

Systematic review and meta analysis health and social care essay



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INTRODUCTION: Xerostomia is a subjective finding which stands for dry mouth . Having a dry mouth is symptoms. Whereas salivary hypo salivation is a objective sign that is measurement of a reduction of salivary flow . Oral symptoms can be as follows ; mouth can be dry with ropy viscous saliva , dry or cracked lips , severe coronal and root caries and frequent recurrent decay, burning sensation in tongue, salivary glands some times are swollen or enlarged ; patient might complain of being thirst , problem with mastication and swallowing along with difficulty speaking and taste loss . The reduction in salivary flow can be due to multiple reasons one of the most common is due to medications adverse effect or poly pharmacy ; one of the most common xerogenic drugs are tranquilizer , anti-depressants , cardiovascular , anti histamine; there are more than 500 xerogenic drugs . others reason for xerostomia can be due to systemic diseases like diabetes , HIV , sjogren syndrome, systemic lupus erythematosus , scleroderma , most of these are autoimmune diseases. some psychological disease such as anxiety can result in xerostomia due central inhibition of primary salivary connection and higher centers and one of the most severe xerostomic reasons are due to head and neck radiation ; xerostomia can also be due to loss in function due to tooth loss. Aging is also considered one of the physiological cause of reduced saliva. Dry mouth can be perceived by patients until the loss of greater than fifty percent of un-stimulated salivary flow. There are three major salivary gland in the mouth largest being parotid which is serous glands and is responsible for fifty percent of stimulated salivary flow ; sub mandibular s the mixed gland that is mucous and serous and only give s thirty percent of stimulated volume but unstimulate volue is sixty five percent and sublingual gland make most of mucous secretion and <https://assignbuster.com/systematic-review-and-meta-analysis-health-and-social-care-essay/>

only have less than 10 percent of unstimulated flow. There are many minor salivary glands in the mouth in palate labial mucosa with mucous function. Total salivary production of 500-600ml /day . According to Sreebnyl et al 1988 there is up to twenty five percent of general population complains of dry mouth . Saliva has many functions from keeping the mouth moist , antibacterial , anti fungal and anti-viral properties , regulation of pH of mouth , maintenance of tooth , oral mucosa , digestion , speech and taste .

Xerostomia can result in lots of problems due all of the different functions of saliva such as increased incidence of caries, gingivitis , burning mouth syndrome , dry lips or angular cheilitis ,, oral mucosa soreness such as frictional keratosis , aphthous ulcers,, dysphagia , dysgeusia halitosis, , increased frequency toward infection for instance candida infections such as denture stomatitis or erythematous or pseudomembranous candidiasis other infection like salivary gland infections; salivary gland . enlargement and reduction denture retention . In order to verify xerostomia we should know the difference between stimulated and unstimulated salivary flow and both can result in dry mouth its different consequence. Stimulated salivary flow is the result of stimulation , it is 200ml /day whereas unstimulated salivary flow is saliva that is always there its range is 300ml/day it can be effected by many physiological process . Decrease in salivary gland can be confirmed by different test such as sialometry in office test in which you asses both stimulated and unstimulated flow others diagnostic tests are pH and buffering capacity tests , or sialochemistry , We can also do different imaging test such as sialography or salivary scintigraphy . Saliva now can be as a diagnostic aid and future research are been done on this . Patients with xerostomia are placed in high risk caries protocol group as there is no

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buffering capacity in the mouth to reduce acidity in the mouth so measure have to be taken to reduce the acidity for instance such as in office topical fluoride , advice sugarless gum (xylitol) three to five times this will stimulate salivary flow and reduce acidity ; avoid alcohol or caffeine and increase water intake to 64oz per day or salivary substitute in severe cases or saliva stimulant medication such as pilocarpine and cevimeline . electrical stimulation and genetherapy is the future . SIGNIFICANCE: Reduced salivary flow has a great impact not only on oral cavity but it can affect the quality of life and general health of people in there day to day life . One of the consequence of dry mouth is patients have gross incipient, recurrent , new coronal /root caries and loss of teeth . Management and treatment of xerostomic patient can be a challenge but it can be increased if a patient has some other problem like in my patients case psychological disease such as schizophrenia , bipolar , severe depression , some kind of phobia . Saliva has lots of functions and uses and one most recent research has shown that saliva can be used in diagnosis of various diseases. Special consideration has to be taken to understand all the aspect of disease and its management .

PURPOSE;

The purpose is to identify xerostomia and its effects on oral health such as dental decay among patient population with advance mental disorders . This will help us to further understand to evaluate , resolve and manage patients problem at early stage .

Literature review

PICOP: Adults populationI: Patient with XerostomiaC: Patient without

XerostomiaO: Development of caries and tooth lossClinical QuestionDo adult
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population with xerostomia have high risk of developing dental caries and over all worse oral and general health ? Search Strategy-Literature search was done through NYU health science library home page using PubMed search engine to get accesses to articles. Xerostomia and dental caries was used as a search string. The search resulted in 685 articles. I choose one article from this on quality of life xerostomic patients; then I narrowed it down through advance search by checking off highest hierarchy articles that is randomized controlled trail, meta analysis and systemic review. The filter lead to twenty five articles. I choose three article from this list one article is about relationship of mental disease patient and oral health that is linked to xerostomia , second article is a randomized controlled trail on patients and buffering capacity of saliva and dental caries ; third article is a meta analaysis its based on saliva use as biomarker in diagnosis of disease. I have tried to cover all the aspects of saliva as a diagnostic function ;, hypo salivation effect on oral health , effect of fluoride gel to reduce.

ARTICLE 1:

Advanced dental disease in people with severe mental illness : systematic review and meta-analysis

AUTHOR: Steve Kisely, Lake-Hui Quek, Joanne Pais, Ratilal Laloo, Newell W.

Johnson and David Lawrence]JOURNAL REFERENCE: The article was published

in The British Journal of Psychiatry in year 2011SEARCH STRATEGY: Search

for the systemic review was done from search engines Medline, PsycINFO,

and Embase . from the year 1988 to 2010 , the text words used were as

follow ,, mental illness, demnattia, psychosis, psychotic disorders, dementia .

depression, mood disorder, schizpphrenia , bipolar disorder oral health ,

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dental care . After initial article search each article reference list was also looked up . In the end twenty articles were selected and all the articles were reviewed by two examiners and then another person sorted out the data.

INCLUSION CRITERIA ; Inclusion criteria for the studies was severe mental diseases such as schizophrenia , bipolar disorder or primary dementia.

Second criteria was studies with clinical diagnosis. **EXCLUSION CRITERIA :**

This criteria was conditions like eating disorder and post traumatic stress disorder . studies on conditions like alcoholism and substance abuse. Other criteria was studies with less severe dental diseases. **STRENGTHS AND**

WEAKNESS; One of the strength was that they included studies for all over the world so generalizability was avoided by having all ethnicities . Another strength was they used caries index DMFS along with DMFT , as DMFS is better in analyzing because we can measure more area compared to DMFT where we just use 32 teeth versus DMFS that is thirty two by 4 surface gives us detailed review. This study was able to maintain the ratio of gender population . Weakness were in studies selected showed some difference in outcomes , reason being that the data selected was done in different manners as few did not have comparison groups This study was not able to use all the confounders like smoking , educational status as these do have effect on oral health shown in previous studies . The author was able to only eliminate bias in edentulouism but not in other evaluating criteria like fluoridation effects as there not two or three studies who discussed fluoridation so not enough facts. **CONCLUSION: :** This study is about severe

dental disease among advance mental conditions , it's a systemic review and the results showed us that out of twenty one articles only 14 had enough data to gather random results . This special population have a an odds of <https://assignbuster.com/systematic-review-and-meta-analysis-health-and-social-care-essay/>

developing more than three times the chance of losing teeth than health population. Along with that higher DMFT and DMFS scores. They also calculated the fluoridated water effects on mentally diseased patient and community, results showed it reduce dental problem. The message to learn is that extra care and instruction should be taken with this weak population to improve their oral health that will in turn effect patients health. ARTICLE 2: Buffering effect of a prophylactic gel on dental plaque in institutionalised elderlyAUTHOR; Persson A, Lingström P, Bergdahl M, Claesson R, van Dijken JWJOURNAL REFERENCE : This article is been taken from journal of gerontology from year 2007 in june . volume 24 .

- INTRODUCTION; This article is on randomized controlled trial based on a study on institutionalised elderly patients the purpose of the effect of a this study was to find the effect of an application of a gel on xerogenic patients and then monitor the effect on the buffering capacity; levels of cariogenic bacteria and candida albicans levels. METHOD; The study was conducted with fourteen elderly from Sweden with dry mouth or low buffering capacity. They had some disease and were on more than one medication. In which they were treated for sixteen days with three random application of one propyl fluoride gel with buffering capacity and second one was without any capacity third group with just water. They were applied four times and then again was applied after two weeks break each time before and after application measurement were made for buffering capacity, plaque pH measurement, stimulated salivary flow, number of colony forming units of streptococci, lactobacilli and C. albican. The gel contained bicarbonates,

phosphates and fluoride . Post data collection was done with Statistical analysis that was done of with all the results by comparison of difference between treatment by t-test . RESULTS ; Among fourteen participants three dropped out one died and two with drewed , Remaining participant no statistically significant difference was seen among salivary flow rate , plaque -pH measuremnet during or after the treatment among all three groups , there was more plaques acidity after treatment and increase levels of lactobacilli and low levels of c. albicans . SUMMMARY ; This study was conducted on a very small sample size and they did not tried to eliminate any confounders like gender , age , ethnicity , smoking , diseases or number of teeth . The pre Data phase the participants were not able to participate in sample for unstimulate saliva because of severe xerostomia . After seeing all these limitation the results showed that there was no difference in the results of plaque pH in these patients , so in order to have any effect on reduction of buffering and acidic effect we have to consider all the different aspects of xerostomia that is viscosity , high pH, low solubility , oral hygiene , plaque accumulation . It was seen increase indifferent population of microorganism it was because gel acted as niche for these organisms . ; harbouring more bacteria sandd other microorganisms.

ARTICLE . 3:

Defining Salivary Biomarkers Using Mass Spectrometry-Based Proteomics: A Systematic Review

Author: Sandra K. Al-Tarawneh, Michael B. Border, Christopher F. Dibble and Sompop Bencharit

Journal Reference: The article was published in " A Journal of Integrative Biology" in year 2011. SUMMARY: This article critically reviews

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various studies undertaken in the recent past about the usage of MS (mass spectrometry) based methods to identify disease specific biomarkers through salivary proteome. The authors of this review analyzed from the peer reviewed articles the types of relevant saliva as per the studies, the salivary sample collection and handling methods followed in the studies, the inclusion and exclusion controls employed in these studies, proteomic techniques utilized in the studies and the process of biomarker discovery and validation. Citing biomarkers such as Cystatin SA-III, Acidic PRP-1 1P and Alpha-amylase and their cellular component activity with respect to various diseases/disorders, the authors optimistically discuss their usage as diagnostic tools, either as combinations of identified biomarker expressions, or through associations between biomarker expression and clinical assessments. Through a discussion on their findings on dissimilar biomarkers for a given disease in the range of studies reviewed, the authors cite possible reasons as non-similar sample collection and handling protocols and difference in proteomic techniques utilized.

METHOD OF DATA COLLECTION: Three medical academic databases were opted to search for studies relating to saliva and proteomics using various keywords and combinations of words. Two reviewers carried out two independent searches on these databases and abstracts of all the articles were analyzed. Initial search turned 243 articles, which was narrowed down to 21 subject to various exclusion controls such as reviews, opinions, articles in other languages, studies not on saliva, studies not on humans or studies not on a disease.

STRENGTHS AND WEAKNESSES: This review very comprehensively highlights the advantages of using MS technology in salivary proteomic study, and shows that progress is positively being made in the right direction. The authors present their findings in <https://assignbuster.com/systematic-review-and-meta-analysis-health-and-social-care-essay/>

correlation with well laid out tables and data and discuss their findings thoroughly. The review's discussion section could have been represented in a manner that made it easier for the reader to know which sub-topic is being discussed. CONCLUSION: The review successfully makes its point in the ease and simplicity of using saliva as means to obtain diagnosis for different diseases through MS. At the same time it recognizes that more research is required in this area; it suggests that sample sizes be increased and a more standardized/controlled protocol be observed in the research. Successful research in this area represents an exciting and improved means of diagnosis, which would depend entirely on either MS or a combination of biomarkers and clinical strictures.

ARTICLE . 3;

The impact of xerostomia on oral-health-related quality of life among younger adults

AURHORS : W Murray Thomson^{1*}, Herenia P Lawrence², Jonathan M

Broadbent¹ and Richie Poulton

JOURNAL : Journal of quality of health and life

out comes pulished in 2006

SUMMARY : This article was based on effects of xerostomia on the daily life of adults . It's a crossectional study that is based on prospective observational study , done in Dundeein , New zealand

Study was conducted using clinical dental examination and questionnaire on dental aspect of 32 year old and then an oral health related quality (OHRQoL) was measured using oral heath impact profile index . Results showed that among 923 participant , ten percent showed xerostomia effect regardless of sex . Study showed significant association showing us that xerostomia do effect health related quality of life. patient are effected in different ways daily in

there life . **STRENGTH AND WEAKNESS;** Strength of this study was that it used two different scales of quality of life to check the association and then statistically measured the data using valid post data techniques to take out any margin of error . Another strength was from dental examination point of view all patient 923v were examined by trained dentist that were only two so cut done ; dentist did caries check based on DMF index and a system was developed for m that is missing teeth , so that only teeth lost due to caries were included and periodontal assessment was also pre calibrated to avoid any partiality ; again in the end all the results were statistically adjusted to eliminate any confounders. One of the greatest weakness of this study is generalization study shows association but it is based on one ethnicity with similar individuals how can it be generalized for every one . Another weakness is questionnaire is to the point and simple and is based on word of mouth not on examination or tests like sailometry to see the affirmative answers. Another weaknesss of this study is that the study was based on another old study that was based on elderely patient population . **RESULTS;** The study shows a strong assosition of xerostomia and oral health related quality of life with negative emotionality ; Individual with high negative emotionality get easily burdened and stressed . Such individual report poor oral health related issues along with xerostomia syptoms . This small study should be a more through research should be done to find out the root of the cause in adults and its prevention.

SYNTHESIS OF THE ARTICLES:

After going through these four different article based on xerostomia its effect on mental disease and quality of life we analyzed that dry mouth have a

profound effect on the overall general effect on the health and wellbeing people and decrease in salivary rate can occur at any age and reasons can be various and from medication disease to aging ; with hypo salivation you some across loss of function of mouth and its deterioration that physiological can be due to pH imbalance towards acidic environment , change in micro flora towards cariogenic bacteria , loss of buffering capacity and clearance of food , all of these basic function effect hard and soft tissues that will result in caries and tooth loss. If patients starts to lose teeth in future it will effect directly patients quality of life and there welfare . People having mental ailments are three times more to develop caries as they are on medications such as antidepressant, tranquilizers that can cause dry mouth and as these patients can also have combination of dental phobia can result less visits to dentist . So it's a must to educate these patients to manage their problem along with care providers such as nurses and social support personal . ; better health promotion and disease prevention be a great help for the community to have directly these are related . Furthermore saliva now can be used I for diagnostic purposes . it can aid in diagnoses of diseases and even caries by specific marker. **CLINICAL SCENARIO:** A forty year old Caucasian male patient came to New York university School of Dentistry General Clinic in February 2012. Patient informed that he has been treated in past at the school. **CHIEF COMPLAINT:** His chief complaint was " I'm here for checkup". **MEDICAL HISTORY:** Medical history showed that two months ago he had an incident of pneumonia . He also informed that he has schizophrenia since 18 years of age and is on multiple medications to treat it . He also has arthritis in left knee and shoulder and had a ligament surgery of his left knee. **ALLERGIES;** He is allergic to penicillin and he had incident of <https://assignbuster.com/systematic-review-and-meta-analysis-health-and-social-care-essay/>

swelling and difficulty breathing. REVIEW OF SYSTEMS: In systems review, he stated that he is in good shape. General: He sometimes feels malaise and fatigue; have observed no weight loss; was concerned about his weight. His skin is clear and he does not have any rash, pruritus, lumps or redness. ENT: No changes in sight or hearing. Cardiovascular: His blood pressure is controlled and he does not have any chest pains; some time he has palpitation. Pulmonary; no shortness of breath, lingering cough or wheezing. Neurological: no loss in any sensation or any other bizarre symptoms like tingling or numbness. Gastrointestinal: He does not have any current or past history of any gastrointestinal problem like indigestion, constipation, and diarrhea or heart burn. Endocrine: Does not feel frequently thirsty or hungry. Hematologic: no prolonged bleeding after injury or signs of bruising. Musculoskeletal: Pain in shoulder and knee joints; some muscle weakness. Psychiatric: He does not have anxiety or depression issues and no loss of appetite. SOCIAL HISTORY: His education level is high school and is currently employed as a clerk. He never smoked and used to drink in the past but quit drinking three years ago. DENTAL ORAL HISTORY: His dental visit was an emergency visit. He claimed that he brushes more than once a day; flosses occasionally and uses mouth rinse. Patient has few missing teeth in both maxillary and mandibular arch; he wears a partial removable prosthesis in both arches. Para functional habit of nail biting. His past dental treatment includes restoration in past one year, extractions, root canal therapy, partial dentures, crown and periodontal therapy. Patient showed concern about bad breath and dry mouth. PROBLEM LIST :

Problem List:

Chief complain. " I am here for check up" Medical risk ; Patient has schizophrenia and depression for which patient is on multiple medication . he is also allergic to penicillin . Susceptibility to chronic health disease ; Patient is susceptibility to cardiovascular due to obesity and history of smoking . Type 2 Diabetes due to obesity . Periodontal disease ; Plaque induced gingivitis due to plaque and calculus and defective restostoration and prosthesis. Caries ; High risk due to presence of caries on distoocclusal and buccal of #6 , #8 incisal disto facialolingual lesion, #10 incisal mesial faciolingual caries,# 12 mesioocclusal and # 21 occlusal .-Functional Deficiencies: There is functional limitation due to loss of posterior teeth- Esthetic, Concerned about his front teeth and smile .

RISK FACTORS FOR SUSCEPTIBILITY TO ORAL DISEASES; Risk assesment help us to undersstand future risk of disease sussetipbility based on different risk indicator

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CARIES : Patient belong to high risk category as he has alot of risk indicators , restoration done in an years time ; new lesion on multiple anterior and posterir teeth , caries on root surface on #6 . Other then indicators patient also have lots of positive caries risk factors such as he has lots of visible plaque , broken down restorations and prosthesis ; salivary disorder patient complained of severe dry mouth . **PERIODONTAL DISEASE;** Patient have moderate risk status for periodontal disease he have less then 1 mm of attachment loss on few surfaces of teeth , but he has a lot of plaque and calculus accumulaton , past tobacco and defective restoration. **ORAL CANCER:** Patient has a moderate risk for developing cancer as he has past <https://assignbuster.com/systematic-review-and-meta-analysis-health-and-social-care-essay/>

history of tobacco smoking . NUTRITION: Patient has a low nutrition risk as has difficulty eating as he has stopped using his partial denture after the loss of two teeth . He also can be categorized as bit overweight.

MEDICAL RISK ASSESMENT:

This patient is classified as 1C according to MCS classification that is patient has controlled disease but can result in minor events ; this pateint has schizophrenia and depression for these problem he is on medicatio and is complaint and does to his physician regularly and is allergic to penicillin . According to dental modification status is classified into DM3 patient needs modification after treatment as he is allergic to amoxicillin so we have to use other antibiotic in case of oral infection . No medical consult was required for this case . Few Modification has to be taken before and during the treatment patient has severe denral phobia , care was taken with good antianxiety protocol , that is profound anesthesia starting with good topical to easy his nerves done then , explaining each and every step of treatment was to be done on him so that there was no element of surprise for him . and good anelgesic coverage after treatment also so that patient is pain free after procedure also.

TREATMENT PLAN:

HEALTH PROMOTION: Patient was guided and educated about his dental and overall health orally nutrional counselling done in which he was informed about his BMI and his susceptibilty to wards future disease . he was educated on snaking , healthy foods and cariogenic food. High risk caries protocol given to patient that is he was given prescription of Prevident 5000 plus , MI paste , Xylitol gum (3 to 5 times daily)that will also help patient with dry <https://assignbuster.com/systematic-review-and-meta-analysis-health-and-social-care-essay/>

mouth by stimulating salivary flow , oral hygiene instruction given to brush twice daily and floss. Smoking cessation counselling done . Phase 1: included Comprehensive oral examination, Full mouth series xray taken and adult prophylaxis. Phase 2: included Excavation of decay distoocclusal #6, restoration , possible root canal treatment , post & core and crown on # 6; Restoration # 8 IDFL, Restoration on #10 IMFL, possible root canal , post and core and crown ; Excavation of decay from #12 mesio occlusal , root canal treatment , post & core and PFM crown or possible extraction; restoration 21 occlusal. Phase 3 consist of addition of tooth to existing denture and prosthodontic consult. Recare ; Patient is in a high risk caries status with reevaluation in every 3 months and radiographic reevaluation in every six months that is anterior periapical radiographs. Patient is xerostomic inoffice salivary flow assesment saliva buffering and pH test. Prophylaxis every six months.

Treatment:

Patient comprehensive treatment was started in march 2012 , on his first day treatment plan was made patient with full oral evaluation and examination , full mouth xrays where taken perio charting was done . Patient had some anxiety issues . Patient also informed at the end of first visit that he had a filling on #6 that came out and also had an emergency and he came for that tooth a week ago and they temporized the tooth . I filling was out again so I temporized again IRM after that hygienist did his cleaning on the same day of treatment plan as he had a lot of plaque and calculus . Patient returned next day removed temporary filling, excavated all the decay from buccal side and mesialocclusal side and as the decay was on top of chamber

root canal was started on #6 , rct was done in three appointment RCT was challenging root was dilacerated so obturation was done with combination technique by packing soluble guttapercha in the canal and then condensed regular guttapercha , Prefabricated post and core was done . Then a PFM crown was done on #6 again that crown was a challenge because of the healing socket adjacent to the teeth and bad periodontal condition and oral hygiene . It took three visits to get a good final impression final visit bevel was made on the lingual side . After final impression it case was send to crown fabrication but case was rejected as the bite was not good . So bite was taken with wax rim and alluwax plus coping on the prepared #6 teeth . Case was send out again crown was cemented finally after 2 months of hard work . Meanwhile I was working on his #6 crown his #12 flared up emergency pulpotomy was done , and tooth was temporised after caries removal . Tooth #12 root canal was completed after four visits ; patient was really anxious during whole procedure ; instrumentation was done under septicaine because of the pain and anxiety . I noticed that reason o his anxiety was that his local anesthesia also wears off really fast , reason being on mutiple drugs one of the drug