International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Patients' View on Non-Surgical and Surgical Periodontal Therapy in Relation to Oral Health: A Narrative Review

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Abstract: ***Oral disease has a prominent influence on diurnal lifestyle and quality of life from the physiological, societal, and psychological perspective. Around 10% of the adult population of the world comes under moderate to severe periodontitis and makes it 6th most prevalent chronic disease worldwide. Periodontitis is responsible for thirty to thirty-five percent of overall tooth loss and forthwith impacts QoL by adversely impacting the usual functioning capability such as chewing and biting, confidence level and self-esteem and social relationship. A number of works associated with NST and ST medical or clinical assessment over patients well-being. However, there is inappropriate evidence that emphasises on patients' insight of periodontal procedure and its influence on oral health related QoL Thus, research review is intended to emphasise on exploring the patient perception regarding NST and ST and its relation with oral health. The review was conducted on two fundamental bedrock: first is comparing among both the therapeutic approach, and its consequences after treatment. Along with the viewpoint of the patient who went through NST and ST procedure, the study also determines association with QoL. To comprehensively execute the research the discussion segment classified into several subparts-the procedure of NST and ST, clinical consequences of NST and ST, oral health emphasising on QoL and comparing both the procedure. The review concluded that NST is capable of initial stage treatment. Hence, to deal with the chronic periodontal disorder it was suggested to start with non-surgical treatment before underwine surgical procedure. The study also recommended that the researcher may support for more exclusive comparison on NST and ST for long-term perspective.***

Keywords: Non-Surgical Therapy, Surgical Therapy, Periodontal Therapy, Periodontitis, Oral health-related quality of life.

1. Introduction

Periodontitis is an inflammatory infectious dysfunction that takes place because of imbalancing between the dento-gingival biofilm and host retaliation [1]. Destruction of periodontal ligament and support bones because of inflammation in the tooth supportive tissue takes place, which is responsible for abnormality and eventually leads to tooth loss. The abnormality is also influenced by genetic factors other than environmental and living style factors like smoke and systematic disorder [2]. Symptoms associated with disorder can be halitosis, swollen, drifting and missing teeth, receding gingiva and tooth mobility. Periodontitis is responsible for thirty to thirty-five percent of overall tooth loss [3] and forthwith impacts QoL by adversely impacting the usual functioning capability such as chewing and biting, confidence level and self-esteem and social relationship [4].

Number of studies exhibit that periodontal disorder is ranging from 5% to 85% among adults [5]. Around 10% of the adult population of the world comes under moderate to severe periodontitis and makes it 6th most prevalent chronic disease worldwide [6]. The diagnosis of dysfunctioning usually relies on objective evaluation of patient medical and dental history along with clinical and radiographic examination. Once the diagnosis completed patients were scheduled to proceed with periodontal therapy [2]. Initially, NST with or without complementary local antimicrobial factors has been broadly selected. After non-surgical therapy is accomplished, patients still show continual gingival inflammation with sub-changeable pocket surgical interference might be appropriate to go with [7].

Oral disease has a prominent influence on diurnal lifestyle and quality of life from the physiological, societal, and psychological perspective. Non-surgical therapy adjunctive local antimicrobial agents are considered. OHIP-14 is a standardised measuring component of OHQoL that interprets disorder, uncomfortability and disability attributable to oral condition by relying on WHO framework based on "Disease Impairment Disability Handicap" [11]. Explore and identify the influence of periodontal disorder on a sufferer's lifestyle and wellness. The clinical indication of early chronic periodontitis comprising "Probing Pocket Depth (PPD), Clinical Attachment Level (CAL), Patient Based Outcome (PBO) " and bleeding upon probing are unacknowledged by the sufferer and make it symptomless during its initial level and responsible for chronic periodontitis [8, 11]. Conventionally there are several assessment approaches that are utilised to identify surgical and non-surgical period dental therapy. Some of Surrogate measures are Gingival Index, Plague Index, bleeding index, along with PPD and CAL. For the investigation of alveolar bone radiographic processing is utilised. Patient based outcome is emphasis on identifying the affliction and the bloodletting after periodontal treatment which is quite different from the therapeutic end point of get ahead in CAL and subduction in PPD [7, 9].

Afterward in the processing stage the patient suffers with pain, tooth drifting, and mobility as well as its adverse impact because of its lack of estimation severity of the disorder, it is proclaimed as silent disease. Indicates that diagnosis and treatment are significantly reduced in PPD and CAD gain when the deep PPD (>6 mm) was found and recommended largely for periodontal surgery [9].

Attachment loss was associated in the cases with shallow PPD (>4 mm) might be gone with surgical procedure. For the moderate (> 5mm) and deep (>6 mm) it is very significant to go with surgical therapy with reduction in comparison to scaling and root debridement [10]. It was extracted that by the adequate accessibility of flap surgery, there was evidence of heightened PPD reduction in comparison to scale in "root debridement" in cases with prolonged pockets.

For the procedure that covers and is accessible for "moderate to severe periodontitis", surgical procedure is quite essential. Periodontal medicinal procedure is mainly responsible for postoperative tenderness like "pain, swelling or tooth sensitivity". Although, with respect to other domains of dentistry patient perception during surgical assessment plays a significant role [11]. However, there is inappropriate evidence that emphasises on patients' insight of periodontal procedure and its influence on oral health related QoL [12]. It is examined that a larger number of patients experience affliction and lack of functions after ST takes place. Another parameter with surgical procedure is its costly procedure. For managing the residual pocket the treatment should be emphasised on cost effective periodontal therapy. Number of financial investigation approaches like cost-benefit, cost effectiveness, and cost utility investigation seek distinct treatment techniques and related significance on financial sustainability.

This research review is emphasis on exploring the patient perception regarding NST and ST and its relation with oral health. The review was based on two perceptions: first is comparing among both the therapeutic approach, and its consequences after treatment. Along with the viewpoint of the patient who went through NST and ST procedure, the review also determines association with QoL. To comprehensively execute the review the discussion segment highlights procedure of NST and ST, clinical consequences of NST and ST, oral health emphasising on QoL and comparing both the procedure.

2. Discussion

"Assessment of Clinical Parameter"-

The surgery was required when the probing pocket depth was obtained to be 0.6 mm and along with clinical attachment level was gained to 0.2 mm in comparison to non-surgical treatment where ppd was less than 6 millimetre [7-9]. The moderate pocket size was around 4 to 6 millimetre however the scaling and the root debridement was found to be 0.4 mm along with substitute to gain CAL. Meanwhile if PPD is reduced to the level of 0.04 millimetre, surgical procedure yields for 0.04 more than NST [11, 12]. The science of shallow pocket was around 1-3 mm and surgical treatment presented an outcome in 0.5 mm for more CAL decline in compared to NST. Henceforth, NST provides effective consequences when the procedure of NST is amalgamated with scaling and root development incorporated with access flap surgery [14]. The finding reveals that it significantly enhances the attachment and reduces gingival inflammation [15].

The research [13] identified that a large number of pocket reduction and pocket closure are associated with NST at baseline in comparison with the ST with the patient having PPT greater than 6 mm and CAL greater than 5 mm. The finding extract that NST in the initial stage assists to decline gingival inflammation along with conveniently tissue alteration and enhance the easy visibility during the treatment [14, 15]. It was also determined that NST is capable of initial stage treatment. Hence, to deal with the chronic periodontal disorder it was suggested to start with non-surgical treatment.

Table: Clinical Periodontal Parameters [15]

Index	Timeline	Mean	
		NST	ST
Plaque Index	Baseline	2	2.34
	3 Month	1.35	1.76
	6 Month	0.63	1.05
Gingival Index	Baseline	1.87	1.96
	3 Month	1.06	1.4
	6 Month	0.51	0.78
PPD	Baseline	5.8	6.9
	3 Month	3.13	3.2
	6 Month	3.73	3.5
CAL	Baseline	6.08	7.07
	3 Month	4.02	3.56
	6 Month	4.16	3.74

The periodontal elements are the Clinical parameters, such as "probing pocket depth (PPD), papillary bleeding index (PBI), Gingival Index (GI), and Plague Index (PI) ". These components are considered in millimetre by using the timeline considers three parameters like baseline, 3 month, and 6 month after treatment. The PPD is a clinical trial to identify the extension of the periodontal pocket. The NST yields a higher number of cases in comparison to ST during the investigation. However, the information regarding both the processes was limited for post-treatment around 6 months.

By this evidence, a number of research studies conclude that the restriction of effectiveness and productivity of NST is usually at the furcula areas and prolonged pockets. Thus, to enhance the efficiency of subgingival debridement, accessibility of flap surgery was addressed to obtain appropriate gain and direct acquisition of the "root covering, root concavities and furcations in sites with deep residual pockets regardless of the pattern of bone resorption" [7, 14].

"Type of Therapy-under NST & ST"

Non-surgical strike study comprising incorporation of oral hygiene instruction along with scaling and root planning, another variant was combination of OHI and SRP along with local antibiotics (LA). Another variant was scaling and polishing, as well as OHI supplemented with (supra/subgingival/ SRP with LA. Another type of therapy was accomplished in three distinct phases: phase 1 belongs to baseline phase 2 belongs to NST with OHI, SRP and LA and in phase 3 the therapy was converted into ST. These are some usual and significant types of NST that are observed and depicted in the below table.

Country & Follow Up	Sample Size	Type of Procedure	Relation with OHQoL & Finding	References
Hong Kong, 12 Months	65	NST–-OHI + (supra/subgingival/ SRP with LA	OHIP-14QoL is improved.	[16]
Japan, 3 months	42	Phase 1: Baseline Phase 2: NST (OHI, SRP + LA) Phase 3: ST (OFD+antibiotic +NSAIDs)	OHRQL – J Improvement-after NST. No Change-After ST	[20]
Sweden, 2 weeks	42	NST– Scaling and Polishing	OHIP-14 or GOHAI No improvement in QoL.	[18]
Japan > 3 weeks	48	NST– OHI, SRP and LA	OHRQL-J Improvement-after NST.	[13]
India, 6 months	191	NST– SRP ST–OFD+NR	OHQoL–UK QoL is improved.	[19]
Brazil, 3 month	55	NST (supragingival scaling & SRP)	OHIP-14 QoL is improved.	[17]
Germany, 2 month	172	NST– OHI, SRP and LA	OHIP-G14 QoL Improvement-after NST.	[21]

Different studies performed in the UK, two of them in Japan, and one from India, Hong Kong, and Sweden are demonstrated in the table. Having the sample size that varied from 42 to 191. The follow-up period ranged from two weeks to 1 year. All the studies used distant instruments to explore patient quality of life assessment. All the studies are ranged from short to medium term follow up. Periodontal therapy is adversely associated with quality of life however several assessments indicate the obligation of better satisfactory and standardised technique. Number of articles [13, 16, 17, 19, 21] indicating that NST could improve overall quality of life in adult periodontitis patients while [18] cited that no improvement was associated in QoL after performing NST.

The research cited statistical significance because it indicates oral health is positively correlated with periodontal therapy. research indicates improved consequences after routine non-surgical therapy along with types of treatment which rely on OHI and SRP. Other studies [13, 21] cited an improvement after routine and NST that was based on OHI+ SRP and LA. One of the studies [18] that is based on NSD and focusing on scaling and polishing reveals that negative correlation was found with QoL as no improvement was identified. The study [20] that was conducted in Japan utilised NST for phase 1 and phase 2 and ST for phase 3. The finding reveals that NST is positively related with quality of life as improvement was identified. Although, no change was acknowledged in the third phase when surgical therapy was implemented and there was no correlation found between therapy and quality of life.5 studies cited positive consequences and identified that there is a significant correlation between oral health and clinical parameters.

“Oral health-related quality of life”

Several studies have already proven that periodontitis performs a significant role in tooth loss in young age and is responsible for several complications in social, and mental sustainability. Well-being a state of entire wellness embraces physiological, psychological, and societal health and not just unavailability of any abnormality. WHO also proclaims QoL as individuals' insight of their position in life with respect to culture and value they are bringing up. “Oral health related quality of life” is identified as a vision of an individual regarding its present oral wellness situation with respect to physical, psychological, and social health.

With the advancement in approach there is a transformation in investigating the impact of disorder on a patient's “Quality of Life (QoL) ” by using a distinct set of tools to investigate QoL. One of the most normal operated and globally recognised measuring tools is Oral Health Impact Profile, its shortening version consists of 14 parameters known as OHIP-14. Another tool appropriately utilised to identify oral situations which are equally reliable and assist in acknowledging the influence of periodontal disorder is Oral Health-related QoL (OHQoL). Its United Kingdom measuring unit was OHQoL-UK.

The prominent functioning of these tools is used to identify four parameters that relatively and significantly illustrate quality of life such as functional restriction, affliction and discomfort, physical impact and societal or behavioural affection of therapy. Oral health tool variation tool UK is capable of registering OHQoL association with this function and wellness aspect as it relies on the model of “structure-function-activity-participation” framework. Moreover all the other instruments register adverse aspects associated with dysfunction status only as it is dependent on the “disease-impairment-disability-handicap model”. The adverse impact of periodontal dysfunction is associated with improper QoL as well as age, gender, tooth loss, and negative impact on carries as well as social economic status of the patient. Although, a number of studies were only emphasising on medicinal consequences by using the clinical parameters while ignoring other adverse impacts of disease on humans.

S. no	QoL measuring Tool	Abbreviation	References
1	Oral Health Impact Profile	OHIP-14	[16, 17, 18, 21]
2	General Oral Health Assessment Index	GOHAI	[18]
3	Oral Health-Related Quality of Life-UK	OHQoL–UK	[19]
4	Oral Health-Related Quality of Life	OHQoL	[13, 20]

The studies utilise distinct quality of life instruments to explore patient oral health based on assessment tools. In all 4 studies are utilised OHIP-14, two studies used OHQoL. One of the studies is based on GOHAI and one is OHQoL-UK. Among all the studies, two of them determine quality of life after surgical therapy and all the remaining studies identify QoL after NST. The finding reveals that NST has a favourable influence on “oral health related quality of life”. Among the different clinical parameters PL has played an

influencing role on OHQoL while the other clinical parameters did not have any apparent impact [22].

"Comparison on the impact of non-surgical and surgical management in oral health-related quality of life"

Periodontal disorder is an infectious chronic abnormality that adversely impacts an individual quality of life. There are two significant periodontal treatments commonly used as NST mainly involve SRP and optimal plague control while ST include SRP, plague control and periodontal flap surgery. To analyse quality of health the patients can be divided into two groups covering the NST and ST group. The patients who are belonging to the ST group reviews that they had negative periodontal status that reflects adverse oral health. The finding of the study [7] reviewed the average QoL score of the cases in the ST and NST group was 57 and 27. The things should be kept in mind is the quality of life score of the ST patient post-treatment was comparable to the NST group. The evidence shows that there is an improvement in periodontal parameters as well as it was identified that if the surgery is performed properly it provides satisfactory and positive results that also motivate patients. Another research [10] cited that in shallow PPT both known surgical and surgical approach resulted in declining CAL, when it comes to moderate PPD, Surgical therapy provided significant results for attachment loss after a year of surgery related to prominent loss of attachment after completing two years. Eventually it may be concluded that surgical therapy provides more advanced and promising results in comparison to non-surgical treatment for the cases of deep PPD. Another study [23] explores the long term effect of periodontal procedure in sufferers who have accomplished their medication for inveterate periodontitis and later on (20 years) from the first time when they take treatment. The most usual disablement under OHRQoL was "physical pain followed by functional limitation". The parameters that play a significant role over oral health is insurance plan education because both these parameters positively impact on enhancing quality of life and indicating less impairment. Finding also reveals that most of the people were satisfied with their oral status after obtaining treatment from chronic dysfunctioning. Li, et al., exhibit comparatively OHR-high quality of life accomplished and retained long term after appropriate treatment. The majority of patients [15], particularly those who choose surgery treatment, experience frequent dental difficulties. Although, there is some contradictory conclusion also which reveals that ST reduces or eliminates leading from the gums and provides sustainable benefits that are appreciated by the patient like mobility because after surgery the issue of mobility was reduced or eliminated which eventually improved quality of life score. Vivek et al., cited that acceptability of periodontal surgery eventually improved the OHRQol after performing NST.

There are different approaches that are utilised to identify the quality of life of the patients who are suffering with oral abnormalities specifically focusing on periodontal disease. The well-mannered review processed by Botelho et al., to explore the impact of NST over QoL under the follow up timeline of 3 months. The study exhibits that NST exclusively and impressively improves oral health within a short term by providing stability after attaining three months of treatment. As it not only supports patients to enhance therapeutic advantage but also provides a strength mechanism to improve physiological and social aspects of patients that eventually correlate with their quality of life. The evidence shows that copying capability and height and view of positive outcome can healthier a patient's level of healing. Because NST not only influences psychological but also medicinal issues like pain, stress and mental illness [22]. Recent study conducted by Peikert et al., indicating that patient exhibit better QoL after performance and NST without any discrimination among the groups (smokers, other oral health assessment tool, antibiotic). The finding also highlights that by appropriately and systematically utilisation of antibiotics was optimistically incorporated with better OHIP value. It was also investigated that the reason behind the effectiveness of NST was to rely on clinical parameters such as PPD, CAL and PBO. However PBO is more favourable for the diurnal lifestyle of suffers in comparison to PPD and CAL [21]. Other studies [13, 21] cited an improvement after routine and NST that was based on OHI+ SRP and LA. One of the studies [18] that is based on NSD and focusing on scaling and polishing reveals that negative correlation was found with QoL as no improvement was identified. The study [20] that was conducted in Japan utilised NST for phase 1 and phase 2 and ST for phase 3. The finding reveals that NST is positively related with quality of life as improvement was identified.

3. Conclusion

Periodontal medicinal procedure is mainly responsible for postoperative tenderness like "pain, swelling or tooth sensitivity". Destruction of periodontal ligament and support bones because of inflammation in the tooth supportive tissue takes place, which is responsible for abnormality and eventually leads to tooth loss. Oral disease has a prominent influence on diurnal lifestyle and quality of life from the physiological, societal, and psychological perspective. Periodontitis is responsible for thirty to thirty-five percent of overall tooth loss and forthwith impacts QoL by adversely impacting the usual functioning capability such as chewing and biting, confidence level and self-esteem and social relationship. This research review, emphasises on exploring the patient perception regarding NST and ST and its relation with oral health. The review was based on two perceptions: first is comparing among both the therapeutic approach, and its consequences after treatment. Along with the viewpoint of the patient who went through NST and ST procedure, the review also determines association with QoL and clinical parameters. The finding reveals that patients exhibit better QoL after performance and NST. The review also highlighted that a deeper pocket ST is required that was optimistically incorporated with a better OHQoL value. The review identified that a large number of pocket reduction and pocket closure are associated with NST at baseline in comparison with the ST with the patient having PPT greater than 6 mm and CAL greater than 5 mm.

The finding extract that NST in the initial stage assists to decline gingival inflammation along with conveniently tissue alteration and enhance the easy visibility during the treatment. It was also determined that NST is capable of initial stage treatment. Hence, to deal with the chronic

periodontal disorder it was suggested to start with non-surgical treatment. The study also demonstrated that NST exclusively and impressively improves oral health within a short term by providing stability after attaining three months of treatment. As it not only supports patients to enhance therapeutic advantage but also provides a strengthening mechanism to improve physiological and social aspects of patients that eventually correlate with their quality of life.

4. Suggestion

In suggestion, the researcher may support for more exclusive comparison on NST and ST for long-term perspective. Because NST is beneficial for short-term and ST is suitable for long-term. So it is suggested to determine NST and ST from both a short and long perspective and obtain statistical consequences which are more accurate and reliable.

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