,902
Salama	21,808
Azaz	74,847
Ein Laruz	2,302
Kafr Nabutha	16,000
Sheikh Ali	5,145
Zoghra	9,612
Bab Alsalameh	46,931
Big Orm	8,985
Nahliya	3,174
Grand Total	574,849

Sub sample sizes per age/sex groups

Table 2 population and sample size disaggregation by age group

Population according to HNO 2019 data		Sub samples sizes by age groups	
Children 5-11	133,914 (19%)	Children 5-12	293 (26.76%)
Adolescents 12-17	61,706 (10%)	Adolescents 13-18	76 (6.94%)
Adults 19-50	251,721 (42%)	Adults 19-50	641 (58.54%)
Elderly more than 50	38,053 (6%)	Elderly more than 50	85 (7.76%)

Table 3 population and sample size disaggregation by gender

Population according to HNO 2019 data		Sub samples sizes by gender groups	
Females	(51%)	Females	(59.96%)
Males	(49%)	Males	(49.04%)

White Smile adopted the STEPS guidelines to calculate the appropriate sample size and the STEPS methodology to select a representative sample.

- The level of confidence Z and the corresponding margin of error C used for the sample size calculations for the survey were 95% and 3%.
- Sample proportion P, Due to insufficient historical information on baseline levels of the indicators, an estimated prevalence of 50% was utilized, as this ensures the most conservative sample size.
- Total population estimates N and sub population estimates for each age group by sex cluster for the combined population of north west Syria (based on the 2019 HNO population estimate),
- the total sample size calculated for north west Syria n is 1,067 (equals to 0.00127 from the over all population of the accessed communities)
- Sub-sample size estimates sub-n *(figure2)* were calculated for each age/sex strata.

Sample size equations

$$n = N*X / (X + N - 1)$$
$$X = Z\,2 * (p) * (1-p) / C2$$

Symbol	definition
N	Population number
X	Sample mean
P	Baseline Indicator Level
C	Margin of Error (confidence interval) expressed as
n	Sample size
Z	represents confidence level (1.96 for 95% confidence

Staff Training

In preparation for the study (20) persons were trained for the fieldwork. Data collectors included staff from White Smile and from the dental health staff working in the studied communities who had experience working in health or participated in conducting previous surveys. training on questionnaires was conducted over 2 days, with white Smile staff, who have then conveyed the training to the other data collectors. The training session included information about interview techniques and the data collection questionnaire. The tasks, roles and responsibilities of the data collection team were covered during the training; a dedicated IM officer were also trained for data entry.

Assessment tool

The STEPS tool aims to guide the gathering of data by focusing on socioenvironmental determinants and modifiable risk factors of oral health such as diet/nutrition, tobacco use and excessive alcohol consumption. In addition, information is required about environmental exposure to fluoride, oral hygiene practices and use of available oral health services. Quality of life, oral health and systemic health are considered important outcomes of the specified distal and proximal

factors. the questionnaires provided in Annex 01 and questionnaires were filled either by the data collectors.
The variables included in the adult questionnaire are as follows:
Question 1 – general information (ID number, sex, location)
Question 2 – age
Question 3 – self-reported number of teeth present
Question 4 – experience of pain/discomfort from teeth and mouth
Question 5 – wearing of removable dentures
Question 6 – self-assessment of status of teeth and gums
Question 7 – frequency of tooth cleaning
Question 8 – use of aids for oral hygiene
Question 9 – use of toothpaste containing fluoride
Question 10 – dental visits
Question 11 – reason for dental visit
Question 4 and Question 12 – experience of reduced quality of life due to oral problems
Question 13 – consumption of sugary foods and drinks
Question 14 – use of tobacco: type and frequency
Question 15 – consumption of alcohol
Question 16 – level of education

Apart from a one question modification as per adjusting to the local context, the generic questionnaire was used for data collection. The same question codes were used. The only Items that were standardized related to:

Question 14 – use of tobacco: type and frequency, were two additional options has been added (shisha smoking, and electronic cigarette smoking), as these two tobacco products are quite popular locally.
Question 15 – consumption of alcohol was removed from the study due to the sensitivity in the Islamic culture, we would not expect to have answers with regard to that question, or we might be considered as rude or offensive if we asked. Therefore, the question has been removed to guarantee safety of the data collectors and collaboration from the interviewers.

Data Collection Method

For the purpose of this study, interviewed individuals have been selected randomly from the visitors of the existed Primary health care centers at the community level, consent has been taken from those who agreed to perform the interview, the number of individuals, their gender and their age groups was to be selected from a distinct sub-district depended on the number of individuals targeted in Sample design within the district. Interviewers selected the respondents, conducted interview for sociodemographic and behavioral information.
Data was collected in January 2019 in the targeted area. a total of 1120 individuals were interviewed in 15 sub-districts. The sample was proportionately distributed according to size and population north west Syria, there were 25 refusals (0.02%), 5 questionnaires that were not eligible and then removed from the study (0.004%). Total number of validated questionnaires was 1095

Data Entry and Analysis

The completed questionnaires were checked for completeness on the same day by the data collector and then scanned and submitted to the team leader in daily batches according to the availability of interment. On receipt, the team leader verified the data sheets for completeness and accuracy, data entry was made using MS Excel sheet using a data entry on a daily basis.

Consolidated database was then analyzed by White Smile IM manager and MEAL manager. The data were weighted in some of the analysis using population weights to adjust for age and sex differences between the sample and population, it was noted in the finding when weighting was considered.

LIMITATIONS AND CHALLENGES

- The study only covers 15 sub district and 22 community in north west, with total population 574,849 inhabitant. more studies are needed to have a better understanding of the oral health status in north western Syria, beyond those sub-districts included in this study. This study represents currently the only source of information about oral status at the regional level in the north – west, similarity of living conditions and socio-economic factors, cultural and education levels permits to interpret its findings to help in estimating oral health status in the north west.
- Managing field teams remotely from Turkey was challenging due to limited communication channels (especially communication through internet).
- While the examining team assured the surveilled individuals about the anonymous type of questionnaires and the confidentiality of their identity, we have notice a trend specially among shy individuals to hesitate in answering some questions (such as the number of brushing) , which might give some bias to the answers provided, White Smile team tried to decrease this bias by asking these questions in a gentle way and with assuring a no-guilt and no judgement for any answer selected as much as they could.

FINDINGS

Demographics (sex, age, location)

The total number of collected questionnaires reached to 1095, sample distribution among the age groups shows a natural distribution, with the majority of individuals in the adult group (58.54%), followed by the children group (26.76%). While elderly group has (7.76%), and adolescent group has (6.94%) from the overall sample size.

Age group	Females	Males	total
children 5-12	9.13%	17.63%	26.76%
Adolescents 13-18	4.11%	2.83%	6.94%
Adults 19-50	32.33%	26.21%	58.54%
elderly >50	3.47%	4.29%	7.76%
total	49.04%	50.96%	100.00%

In terms of location distribution, almost half of the sample interviewed in the primary health care centers (47%) were from rural areas. While (40%) of the sample were living in urban areas, urban area in the definition is any community that exceeds a 5,000 population. and (13%) were living in camps settlements. It is important to notice that living in urban or rural does not necessarily means that people are not IDPs, it is just an indicator of the socio-economic environment that people are living in. accessing primary health care center is less easy for those in rural areas followed by those living in camps, which explains the drop down in number of those living in rural areas and camps respectively in this random sample.

Figure 2 distribution of interviewed sample by the type of settlement

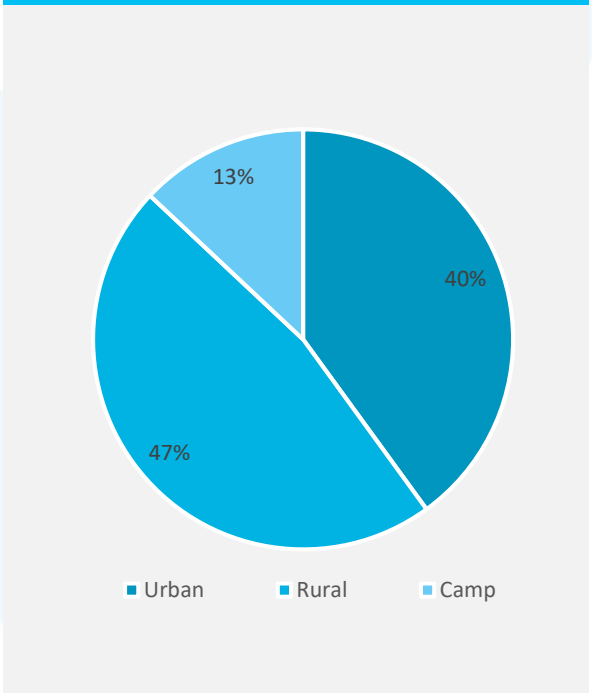
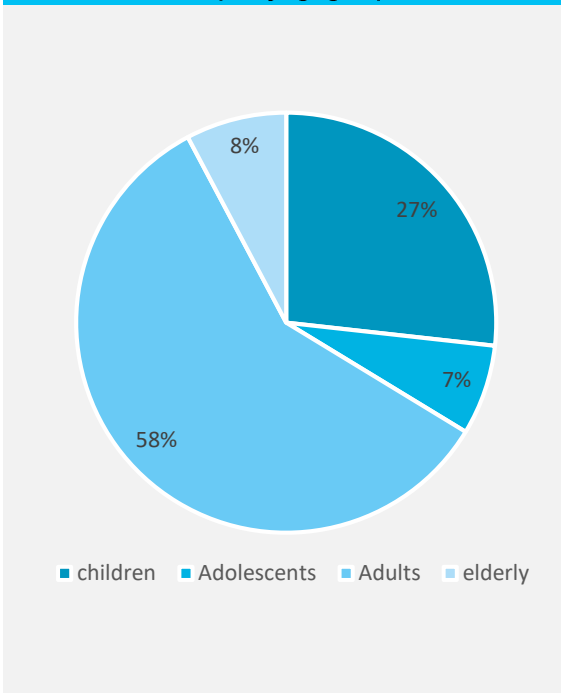


Figure 3, demographic distribution of the studied sample by age group



Self-reported oral status

self-reported number of teeth present

N teeth	Females	Males	Grand Total
No teeth	0.60%	0.36%	0.95%
1-9 teeth	1.19%	2.51%	3.70%
10-19 teeth	10.38%	10.50%	20.88%
>20 teeth	41.41%	33.05%	74.46%
Grand Total	**53.58%**	**46.42%**	**100.00%**

When individuals were asked about the number of teeth they have, (25.54%) indicated they do miss almost one third of there all teeth, with (0.95%) having no teeth at all, (3.70%) having less than 10 teeth, and the rest (74.46%) do have more than 20 teeth.
Females were higher in the group having more than 20 teeth (41.41%) females versus (33.05%) males. And less in the group having less than 10 teeth (1.19%) versus (2.51%) females males respectively.

Table 4 self-reported number of teeth disaggregated by sex

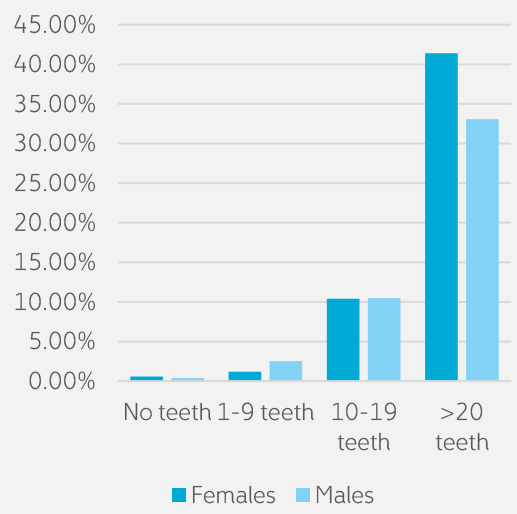
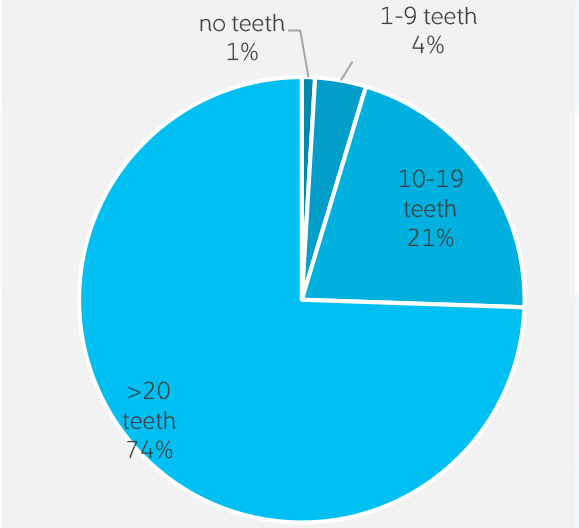


Figure 4 self-reported number of teeth



For age groups, we had to remove the children group as they are still having permanent dentition incomplete and in eruption, adolescents' group would not yet have their four wisdom teeth erupted, with should be considered when interpreting their numbers.

N teeth	Adolescents	Adult	elderly	Grand Total
no teeth	0.00%	0.62%	4.71%	0.95%
1-9 teeth	1.47%	1.72%	15.29%	3.70%
10-19 teeth	13.24%	15.76%	50.59%	20.88%
>20 teeth	85.29%	81.90%	29.41%	74.46%

It is interesting to observe that age is progressively affect the overall number of teeth , while the average sample individual would have (85.29%) chance to have more than 20 teeth when he/she is adolescent, this percentage would drop to only (29.41%) when he/she passes the age of 50 , the elderly people have the highest rates of tooth loss , with (4.71%) having no teeth , (15.29%) having less than 10 teeth. An adult would have (81.90%) chance of having more than 20 teeth, which would significantly drop to less than half when he/she becomes a senior.

wearing of removable dentures

(10.38%) of the sample do have a removable denture, while distributed equally across gender, they form (48.24%) of the elderly group. Interestingly compared with (7.02%) in the adult's group, or the adolescent group (1.47%), and children (0.00%), almost half of the elderly people therefore are subjected to have a removable denture, this is particularly concerning as most of the charity clinics available in the area do not provide prosthodontic services as part of their primary dental care service.

Among those having removable dentures: (67.82%) wears a partial denture. (17.24%) wears a complete mandibular (lower) denture, and (14.94%) wears a complete maxillary (upper) denture.

Figure **5** percentage of those wearing removable dentures by type

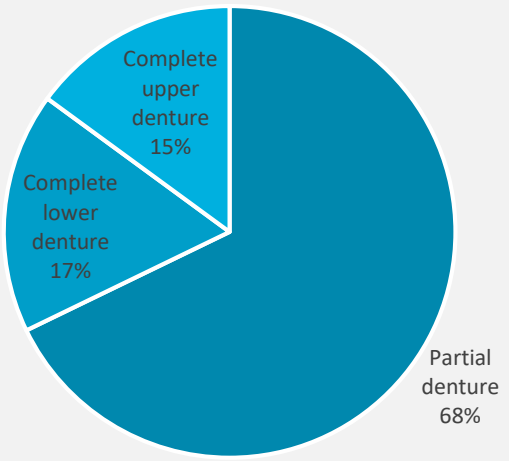
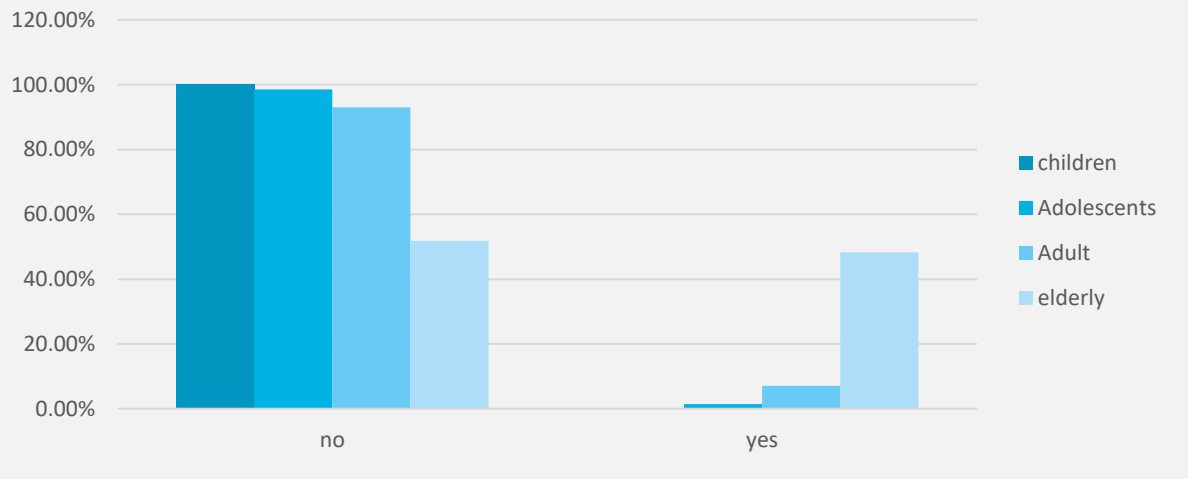


Figure **6** Percentage of those wearing removable dentures by age group



self-assessment of status of teeth

teeth status	number	percentage
very poor	59	7.04%
poor	128	15.27%
fair	282	33.65%
good	233	27.80%
very good	71	8.47%
Excellent	24	2.86%
I don't know	41	4.89%
Total	838	100.00%

When they were asked about their self-assessment of their dental status, almost (55%) described their oral status as fair (33.65%), poor (15.27%), and very poor (7.04%). (39.14%). while the rest of the answers would estimate their dental status as good (28%), very good (8%), or excellent (2.86%), there were also (4.89%) how could not provide an answer for that question.

When these numbers were disaggregated according to age and sex strata, a small shift towards a more negative assessment has been remarked in the female group (5.01%) reported having a very poor oral status compared with (2.03%) male from the same group, (8.71%) female reported their dental status as poor compared with (6.56%) males, and (17.66%) reported their status as fair compared with (15.99%) of the interviewed males

Figure 7 self-reported oral health status by the interviewed sample

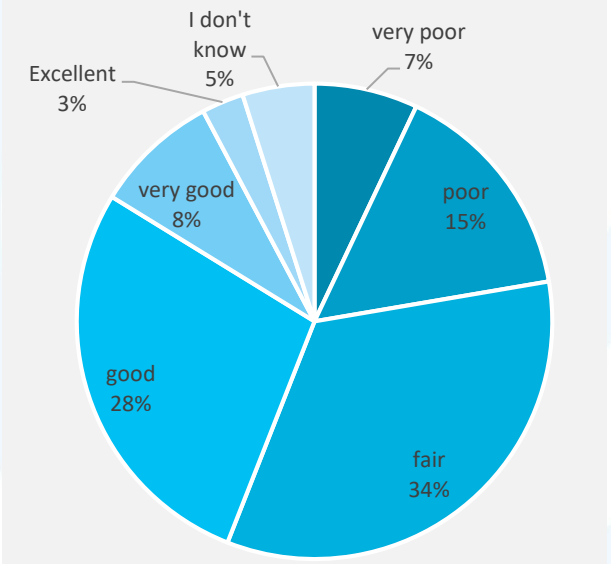
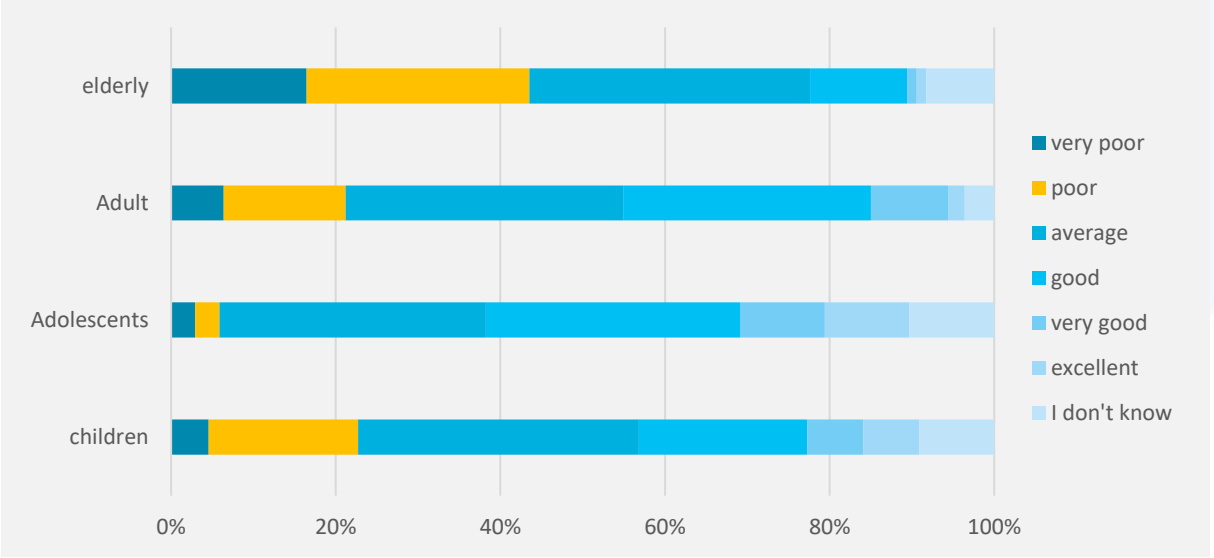


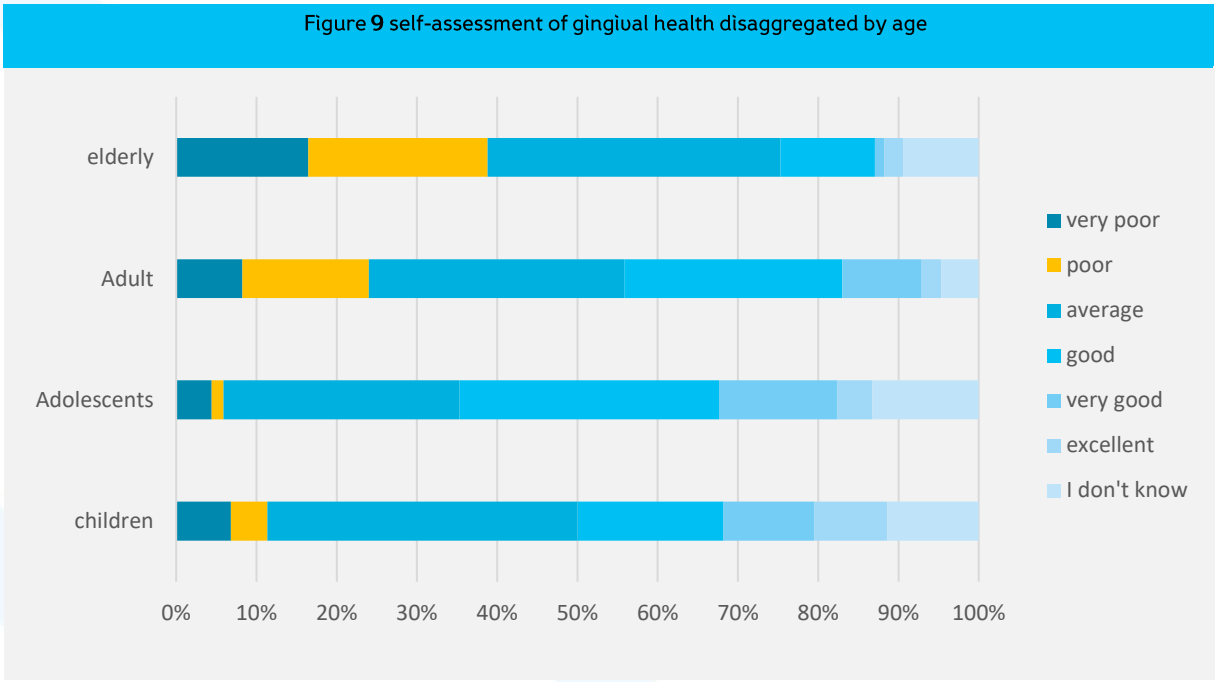
Figure 8 self-assessment of dental health disaggregated by age



self-assessment of status of gingiva

Self-assessment of gum status showed a similar pattern compared with teeth status, (55.85%) would consider their gum status as average or below, among of which (14.68%) consider their gum health as poor, (8.71%) consider it very poor. (25.54%) assess their gum health as good, (9.43%) as very good, and (2.98%) as excellent. (6.21%) where unable to answer to that question. Due to the inequal size of age groups, comparisons should be made inside each group itself rather doing an inter-group comparison.

Figure 9 self-assessment of gingival health disaggregated by age



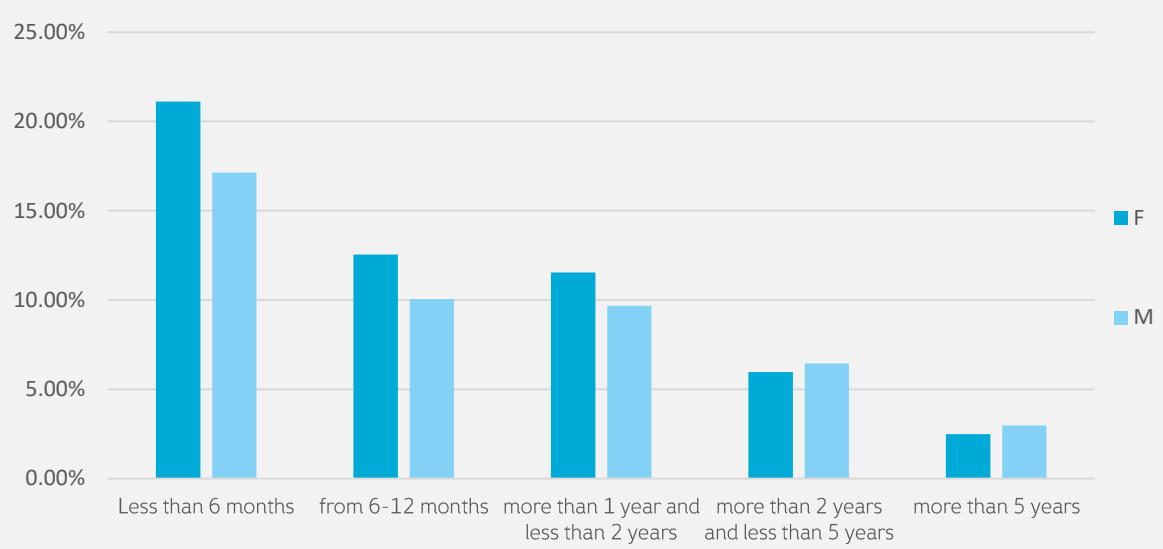
By doing so, we reveal that the elderly group is having (75.32%) from the overall answers falling under the average or worse gum health categories. (16.48%) as very poor, (22.36%) as poor, and (36.48%) as average.

Adults group follows with (55.85%) as average or below, (39.47%) as good or better, and (4.68%) were not sure.

Dental care service coverage

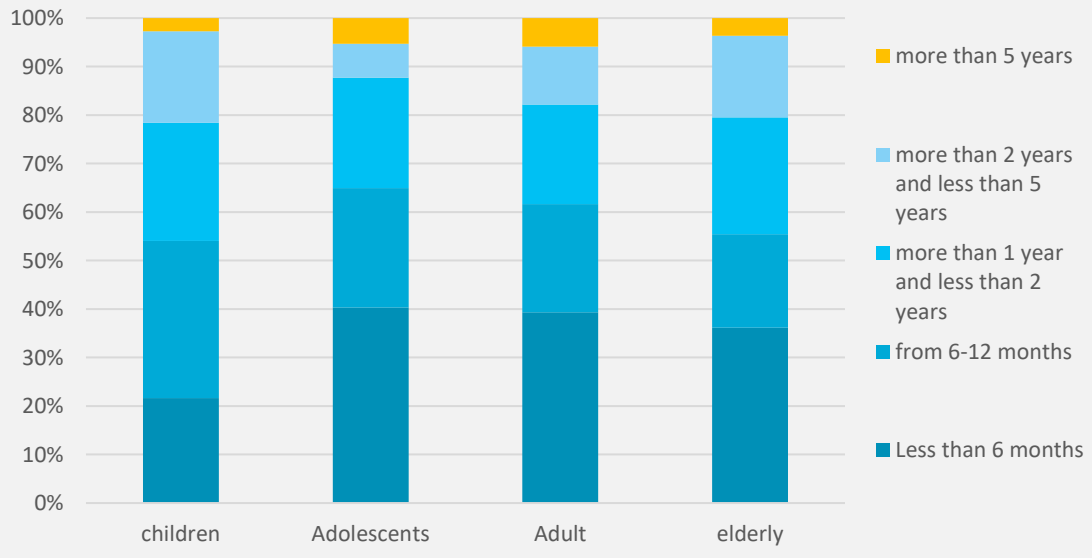
frequency of dental visits

Figure **10** frequency of visiting the dentist disaggregated by gender



(39.14%) of the interviewed sample did not visit the dentist since more than 1 year, Adolescents represented the best groups in terms of visiting the dentist (40.35%) from the overall adolescent number visited in less than 6 months, most probably because the ease of movement and the lesser commitment to work compared with the other groups. Children was the worst group, only (21.62%) visited the dental clinic in the last 6 months. While the majority (45.95%) did not visit for more than one year.

Figure **11** frequency of visiting the dentist disaggregated by age



Reason for dental visit

Reasons for visiting the dental clinics also shows that without a real pain, routine checks are very little and represents only (4.10%) from the overall visits without significant difference among the age groups, pain in teeth or in gum represented the major reason for consultations (45.84%), this decreases the ability of dentists to anticipate preventive measures and make these people more susceptible to time and resource consuming dental therapies.

The elderly groups showed the lower ratio of seeking consultations (6.02%), While the highest group coming for consultations were the children group (24.32%), followed by the adolescents (22.81%). Once in treatment, the best follows up has been observed in the adult's group (31.37%), followed by the elderly (24.10%), then the adolescents (22.81%), and finally the children (13.51%).

Figure 12 Reasons for dental visits

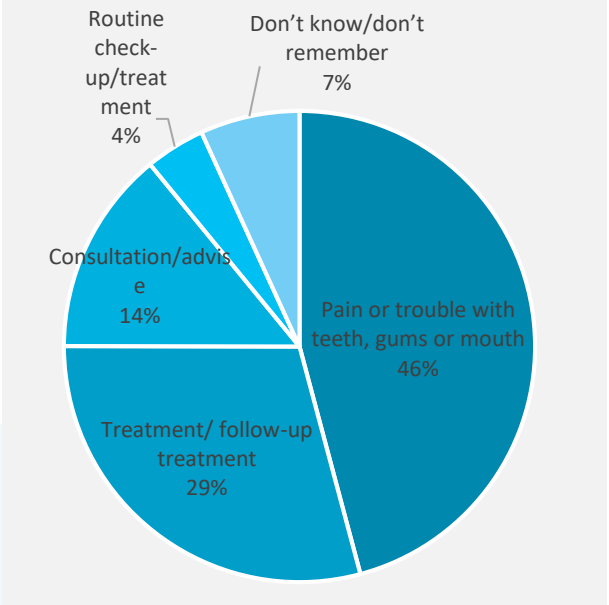
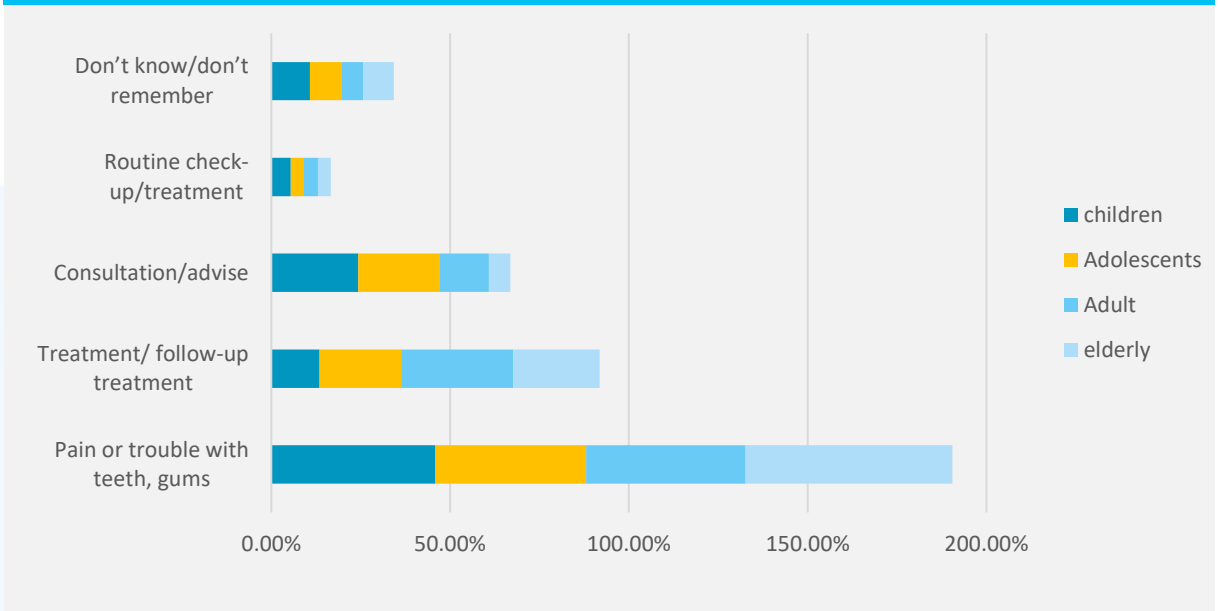


Figure **14** Reasons for visiting the dentist, disaggregated by age group

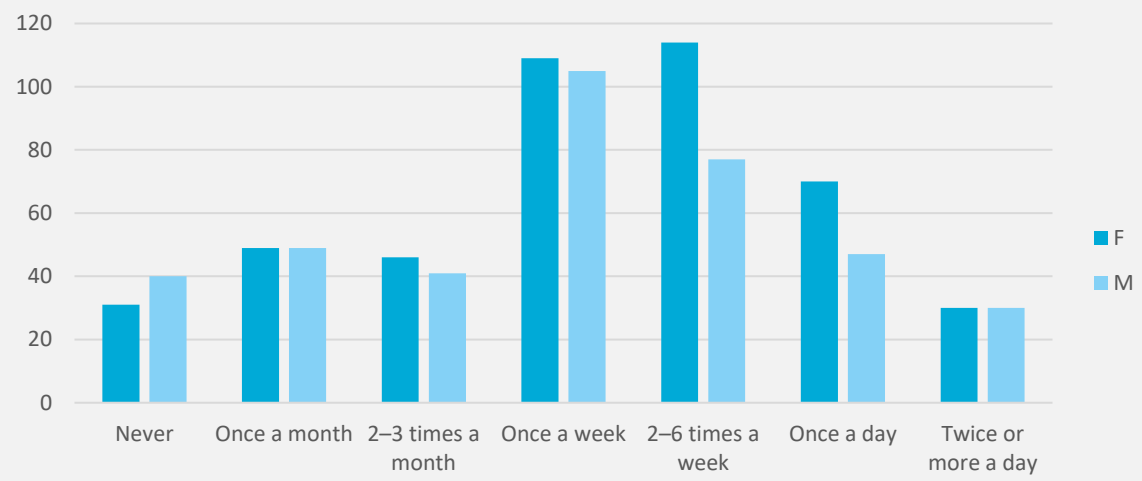


Oral hygiene awareness and habits

Frequency of tooth cleaning

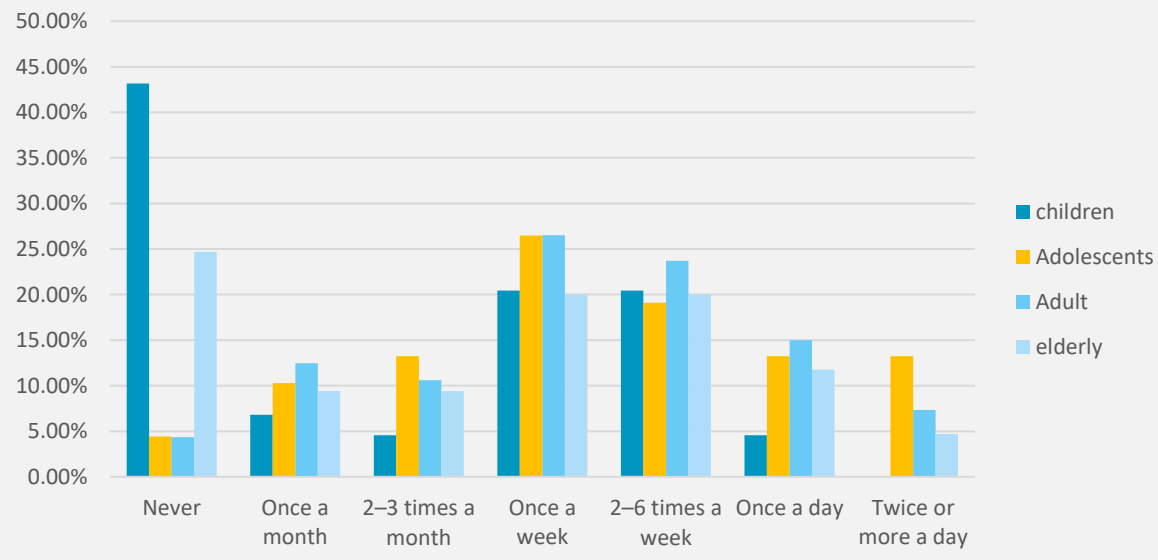
Only (21.12%) of the interviewed population brush their teeth once or more per day, (8.27%) said that they never brush their teeth, (11.69%) brush once a month, (10.38%) brush a couple of times per month. (25.54%) Brush once a week. This reveal the important lack in oral hygiene awareness in the sampled group.

Figure **15** Frequency of teeth cleaning disaggregated by gender



We had a very concerning (43.18%) from the children group who never brush their teeth, those who brush once or more among the children does not exceed (4.55%), which means that these children will be susceptible to worsening in their oral hygiene soon. Adolescents group showed a better pattern when compared with the other groups. Nevertheless (54.41%) brush less than once a week, including (16.85%) brushing less than once a month.

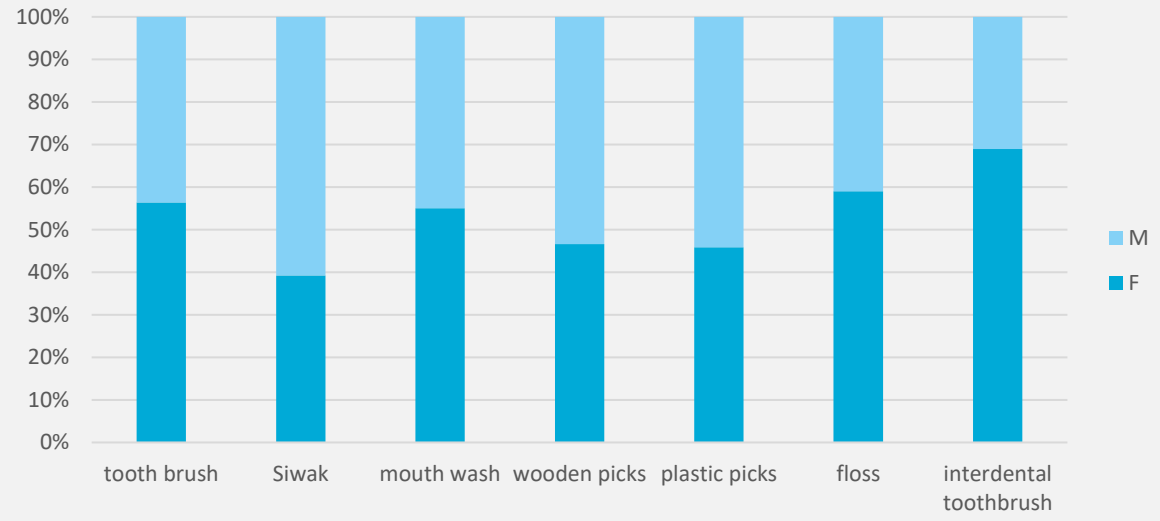
Figure **16** Frequency of teeth cleaning disaggregated by age



Usage of aids for oral hygiene

Among those who take care of their oral hygiene, (85.68%) answered that they use toothbrush as their main cleaning tool, and when they use the toothbrush, all participants answered that they would use a toothpaste while brushing, Siwak notably occupied the second position with (22.20%), in some cases, Siwak was utilized without even using toothbrush at all.

Figure **17** usage of aids for oral hygiene, disaggregated by gender

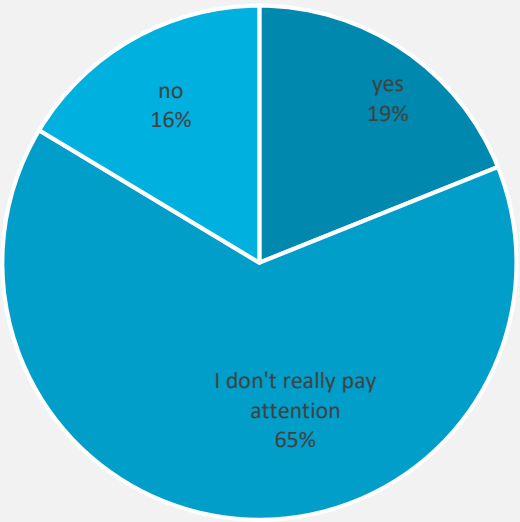


while mouth wash became third (18.85%), interdental cleaning tools showed that wooden toothpicks were the mostly utilized with (17.66%), followed by plastic toothpicks (8.59%), interdental toothbrush came last with only (3.46%) mostly because of their high price compared with the other tools, flossing was not a frequent cleaning method, it was only reported to be used by (7.28%)

Usage of toothpaste containing fluoride

it is noticed that only (18.93%) answered that they would use a toothpaste that contains fluoride, (64.69%) stated they did not really think about it and they are unaware if their toothpaste contains fluoride or not.

Figure **18** usage of toothpaste containing fluoride



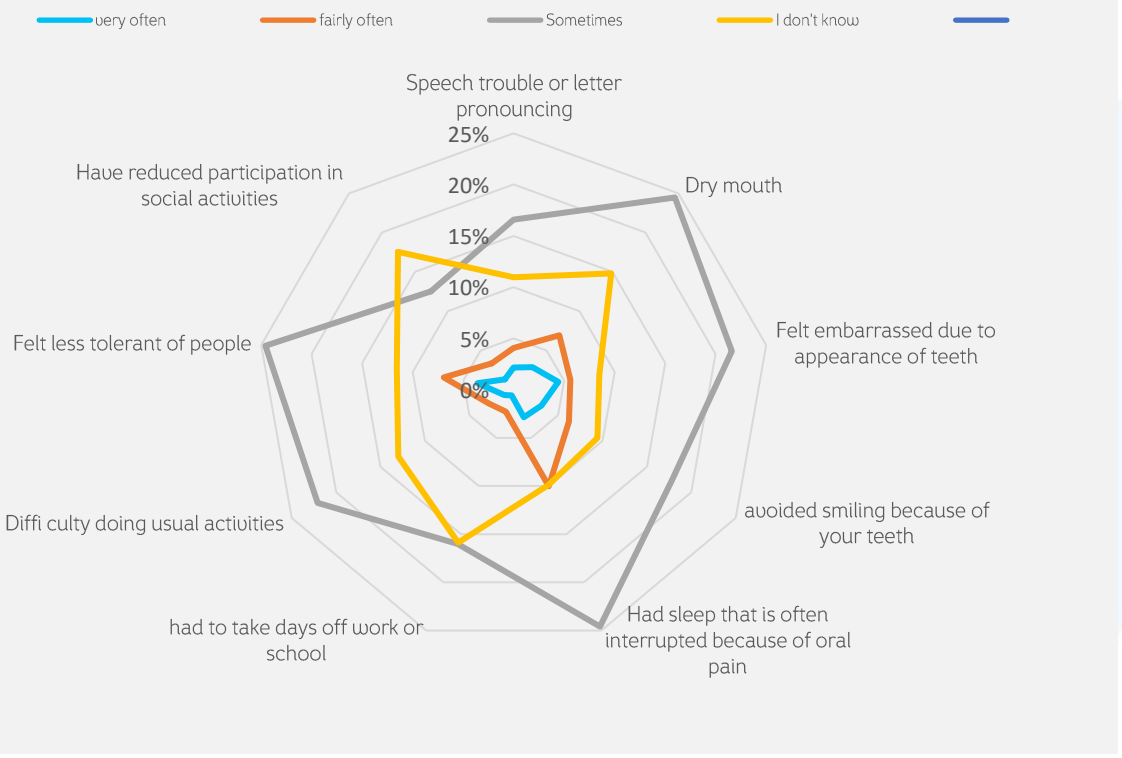
Oral health-related quality of life

Table 5 consequences of self-oral status perception by category

	Pain/ discomfort chewing food	pain /discomfort biting food	Speech trouble or letter pronouncing	Dry mouth	Felt embarrassed due to appearance of teeth	avoided smiling because of your teeth	Had sleep that is often interrupted because of oral pain	had to take days off work or school	Difficulty doing usual activities	Felt less tolerant of people	Have reduced participation in social activities
very often	5%	27%	2%	3%	4%	3%	3%	1%	1%	4%	1%
fairly often	20%	14%	4%	7%	6%	6%	10%	2%	3%	7%	3%
Sometimes	36%	5%	17%	24%	22%	18%	25%	16%	22%	25%	13%
I don't know	5%	8%	11%	15%	8%	9%	10%	16%	13%	12%	18%
No	34%	45%	66%	51%	60%	63%	53%	65%	61%	53%	65%

Oral health is an integral component of a population's general health and allows individuals to function in everyday life (eat, speak, and socialize) without any problems caused by illness, discomfort, or disability. Furthermore, oral health contributes to the overall individual's well-being. [11] The impact of oral disorders and interventions on patients perceived oral health state and oral health-related quality of life (OHRQOL) is increasingly recognized as an important component of health. The assessment performed had suitable subjective indicators that provide information on the impacts of oral conditions on an individual's life and the perceived need for dental care.[12]

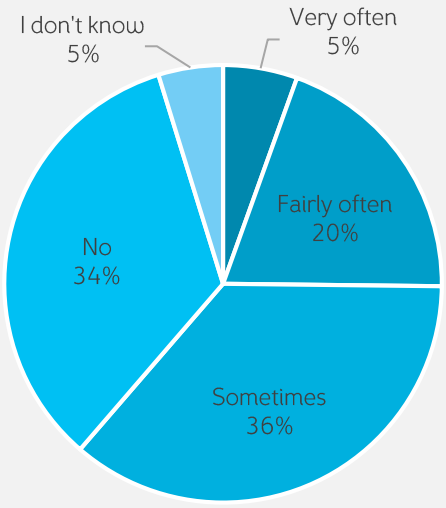
Figure 20 radar diagram illustrates the impact of oral health of the studied sample over their quality of live through the provided subjective indicators



experience of reduced quality of life due to oral problems

experience of pain/discomfort while chewing food

Figure 22 discomfort of chewing food



when asked about pain and discomfort associated with their teeth when they chew food, (36.16%) answered that they do have difficulties sometimes, those who often face pain on chewing represents (19.69%), and those have the pain very often represents (4.77%) of the sample.

Gender disaggregation shows that female population confronts chewing discomfort issues more than males, numbers of females expressing discomfort represented (65.22%) very often versus (34.78%) in males, (56.97%) fairly often versus (43.03%) in males, and (59.41%) sometimes versus (40.59%) in males from the overall answers in each respective answer category. In the age disaggregated groups, elderly groups naturally showed as the most groups with mastication difficulty (17.65%), (28.24%), very often, and fairly often respectively. Followed by the children (6.82%) and (25.00%) in the very often and fairly often groups respectively. Which reveals that they might be suffering from teeth and periodontal pathologies

Figure **24** difficulties in chewing food disaggregated by sex

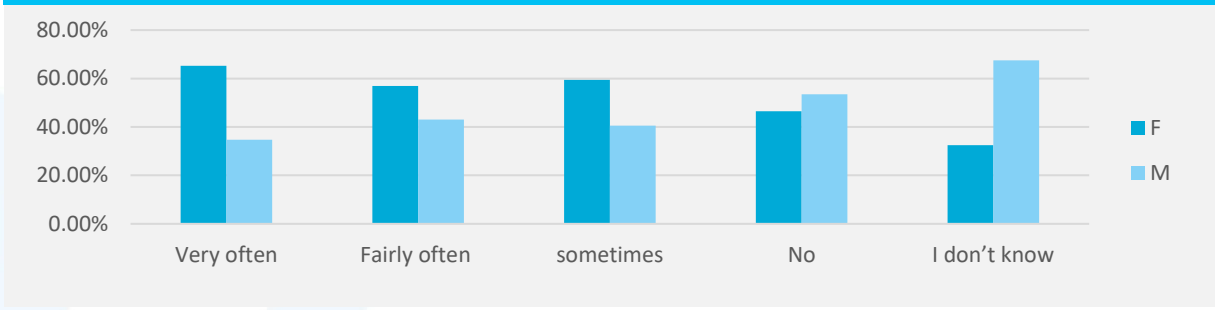
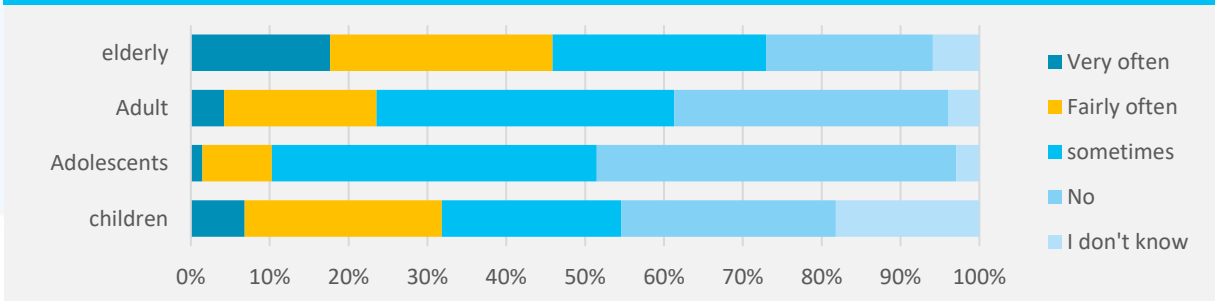


Figure 23 difficulties in chewing food disaggregated by age



Experience of pain/discomfort while biting food

When questioned about discomfort on biting, the pattern observed in the previous question continues, with females having more difficulties than males, elderly and children groups having more difficulty than adults and adolescents.

Females answers were distributed as follows compared with males: (6.46%) versus (4.11%) in the very often group, (16.70%) versus (11.31%) in the fairly often groups, and (30.51%) versus (23.91%) in the sometimes group. While the answers for the elderly and children groups were (24.44%), and (11.11%) respectively in the very often group, and (15.97%), and (4.20%) respectively in the fairly often group.

Figure 27 discomfort on biting disaggregated by age

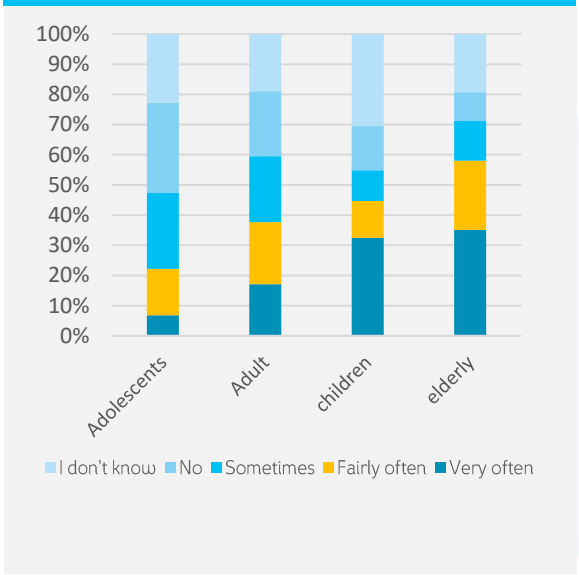
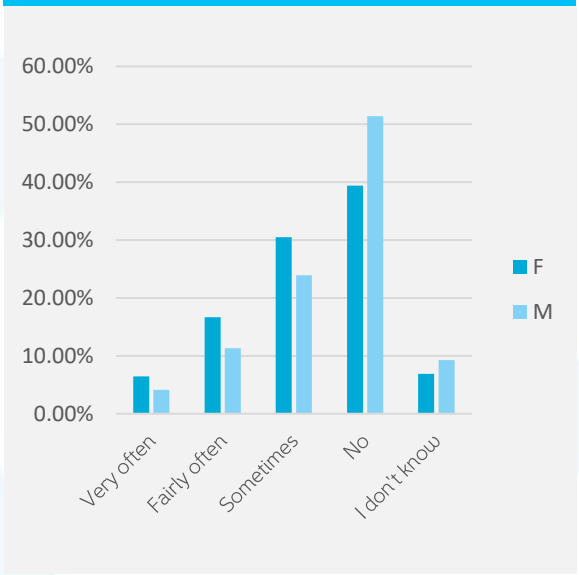


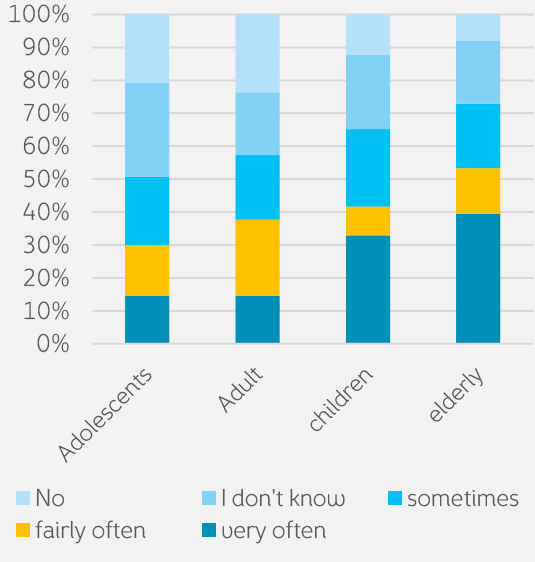
Figure 28 discomfort on biting disaggregated by sex



Difficulty with speech/trouble pronouncing words

Trouble of pronunciation is another important indicator of oral health quality of life, (22.79%) confirmed having a pronouncing problem to a certain extent: (2.15%) stated that they have very often a pronouncing problem, (4.06%) have this issue fairly often, and (16.59%) sometimes. Gender variance was slightly disadvantageous for the female group (4.15%) worse across groups compared with males. While in age groups, elderly group showed the highest percentage (38.82%) of total pronouncing issues (most probably related with the high prevalence of removable dentures in this group) among of which (7.02%) are very often, (4.71%) are fairly often, and (27.06%) sometimes. Children group comes second after the elderly (31.82%) in total had pronouncing issues (could be mostly explained

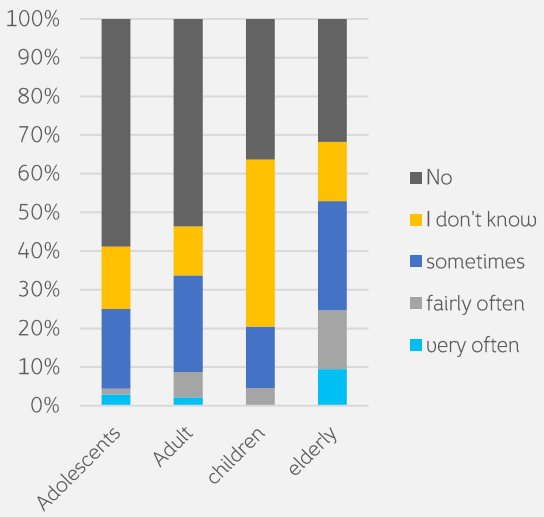
Figure 29 difficult of speech/ pronunciation by age



by growth, new permanent teeth eruption and the change in their occlusion, etc.), (4.55%) have very often issues, and (25.00%) had pronouncing issues sometimes.

Dry mouth

Figure 31 mouth dryness percentage by age group



Saliva has several important functions. Swallowing, digestion, taste, speech, and cleansing of the mouth are among its important benefits. lack of saliva is correlated with the presence of increased plaque and therefore the presence of tooth decay. Saliva neutralizes the acidity of the mouth and without it the balance between health and disease is shifted towards disease. People that suffer from dry mouth often find themselves changing the contents of their diets because they have trouble swallowing foods that are drier. Xerostomia can lead to a higher incidence of aspiration pneumonia Dry mouth can lead to chronic bad breath, otherwise known as halitosis. Eating and speaking difficulties can often lead to avoidance of social situations Sore throat, hoarseness of voice, and a burning mouth sensation are often resulting of dry mouth. Results shows that the elderly group are the most concerned with this issue, (9.41%) suffers from mouth dryness very often, (15.29%) suffers fairly often, and (28.24%) suffers sometimes. It was interesting to observe that all groups express some sort of mouth dryness sometimes (24.96%) from the adults, (20.59%) from the adolescents, and (15.91%) of the children, this should also be considered in light of lack of proper drink water sources and the breakdown of the municipal water grid. In north-western Syria.

Embarrassment by the shape of teeth, avoiding smiling

Figure 33 smiling avoidance, disaggregated by gender

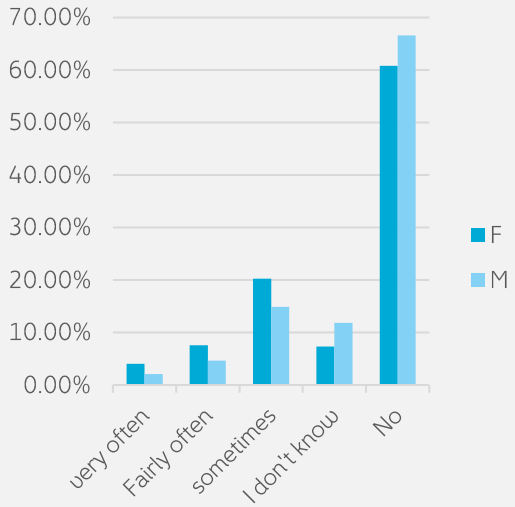
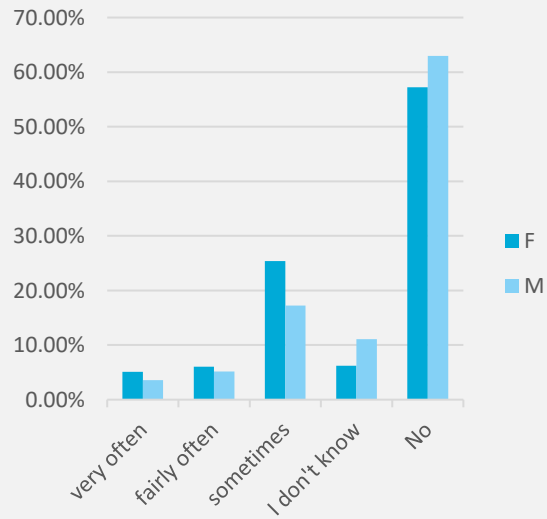


Figure 34 embarrassment by the shape of teeth by gender



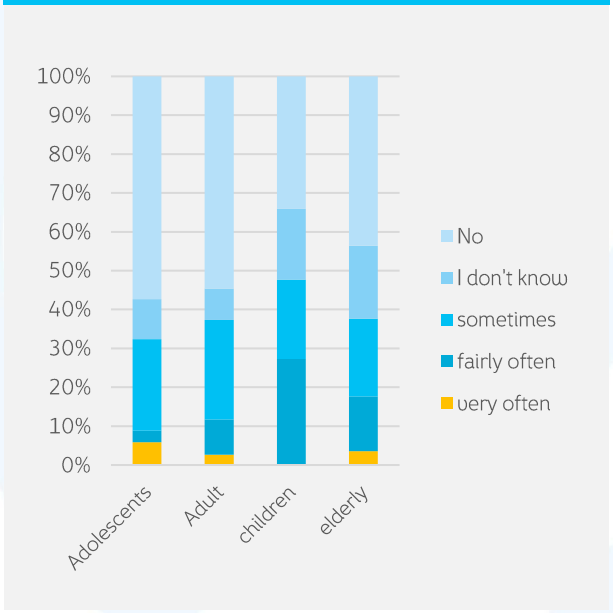
Oral health and the shape of the smile could have an important effect on the person's self-esteem, and therefore considered an important indicator of quality of life. As the results shows, (31.62%) of the studied sample developed an embarrassment feeling about their teeth, (27.09%) reported that they have tried to avoid smiling more or less. Females are more sensitive for this issue compared with males, the percentage of females embarrassed by their teeth shapes in the groups of very often, fairly often, and sometimes are (5.12%), (6.01%), and (25.39%) respectively, compared with males (3.60%), (5.14%), and (17.22%) respectively. Smiling avoidance shows the same pattern and almost a matching numbers per categories. the percentage of females hiding their smiles in the groups of very often, fairly often, and sometimes are (4.01%), (7.57%), and (20.27%) respectively, compared with males (2.06%), (4.63%), and (14.91%) respectively.

Had sleep that is often interrupted because of oral pain

In the general population, abnormal sleep adversely affects quality of life, with impacts on general health status it also affects satisfaction with life, mood, and work performance. Sleep disorders can have a wide range of symptoms, including excessive daytime sleepiness (EDS), fatigue, morning headaches, and impaired cognition and attentiveness[13]These symptoms can impair performance at work and lead to motor vehicle accidents.

Results shows that adolescents, adults, and elderly have very often sleeping disorder results as (5.88%), (2.65%), and (3.65%) from each group respectively, the children's group shows a peak in the fairly often category with (27.27%) experiencing sleep disorders. Mostly related with tooth decays.

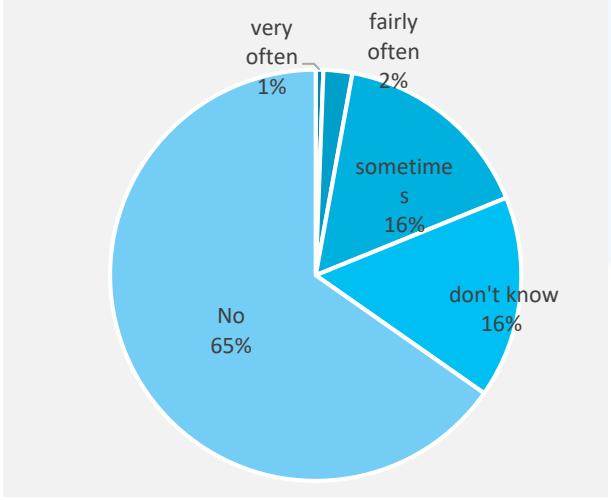
Figure **35** distribution of sleep disorder percentage by age group



Had to take days off work or school

As a consequent result of dental pain and associated lack of sleep, or due to the presence of intolerable pain, or abscesses that would deform the face, and ultimately because they had to make an appointment with the dentist, all of these are reasons for people to take leaves, cut off school, and shows an indicator about the influence of oral health on their lives. Results did not indicate a major difference between groups, those who had to cut off work or study very often represented (0.60%), fairly often represented (2.27%), sometimes was (15.99%). We need to consider here the high

Figure **37** percentage of those who had to take days off work or study

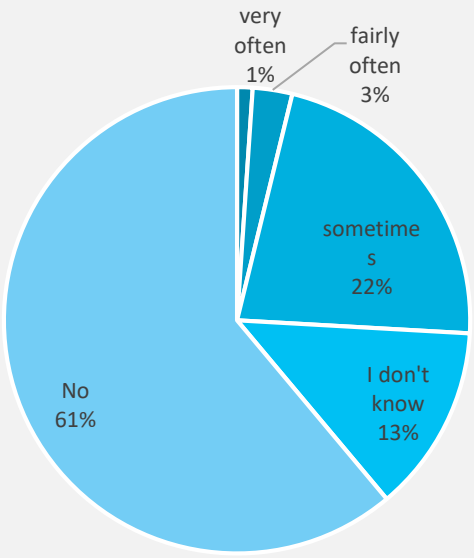


un-employment ratio, and the intermittent attendance to school due to security situation, lack of schools, and the constant displacement, all of these factors might be affecting this indicator.

Difficulty doing usual activities

Physical well–being assumes the ability to function normally in activities such as bathing, dressing, eating, and moving around.[14] this indicator shows similar results of the previous one. those who had difficulty in doing regular activities because of their oral pain very often represented (1.07%), fairly often represented (2.74%), sometimes was (22.08%). except for the female group in the sometimes unable to perform normal activities category, the percentage is (25.61%) versus (17.99%) in the male's group of the same category. The percentage also mounts up by age group, elderly people tend to be more obstructed by their oral health status than the younger populations.

Figure 39 difficulty of doing normal activities



Felt less tolerant of people

Figure 41 losing -tolerance level of people , disaggregated by gender

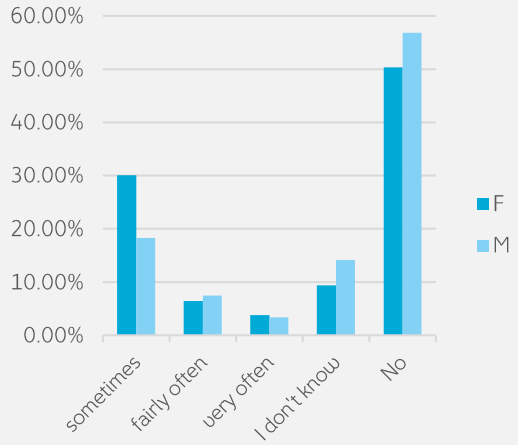
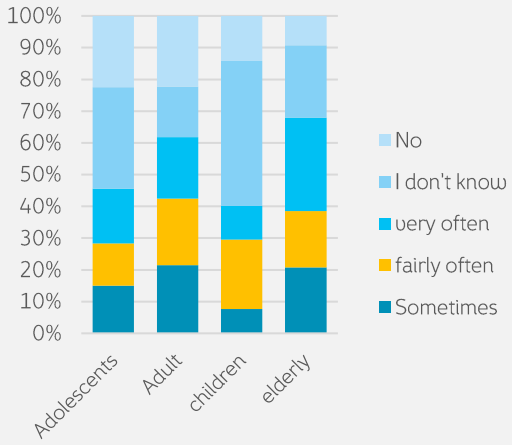


Figure 42 losing -tolerance level of people , disaggregated by age



Social wellbeing relates to one's ability to participate in society, fulfilling roles as family member, friend, worker, or citizen or in other ways engaging in interactions with others. oral status could affect that aspect of social interaction, the study shows that males are less subject to lose temper and tolerance to people in the sometimes category (18.25%) versus (30.07) in female group. The overall percentage of reported lose of temper reaches to (35.08%) in the highest three categories (very often, fairly often, and sometimes), age plays an important role also, as the overall percentage of elderly in the highest three categories reaches to (49.41%) , followed by the adults (35.10%), then the adolescents (25.00%) , and children (22.73%).

Have reduced participation in social activities

The tendency to avoid social contact as a result of concerns over facial appearance has an isolating and depressing effects. Results shows that (17.18%) of the studied sample have expressed social reduced activities in the highest three categories, females are more affected by this factor with (1.56%), (4.23%), and (14.02%) in the very often, fairly often, and sometimes categories respectively, versus (1.03%), (2.31%), and (9.77%) in the males' respective groups. Elderly group showed higher percentages compared with other age groups. (5.88%), (5.88%), and (16.47%) in the very often, fairly often, and sometimes categories respectively.

Figure 43 level of reduced participation in social activities by gender

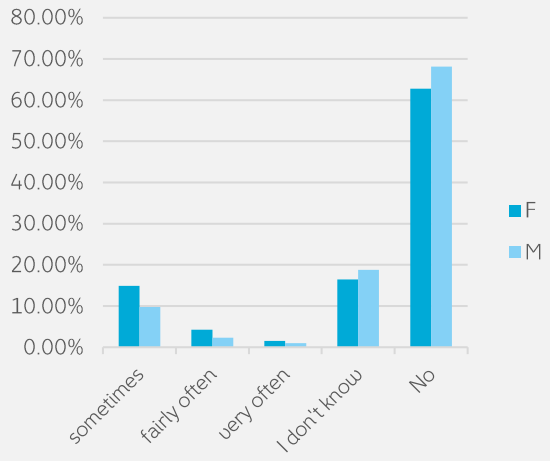
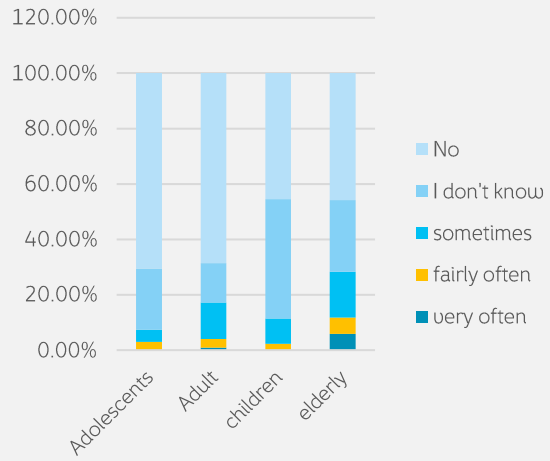


Figure 44 level of reduced participation in social activities by age



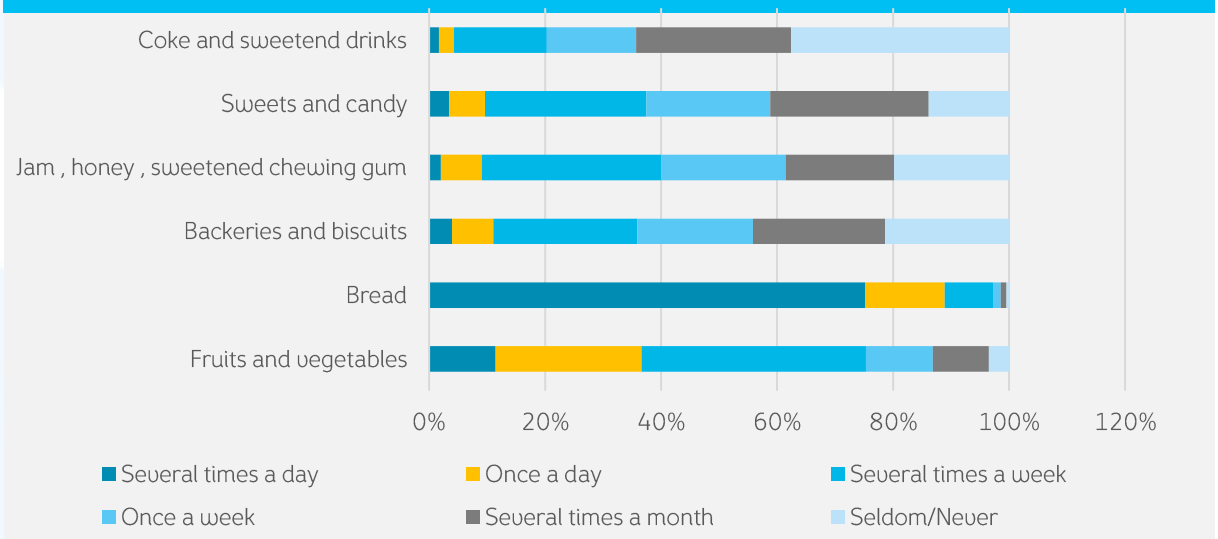
Risk factors analysis

consumption of sugary foods and drinks

Good nutrition is essential for a healthy mouth. Balanced diet helps to provide the nutrients necessary for proper functioning of the oral cavity which includes lubrication, swallowing, mastication, taste, speech and aesthetics. Proper nutrition makes sure optimum salivary release, utmost important thing for a healthy and disease-free oral cavity. However, **not** only solid foods of daily diet, beverages too play an important role in determining overall health status, which is why understanding dietary regimen for the studied population would be important to build a proper awareness plan.

Figure 28 shows the over all pattern for consumption of sugary foods and drinks for the studied sample. It is important to keep in mind that these numbers are coming from a conflict zone where humanitarian crisis might affect the dietary choices of the people. Bread is the most source of carbs that is consumed on a daily basis for at least once or more (88.90%) , followed by fruits and vegetables (36.63%) in the same category, consumption of other food categories tend to become popular on a weekly basis or longer , bakeries for examples is consumed in (24.82%) of the interviewed sample on a weekly basis. Jam, honey, and other sweetened treats are consumed by (30.91%) of the interviewed sample on a weekly basis. While deserts and sweets are consumed by (27.80%) on a weekly basis, and by additional (27.33%) many times a month.

Figure **45** overall pattern for consumption of sugary foods and drinks



Frequently consumed sweetened hot drinks (coffee, tea)

Coffee and tea are famous beverage consumed traditionally in Syria. Both coffee and tea might affect oral health in many ways. The issues become more complicated when we add sugar to the beverage. Which might lead to caries development if consumed frequently. Which is why it is important to know what are the consumer habits regarding these drinks and how to use the advantages of the drink and control its adverse effects to provide and maintain conditions of oral health. Tea is more frequently consumed in all categories (92.96%) versus (64.80%) for coffee. Knowing that it is usual more frequent to add one spoon or more to one cup of tea than of adding the same amount to a cup of coffee. Numbers shows that those who drinks sweetened tea on a daily basis are almost double those who drinks coffee with the same rate (51.07%) versus

(27.57%). Besides the traditional importance of tea. Coffee is more expensive and the difference in price could explain why it is consumed more less.

Figure 46 Consumption rate of sweetened coffee

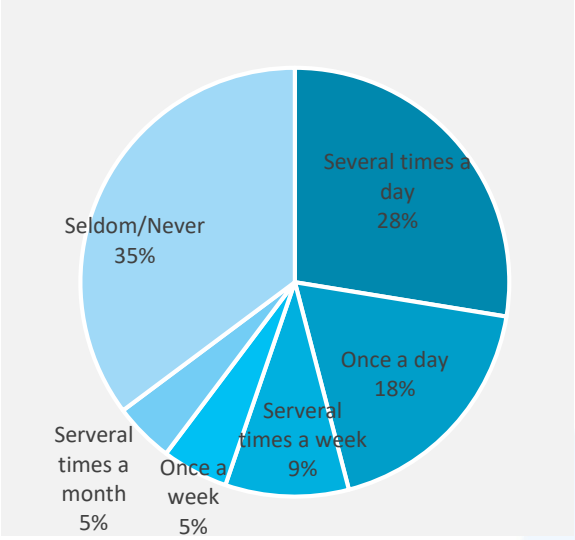
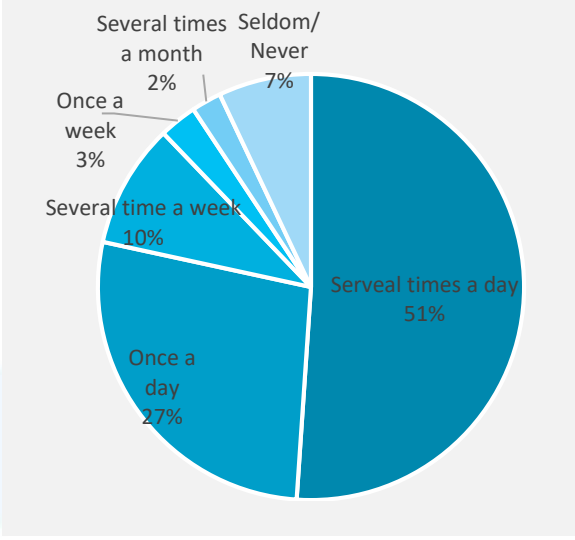


Figure 47 Consumption rate of sweetened tea



Use of tobacco: type and frequency

The adverse effects of tobacco smoking on oral health are well documented. This includes common and rare conditions, from benign to life-threatening diseases such as discoloration of teeth and dental restorations, bad breath, taste and smell disorders, impaired wound healing, periodontal disease, short-term and long-term implant success, oral mucosal lesions such as smoker's melanosis and smoker's palate, potentially malignant lesions and oral cancer[15]

When asked about their smoking habits, (29.00%) of the interviewed population smokes cigarettes every day, (5.49%) smokes several times a week, Nargile smoking comes as the second type of tobacco that is consumed, (4.30%) stated smoking Nargile every day, and (5.73%) smoke it several times a week. (2.15%) smokes hand rolled cigarettes every day, and (1,79%) smokes it once a week.

The consumption of other types of tobacco products reveals low, less than (4%) smokes pipe, among of which only (0.95%) smokes it every day, (3.86%) smokes electronic cigarettes, out of which (0.48%) on a daily basis.

Figure 48 frequency of smoking cigarettes

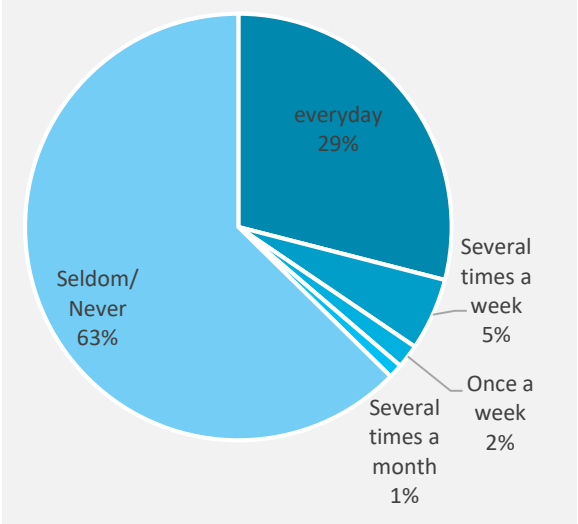


Figure 49 frequency of smoking shisha/Nargile/Hubble bubble

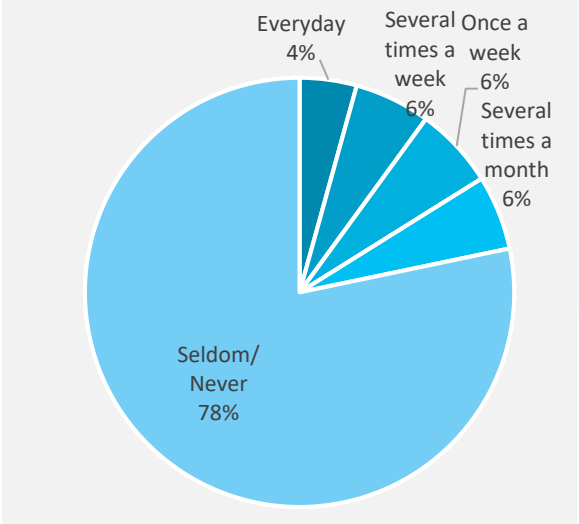


Figure 50 Frequency of smoking pipe

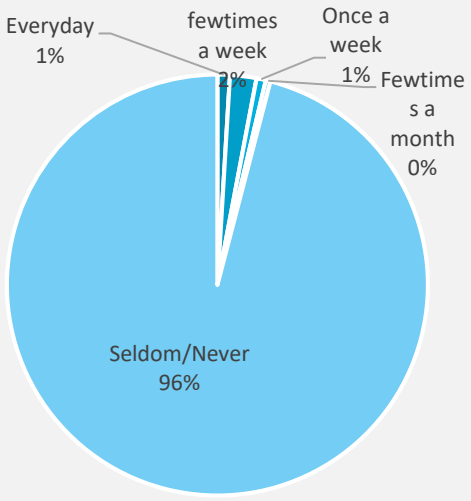
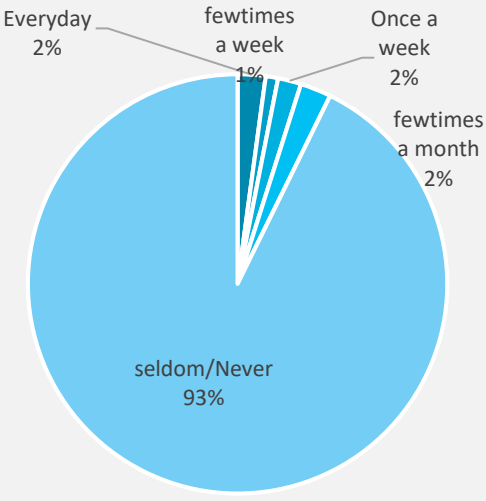


Figure 51 frequency of smoking hand rolled cigarettes



Important difference has been observed between males and females, males tend to smoke more on a daily basis (67.54%) from those smoking everyday were males, while females formed (23.46%) of this category. Same applies for Nargile, in the same category of daily consumers, males formed (66.67%) of the answers while females represented almost the half (33.33%) compared with males in the same category.

Figure 52 Frequency of smoking cigarettes disaggregated by gender

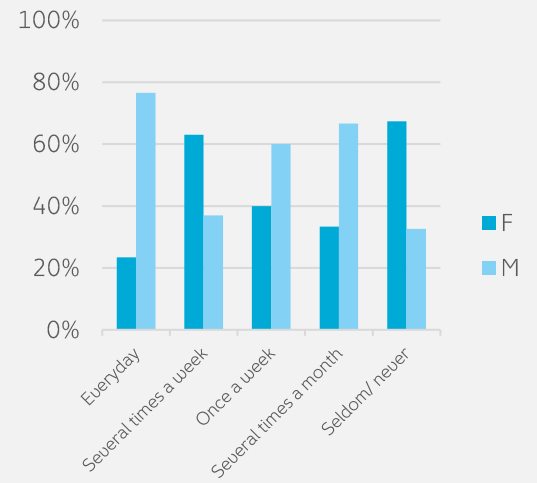
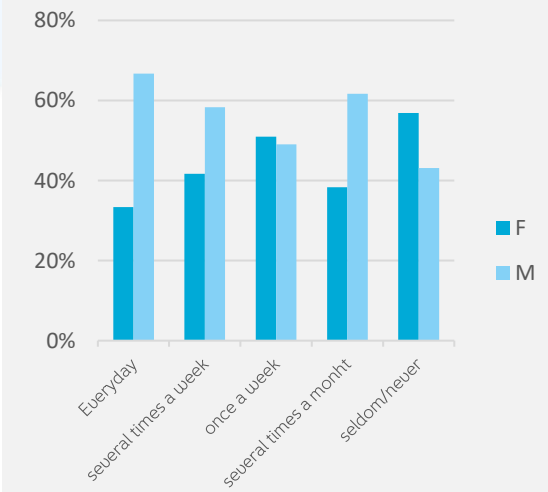


Figure 53 Frequency of smoking Nargile , disaggregated by gender



When disaggregated by age group, data shows that adults and elderly groups is were smoking will occur more often, almost (42.35%) of the elderly groups smokes daily, compared with (31.51%) from the adult's group, and (5.88%) of the adolescent's group. Adolescents group on the other hand has the highest percentage of interrupted smoking several times a week (8.82%) mostly for economic reasons, compared with (5.62%) adults and (3.53%) elderly. Children's smoking rate recorded was less than (2.27%) in daily smoking, but still reaches (9.14%) in all smoking categories combined. Nargile smoking patterns were less in all categories for all age groups, the highest percentage has been recorded in the adult's group (4.84%) use Nargile every day, and (7.33%) several times a week, elderly group shows (2.35%) daily and (1.18%) using during the week. Results shows that adolescents also use Nargile (4.41%) daily, (and (7.35%) smokes Nargile once a week.

Figure 54 Percentage of smoking cigarettes disaggregated by age groups

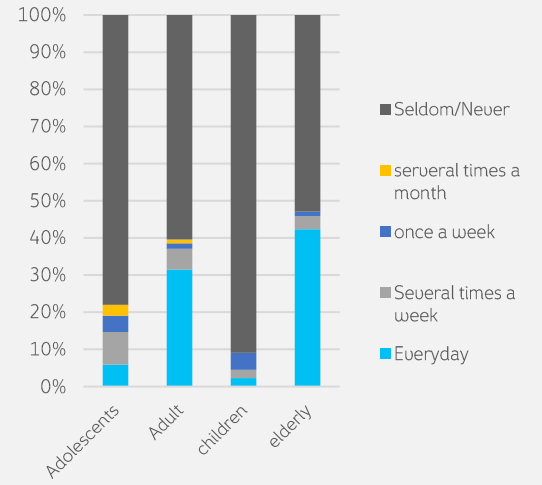
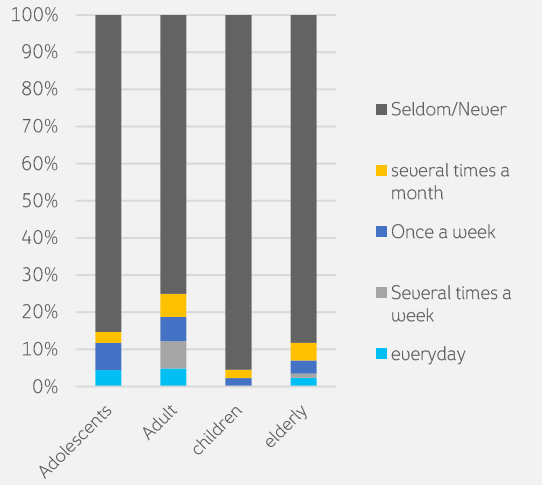


Figure 55 Percentage of smoking Nargile, disaggregated by age groups

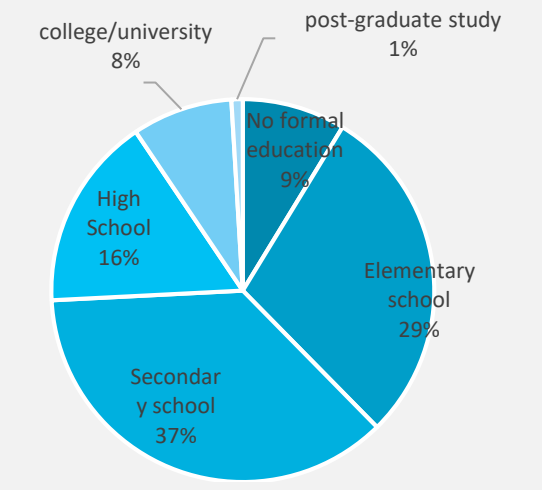


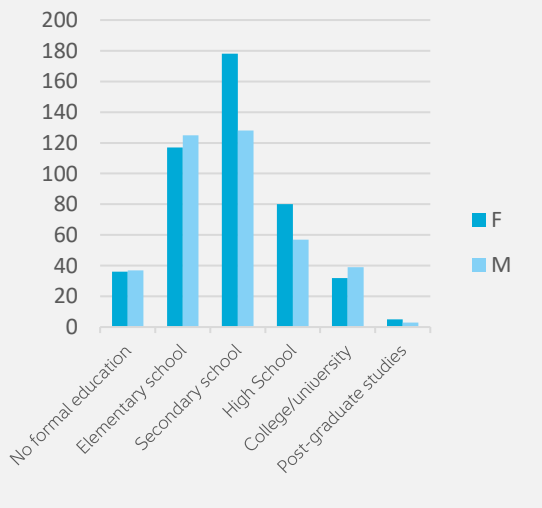
level of education

levels of education show that those with no formal education formed (8.71%) of the sample, pre-university studies collectively count for (81.74%) of the overall sample, while university studies and post-grad studies represents (9.43%). Gender distribution shows that female's presence is higher is secondary schools compared with males (21.24%) versus (15.27%), and in high schools (9.55%) versus (6.80%) respectively.

Because the level of education usually reflects the level of oral health awareness, we can deduct that most of the knowledge people of this sample have acquired were in school phase (81.74%) and therefore, investment in oral care awareness campaign at this stage would probably become important at the long term.

Figure 56 level of education in the studied sample





Conclusion

Oral health is fundamental to overall health, wellbeing and quality of life. A healthy mouth enables people to eat, speak and socialize without pain, discomfort or embarrassment. The impact of oral disease on people's everyday lives is subtle and pervasive, influencing eating, sleep, work and social roles. The prevalence and recurrences of these impacts constitutes a silent epidemic[16]

given the importance of the mouth and teeth in verbal and non–verbal communication, diseases that disrupt their functions are likely to damage self–image and alter the ability to sustain and build social relationships[17] Dental disease can affect the way a person looks and sounds, with a significant impact on wellbeing – a person whose appearance and speech are impaired by dental disease can experience anxiety, depression, poor self–esteem and social stigma which in turn may inhibit opportunities for education, employment and social relationships.

This assessment tried to build a base-line to measure the status of oral health in north western Syria. Collected information will be utilized to also compare the results with data from other countries. It would participate in providing a understanding to the extent of oral diseases and the best strategies to improve oral health in Syria.

ANNEXES

Tool: self-assessment oral care survey

A - Survey information

A01 - Governorate:
A02 - District:
A03 - Sub-District:
A04 - Community:
A05 - Name of Trust researcher:
A06 - Date:

B - Introduction

Hello. My name is _____, and I work with White Smile. I would like to ask you some questions about dental care status and services. We will share the information with White Smile Organization that will use the information to assess the needs of dental care.
It should take about 10 – 20 minutes. It is voluntary so you have the choice to participate or not. It will be completely confidential and the information you give us will not be shared with anyone else. If you feel uncomfortable at any time or it is taking too much of your time, please feel free to tell me. We can stop and you can leave at any time.

B01 - Do you agree to be interviewed?

O Yes O No

C - Demographic characteristics of participants:

Questionnaire n	PHC	Interviewer name	Date
Gender	age	community	Type of residency
			Urban, rural, camp

C1: How many natural teeth you posses

- O No teeth
- O From 1-9 years old
- O From 10 to 19 years old
- O 20 years or more

C2: Do you have a removable denture

- O I have a partial moving kit (yes, no)
- O I have a full top movable kit (yes, no)
- O I have a complete bottom scrolling kit (yes, no)

C3: How do you describe the condition of your teeth?

- O Excellent
- O very good
- O good
- O Average
- O Bad
- O Very bad
- O I do not know

C4: How do you describe your gum condition?

- O Excellent
- O very good
- O good

- Average
- Bad
- Very bad
- I do not know

C5: How often do you clean your teeth?

- Never clean it
- once a month
- 2-3 times a month
- once a week
- 2-6 times a week
- Once a day
- Twice or more a day

C6: Do you use any of the means to help clean your teeth: (circle around yes or no in each line)

- Toothbrush (yes, no)
- Wooden picks (yes, no)
- Plastic picks (yes, no)
- dental floss Thread No)
- Interdental Brush (yes, no)
- Miswak (yes, no)
- Mouthwash (yes, no)

C7: Do you use toothpaste while brushing your teeth?

- Yes
- No

C8: Do you use a paste containing fluoride?

- Yes
- No
- Do not pay attention to the subject normally

C9: What was the last time you visited a dentist?

- Less than 6 months
- From 6-12 months
- More than one year and less than two years
- More than two years and less than five years
- more than five years
- I have not visited the dentist in my life

C10: What is the reason for your recent visit to the dentist?

- Consultation, preview
- Pain or discomfort in the teeth, gums, or mouth
- Treatment or follow-up treatment
- Routine periodic examination
- I do not remember

C11: Do you sometimes feel that you have any of the following problems due to the condition of your teeth? (Circle the correct answer on each line)

- Difficulty chewing food (I do not know, I have no problem, sometimes, very much, very much)

- Difficult to bite and cut food (I do not know, I do not have a problem, sometimes, very much, very much)
- Difficult to speak and pronounce some characters (I do not know, not my problem, sometimes, very often, very much)
- Dry mouth (I do not know, laxatives, sometimes, very much, too much)
- Embarrassment from the shape of your teeth (I do not know, I do not care, sometimes, very much, very much)
- Try to avoid smiling because of the shape of your teeth (I do not know, I do not know how often, very often, very much)
- Sleep problems due to tooth pain at night (I do not know, I have no problem, sometimes, very much, very much)
- Having to take frequent day off from work because of your teeth (I do not know, I do not know how often, very often, very much)
- Difficulty in performing normal activities (I do not know, I do not have problems, sometimes, very much, very much)
- Feeling irritable due to your oral status (I do not know, sometimes I do not know, very often, very much)
- Avoid to participate in some social activities because of your teeth (I do not know, sometimes I do not know, very often, very much)

12. How much do you drink or eat each of the following foods: (circle the correct answer on each line)
    - Vegetables and fruits (rarely, several times a month, once a week, several times a week, once a day, several times a day)
    - Bread (rarely, several times a month, once a week, several times a week, once a day, several times a day)
    - Pastries (rarely, several times a month, once a week, several times a week, once a day, several times a day)
    - Jam and gum with sugar (rarely, several times a month, once a week, several times a week, once a day, several times a day)
    - Desserts (rarely, several times a month, once a week, several times a week, once a day, several times a day)
    - Cola and sugary drinks (rarely, several times a month, once a week, several times a week, once a day, several times a day)
    - Tea with sugar (rarely, several times a month, once a week, several times a week, once a day, several times a day)
    - Coffee with sugar (rarely, several times a month, once a week, several times a week, once a day, several times a day)
13. How much do you use the following tobacco products: (circle the correct answer on each line)
    - Packaged cigarettes (rarely, several times a month, once a week, several times a week, daily)
    - Nargile (rarely, several times a month, once a week, several times a week, daily)
    - Pipe (rarely, several times a month, once a week, several times a week, daily)
    - Hand-rolled cigarettes (rarely, several times a month, once a week, several times a week, daily)
    - Electronic cigarette (rarely, several times a month, once a week, several times a week, daily)

C14: What level of education did you complete?

- No formal education
- Primary stage
- An intermediate stage
- High school
- University stage
- Postgraduate

H - End of Survey

"Thank you for your time and willingness to share information with us. We have asked you a lot of questions and you have provided us with very valuable information. Please remember that all the information provided will be kept anonymous. We will share this information with White Smile to help them assess the needs for their future projects. We will not share any of your personal information with anyone else."

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Assessing oral health status
in north western Syria
January -2019

White Smile Organization
Turkey-Gaziantep
2013-2019

White Smile is a Syrian non-governmental organization, specialized in the provision of dental care services and advocating for integration of dental care into the broader humanitarian health response in Syria.

The White Smile mission is to inspire, encourage, facilitate, and promote quality oral care with the goal to prevent and alleviate human suffering, and thereby contribute to maintaining human dignity. White Smile's activities are guided by the ethics of health profession and also by the four humanitarian principles: humanity, neutrality, impartiality and independence.

White Smile seeks to sustain oral care services by empowering the local community. train more dentists, develop the capabilities of current dental staff, represent their aspirations and influence legislation and dental care policies at all levels.

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