

Supplementary data

Relations of psychosocial factors and cortisol with periodontal and bacterial parameters: A prospective clinical study in 30 patients with periodontitis before and after non-surgical treatment

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Table S1 – Demographic and psychosocial data according to the smoking status

		Control group (n=30)						Diseased group (n=30)								
		Non-smokers			Smokers (n=5)			<i>p</i> - <i>Value</i> *	Non-smokers			Smokers (n=13)				
Demographic and psychosocial	N	% / Med	[Min-Max]	N	% / Med	[Min-Max]	N		% / Med	[Min-Max]	N	% / Med	[Min-Max]	<i>p</i> - <i>Value</i> *		
Demographic information																
Gender	Male	11	44.0		2	40.0	0.19	7	35.3		6	53.9	0.40			
	Female	14	56.0		3	60.0		11	64.7		6	46.1				
Age		30	55.0	[22.0-70.0]	30	55.0	[49.0-58.0]	0.67	30	60.0	[40.0-65.0]	30	47.0	[38.0-64.0]	0.07	
Psychosocial characteristics																
Anxiety	STAI-YA	30	41.0	[22.0-66.0]	30	40.0	[20.0-52.0]	0.19	30	34.0	[22.0-51.0]	30	36.0	[20.0-56.0]	0.76	
	STAI-YA (classes)	N-A	9	36.0		3	60.0	0.24	16	94.1		7	53.8	0.03		
		A	16	64.0		2	40.0		1	5.9		6	46.2			
	STAI-YB (classes)	N-S	30	42.0	[26.0-63.0]	30	37.0	[32.0-56.0]	0.30	30	39.0	[26.0-58.0]	30	39.0	[26.0-55.0]	0.79
		V-S	15	60.0		4	80.0		0.30	10	58.8		9	69.2		
	PSS (scores)	N-S	10	40.0		1	20.0		0.30	7	41.2		4	30.8		
V-S		10	40.0		1	20.0		0.30	7	41.2		4	30.8			
Stress	PSS (classes)	30	26.0	[18.0-36.0]	30	26.0	[21.0-34.0]	0.77	30	25.0	[21.0-36.0]	30	28.0	[16.0-34.0]	0.98	
	PSS (classes)	N-S	13	52.0		3	60.0	0.95	10	58.8		6	46.2	0.45		
		V-S	12	48.0		2	40.0		7	41.2		7	53.8			

Notes: Med: median; [Min-Max]: [Minimum-Maximum]; STAI-YA = State anxiety inventory; STAI-YB = Trait anxiety inventory; PSS = Perceived Stress Scale; N-A= non-anxious; A= anxious; V-A= very anxious; N-S= non-stressed; M-S= managed stress; V-S= very-stressed. *Chi-2 or Fisher's exact test was used for qualitative variables and Wilcoxon test for quantitative ones. Significant values are shown in bold.

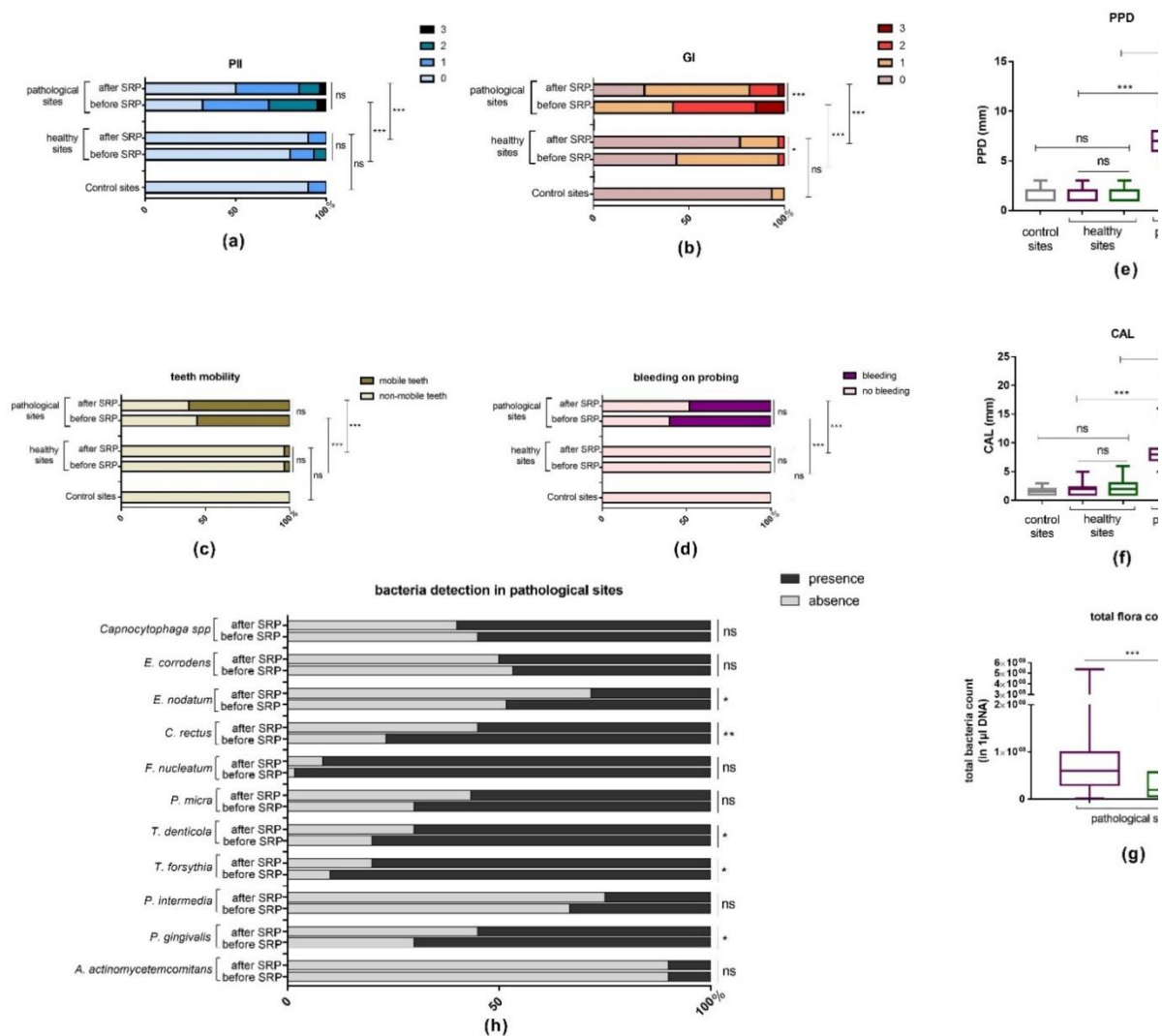


Figure 1. – Clinical and bacterial findings in selected sites before and after SRP.

(a) Plaque Index - PII; (b) Gingival Index - GI; (c) Teeth mobility; (d) Bleeding on probing - BoP; (e) Periodontal pocket depth - PPD; (f) Clinical attachment level - CAL; (g) Total flora count and (h) bacterial detection frequencies. Chi-2 test was used for qualitative variables and Wilcoxon test for quantitative ones. ***p<0.001, **p<0.01, *p<0.05, ns=non-significant.

Table S2 – Periodontal status according to the collected sites from control and periodontitis groups.

Clinical parameters	Control group (n=30)		Periodontitis group (n=30)							
	classes	Control sites (n=30)	Healthy sites (n=30)				Pathological sites (n=60)			
			BEFORE SRP	AFTER SRP	<i>p</i> -value* _a	<i>p</i> -value* _b	BEFORE SRP	AFTER SRP	<i>p</i> -value* _c	<i>p</i> -value* _d
PII score (%)	0	90.0	80.0	90.0	0.40	1.00	31.7	50	0.111	<0.001
	1	10.0	13.3	10.0			36.7	35		
	2	0.0	6.7	0.0			26.7	11.7		
	3	0.0	0.0	0.0			5.0	3.3		
GI score (%)	0	93.3	43.3	76.7	0.02	0.07	0.0	26.7	<0.001	<0.001
	1	6.7	53.3	20.0			41.7	55.0		
	2	0.0	3.3	3.3			43.3	15.0		
	3	0.0	0.0	0.0			15.0	3.3		
Mobility (%)		0.0	3.3	3.3	1.00	0.31	55	60	0.317	<0.001
BOP (%)		0.0	0.0	0.0	1.00	1.00	60	48.3	0.275	<0.001
PPD (Med [Min-Max])		1 [1-3]	2 [1-3]	1 [1-3]	0.42	1.00	7 [5-11]	5 [2-13]	<0.001	<0.001
PPD classes (%)	<4mm	100.0	100.0	100.0	1.00	1.00	0.0	10	<0.001	<0.001
	4-6 mm	0.0	0.0	0.0			33.3	66.7		
	7-8mm	0.0	0.0	0.0			43.3	18.3		
	>8mm	0.0	0.0	0.0			23.3	5.0		
CAL (Med [Min-Max])		1.5 [1-3]	2 [1-5]	2 [1-6]	0.95	0.09	8 [5-16]	6 [3-20]	<0.001	<0.001
CAL classes (%)	<4mm	100.0	100.0	100.0	1.00	1.00	0.0	5.0	<0.001	<0.001
	4-6mm	0.0	0.0	0.0			21.7	53.3		
	7-8mm	0.0	0.0	0.0			36.7	26.7		
	>8mm	0.0	0.0	0.0			41.7	15.0		

Notes: Med: median; [Min-Max]: [Minimum-Maximum]; PII: Plaque Index; GI: Gingival Index; Mobility: mobile teeth; BOP: Bleeding on probing; PPD: Periodontal pocket depth; CAL: Clinical attachment level; SRP: scaling and root planing – periodontal treatment; a: comparison between healthy sites before and after periodontal treatment; b: comparison between control and healthy sites after periodontal treatment; c: comparison between pathological sites before and after periodontal treatment; d: comparison between healthy and pathological sites after periodontal treatment; *Chi-2 or Fisher test was used for qualitative variables and Wilcoxon test for quantitative ones. Significant values are shown in bold.

Table S3 - Periodontal clinical parameters according to the psychosocial context of control patients.

Periodontal clinical parameters	STAI-YB							PSS							
	Non-anxious			Anxious and very anxious				Non-highly stressed			Highly stressed				
	N	% / Med	[Min-Max]	N	% / Med	[Min-Max]	<i>p</i> -Value*	N	% / Med	[Min-Max]	N	% / Med	[Min-Max]	<i>p</i> -Value*	
Control patients (control site)															
PII scores	0	17	89.5	10	90.9			14	87.5		13	92.9			
	1	2	10.5	1	9.1		1.00	2	12.5		1	7.1		1.00	
GI scores	0	17	89.5	11	100			14	87.5		14	100			
	1	2	10.5	0	0		0.52	2	12.5		0	0		0.49	
PPD (mm)		19	1.0	[1.0-2.0]	11	1.0	[1.0-2.0]	0.98	16	1.5	[1.0-2.0]	14	1.0	[1.0-2.0]	0.40
CAL (mm)		19	1.5	[1.0-3.0]	11	2.0	[1.0-2.0]	0.96	16	2.0	[1.0-3.0]	14	1.0	[1.0-2.0]	0.29

Notes: Med: median; [Min-Max]: [Minimum-Maximum]; STAI-YB: Trait anxiety inventory; PSS: Perceived Stress Scale; I: Plaque Index; GI: Gingival Index; PPD: Periodontal pocket depth; CAL: Clinical attachment level; *Chi-2 or Fisher test was used for qualitative variables and Wilcoxon test for quantitative ones.

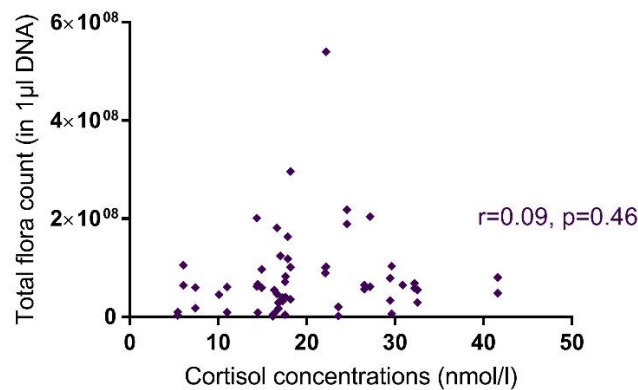


Figure S2 – Correlation between total microbiota count from pathological sites and cortisol concentrations in diseased patients. *r*: Rho (correlation coefficient). Pearson correlation coefficient was used.

Table S4 - Effect of stress and anxiety on the detection of some periodontal bacteria before and after SRP treatment from diseased patients.

	STAI-YA							STAI-YB					PSS						
	Non-anxious		Anxious		Very anxious			Non-anxious		anxious			Non-stressed		Managed stress		Very stressed		
	N	%	N	%	N	%	<i>p-Value</i> ^{e*}	N	%	N	%	<i>p-Value</i> ^{e*}	N	%	N	%	N	%	<i>p-Value</i> ^{e*}
<i>A. actinomycetemcomitans</i>																			
Never detected	4	91.3	1	83.3	2	100.0		3	84.2	22	100.0		4	100.0	2	92.3	2	85.7	
Always detected	4	8.7	2	16.7	0	0.0	0.67	6	15.8	0	0.0	0.08	0	0.0	2	7.1	4	14.3	0.79
<i>P. gingivalis</i>																			
Never detected	1	30.4	2	16.7	0	0.0		1	31.6	4	18.2		0	0.0	8	28.6	8	28.6	
Disappearance	9	19.6	0	0.0	2	10.0		9	23.7	2	9.1		3	7.5	4	14.3	4	14.3	
Appearance	2	4.3	0	0.0	0	0.0	0.03	2	5.3	0	0.0	0.09	0	0.0	2	7.1	0	0.0	0.14
Always detected	2	45.1	1	8.3	0	0.0		1	39.5	16	72.7		1	25.4	1	50.0	1	57.1	
<i>P. intermedia</i>																			
Never detected	3	65.0	7	58.3	0	0.0		2	65.5	12	54.5		2	50.0	1	67.9	1	57.1	
Disappearance	5	10.9	1	8.3	2	10.0		6	15.8	2	9.1		1	25.0	4	14.3	3	10.7	
Appearance	2	4.3	1	8.3	0	0.0	0.13	2	5.3	1	4.5	0.35	0	0.0	2	7.1	1	3.6	0.58
Always detected	9	19.6	3	25.0	0	0.0		5	13.2	7	31.8		1	25.0	3	10.7	8	28.6	
<i>T. forsythia</i>																			
Never detected	5	10.9	0	0.0	0	0.0		3	7.9	2	9.1		2	50.0	3	10.7	0	0.0	
Disappearance	6	13.0	1	8.3	0	0.0		5	13.2	2	9.1		1	25.0	3	10.7	3	10.7	
Appearance	1	2.2	0	0.0	0	0.0	0.86	1	2.6	0	0.0	1.00	0	0.0	1	3.6	0	0.0	0.02
Always detected	3	73.4	1	9.1	2	10.0		2	76.9	18	81.8		1	25.0	2	7.5	2	89.3	
<i>T. denticola</i>																			
Never detected	1	21.0	0	0.0	0	0.0		6	15.8	4	18.2		2	50.0	2	7.1	6	21.7	
Disappearance	6	13.0	2	16.7	0	0.0		5	13.2	3	13.6		1	25.0	4	14.3	3	10.7	
Appearance	2	4.3	0	0.0	0	0.0	0.48	1	2.6	1	4.5	1.00	0	0.0	1	3.6	1	3.6	0.20
Always detected	2	60.9	1	8.3	2	10.0		2	68.4	14	63.6		1	25.0	2	7.5	1	64.3	
<i>P. micra</i>																			
Never detected	6	13.0	3	25.0	2	10.0		8	21.1	3	13.6		0	0.0	7	25.0	4	14.3	
Disappearance	1	30.4	1	8.3	0	0.0		1	28.9	4	18.2		2	50.0	9	32.1	4	14.3	
Appearance	6	13.0	1	8.3	0	0.0	0.10	5	13.2	2	9.1	0.44	0	0.0	3	10.7	4	14.3	0.31
Always detected	2	43.0	7	58.3	0	0.0		1	36.4	13	59.1		2	50.0	9	32.1	1	57.1	
<i>F. nucleatum</i>																			
Never detected	0	0.0	0	0.0	0	0.0		0	0.0	0	0.0		0	0.0	0	0.0	0	0.0	
Disappearance	4	8.7	0	0.0	1	50.0		4	10.5	1	7.1		2	50.0	1	3.6	2	7.1	
Appearance	1	2.2	0	0.0	0	0.0	0.22	1	2.6	0	0.0	0.77	0	0.0	1	3.6	0	0.0	0.049
Always detected	4	89.1	1	10.0	1	50.0		3	86.8	13	92.9		2	50.0	2	92.3	2	92.9	
<i>C. rectus</i>																			
Never detected	8	17.4	1	8.3	2	10.0		7	18.4	4	18.2		2	50.0	1	3.6	8	28.6	
Disappearance	1	30.4	2	16.7	0	0.0		1	26.3	6	27.3		2	50.0	1	3.6	4	14.3	
Appearance	2	4.3	1	8.3	0	0.0	0.15	2	5.3	1	4.5	1.00	0	0.0	2	7.1	1	3.6	0.01
Always detected	2	47.8	8	66.7	0	0.0		1	50.9	11	50.0		0	0.0	1	53.6	1	53.6	
detected	2	8.8	7	58.3	0	0.0		9	22.5	0	0.0		0	0.0	5	18.2	5	18.2	

<i>E. nodatum</i>																		
Never detected	2	47.	5	41.	2	10		1	47.	11	50.0		1	25	1	46.	1	53.
Disappearance	1	23.	3	25	0	0.0		1	26.	4	18.2		2	50	7	25	5	17.
Appearance	1	2.2	1	8.3	0	0.0	0.78	0	0.0	2	9.1	0.34	0	0.0	0	0.0	2	7.1
Always detected	1	26.	3	25	0	0.0		1	26.	5	22.7		1	25	8	28.	6	21.
	2	1						0	3						6		4	
<i>E. corrodens</i>																		
Never detected	1	30.	4	33.	0	0.0		1	34.	5	22.7		1	25	7	25	1	35.
Disappearance	9	19.	1	8.3	2	10		8	21.	4	18.2		0	0.0	7	25	5	17.
Appearance	1	26.	2	16.	0	0.0	0.27	9	23.	5	22.7	0.62	2	50	8	28.	4	14.
Always detected	1	23.	5	41.	0	0.0		8	21.	8	36.4		1	25	6	21.	9	32.
	1	9						1	1						4		1	
<i>Capnocytophaga spp</i>																		
Never detected	1	23.	5	41.	1	50		1	28.	6	27.3		1	25	9	32.	7	25
Disappearance	5	10.	2	16.	0	0.0		4	10.	3	13.6		0	0.0	2	7.1	5	17.
Appearance	7	15.	2	16.	1	50	0.32	7	18.	3	13.6	0.96	0	0.0	4	14.	6	21.
Always detected	2	50	3	25	0	0.0		1	42.	10	45.5		3	75	1	46.	1	35.
	3							6	1						3	7	0	7

Notes: STAI-YA: State-Trait Anxiety Inventory – State anxiety; STAI-YB: State Trait Anxiety Inventory-Trait anxiety (two classes because no periodontitis patients were very anxious); PSS: Perceived Stress Scale; *Fisher’s exact test was used. Significant values are shown in bold.