

**Table (1): Demographic Data**

Item		Group I	Group II	Group III	Test value	P-value	Sig.
		No. = 30	No. = 30	No. = 30			
Gestational age (weeks)	Mean ± SD	30.63 ± 1.22	30.63 ± 0.93	31.10 ± 0.92	2.045•	0.136	NS
	Range	28 – 32	28 – 32	29 – 32			
Corrected GA	Mean ± SD	34.63 ± 1.22	34.63 ± 0.93	35.10 ± 0.92	2.045•	0.136	NS
	Range	32 – 36	32 – 36	33 – 36			
Sex	Male	16 (53.3%)	15 (50.0%)	15 (50.0%)	0.089*	0.957	NS
	Female	14 (46.7%)	15 (50.0%)	15 (50.0%)			
Birth weight(gms)	Mean ± SD	1170.34 ± 163.69	1326.17 ± 198.50	1383.33 ± 162.13	1.873•	0.162	NS
	Range	1015 – 1400	900 – 1420	1000 – 1390			
Weight \at screening(gms)	Mean ± SD	1420.67 ± 190.84	1326.17 ± 198.50	1383.33 ± 162.13	1.997•	0.142	NS
	Range	1020 – 1880	950 – 1800	1100 – 1700			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

\*: Chi-square test; •: One Way ANOVA test

**Table (2)Physiological indicators of the PIPP before gentle human touch:**

		Group I	Group II	Group III	Test value	P-value	Sig.
		No. = 30	No. = 30	No. = 30			
Baseline heart rate	Mean ± SD	131.77 ± 12.73	128.90 ± 13.41	136.40 ± 14.24	2.366•	0.100	NS
	Range	108 – 160	108 – 152	108 – 160			
Peak heart rate	Mean ± SD	173.60 ± 16.92	174.17 ± 17.86	181.67 ± 10.55	2.547•	0.084	NS
	Range	128 – 200	127 – 200	160 – 200			
Increase in heart rate from baseline	Mean ± SD	41.43 ± 15.18	45.10 ± 17.64	45.27 ± 11.52	0.626•	0.537	NS
	Range	17 – 62	14 – 71	25 – 72			
Heart rate 1 min post exam	Mean ± SD	152.97 ± 13.62	156.47 ± 15.33	161.07 ± 9.96	2.857•	0.063	NS
	Range	120 – 174	118 – 182	142 – 177			
Baseline saturation	Mean ± SD	97.83 ± 2.34	97.33 ± 2.48	97.03 ± 2.19	0.896•	0.412	NS
	Range	93 – 100	92 – 100	93 – 100			
Lowest saturation during exam	Mean ± SD	91.07 ± 2.86	90.17 ± 2.77	90.27 ± 2.56	0.977•	0.380	NS
	Range	85 – 95	85 – 95	86 – 94			
Oxygen Saturation 1min after exam	Mean ± SD	96.70 ± 3.14	95.23 ± 3.04	93.37 ± 3.31	8.367•	0.000	HS
	Range	90 – 100	88 – 100	88 – 99			
Difference in saturation	Mean ± SD	6.83 ± 1.32	7.13 ± 1.38	6.77 ± 1.07	0.716	0.491	NS
	Range	5 – 10	5 – 9	5 – 10			
<b>Post hoc analysis</b>							
		<b>Group I Vs group II</b>	<b>Group I Vs group III</b>	<b>Group II Vs group III</b>			
<b>Oxygen Saturation 1min after exam (1)</b>		0.076 (NS)	0.000 (HS)	0.025 (S)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

•: One Way ANOVA test

**Table (3) Individual behavioral physiological and facial parameters and mean PIPP before gentle human touch**

Item		Group I	Group II	Group III	Test value	P-value	Sig .
		No. = 30	No. = 30	No. = 30			
GA Score	Median	1 (0 – 1)	1 (1 – 1)	1 (0 – 1)	2.825 $\neq$	0.243	NS
	(IQR)						
	Range	0 – 1	0 – 1	0 – 1			
Behavioral state	Median	3 (2 – 3)	3 (2 – 3)	3 (2 – 3)	1.215 $\neq$	0.545	NS
	(IQR)						
	Range	2 – 3	2 – 3	2 – 3			
Brow bulge	Median	3 (2 – 3)	3 (2 – 3)	3 (2 – 3)	0.101 $\neq$	0.951	NS
	(IQR)						
	Range	2 – 3	2 – 3	2 – 3			
Nasolabial furrow	Median	3 (2 – 3)	3 (2 – 3)	3 (2 – 3)	1.308 $\neq$	0.520	NS
	(IQR)						
	Range	2 – 3	2 – 3	2 – 3			
Eye squeeze	Median	3 (2 – 3)	3 (2 – 3)	3 (2 – 3)	1.496 $\neq$	0.473	NS
	(IQR)						
	Range	2 – 3	2 – 3	2 – 3			
PIPP HR	Median	3 (2 – 3)	3 (2 – 3)	3 (2 – 3)	0.107 $\neq$	0.948	NS
	(IQR)						
	Range	2 – 3	2 – 3	2 – 3			
PIPP saturation	Median	2 (2 – 2)	2 (2 – 2)	2 (2 – 2)	0.558 $\neq$	0.756	NS
	(IQR)						
	Range	1 – 3	1 – 3	1 – 3			
Mean PIPP Score	Median	16 (15 – 17)	16 (15 – 17)	16 (15 – 17)	0.120 $\neq$	0.942	NS
	(IQR)						
	Range	14 – 19	14 – 19	13 – 19			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

$\neq$ : Kruskal-Wallis test

**Table (4) Physiological parameters of the PIPP after gentle human touch**

Item		Group I	Group II	Group III	Test value	P-value	Sig .
		No. = 30	No. = 30	No. = 30			
Baseline Heart rate	Mean ±	131.27 ±	127.43 ±	133.17 ±	1.891•	0.157	NS
	SD	11.76	12.78	10.22			
	Range	108 – 150	103 – 152	110 – 150			
Peak heart rate	Mean ±	156.10 ±	161.17 ±	168.03 ±	8.766•	0.000	HS
	SD	11.45	12.89	8.43			
	Range	128 – 178	127 – 187	150 – 182			
Increase in heart rate from baseline	Mean ±	24.83 ± 9.40	32.97 ± 9.44	34.13 ± 6.57	10.466•	0.000	HS
	SD						
	Range	9 – 45	14 – 48	18 – 47			
Heart rate 1 min post exam	Mean ±	144.83 ±	146.23 ±	146.47 ±	0.222•	0.802	NS
	SD	11.10	11.48	7.86			
	Range	120 – 160	118 – 169	134 – 164			
Baseline saturation	Mean ±	97.67 ± 1.95	98.00 ± 2.18	98.03 ± 1.75	0.318•	0.729	NS
	SD						
	Range	94 – 100	94 – 100	95 – 100			
Lowest saturation during exam	Mean ±	91.73 ± 2.45	91.50 ± 2.33	91.50 ± 1.83	0.110•	0.896	NS
	SD						
	Range	87 – 95	87 – 95	88 – 95			
Saturation 1min after exam	Mean ±	96.53 ± 2.85	95.73 ± 2.72	95.43 ± 2.33	1.391•	0.254	NS
	SD						
	Range	90 – 100	91 – 100	92 – 100			
Difference in saturation	Mean ±	5.97 ± 1.38	6.50 ± 1.31	6.53 ± 1.07	1.913•	0.154	NS
	SD						
	Range	4 – 9	5 – 10	4 – 8			
<b>Post hoc analysis</b>							
		<b>Group I Vs group II</b>	<b>Group I Vs group III</b>	<b>Group II Vs group III</b>			
Peak heart rate		0.080 (NS)	0.000 (HS)	0.019 (S)			
Increase in heart rate from baseline		0.000 (HS)	0.000 (HS)	0.600 (NS)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant , •: One Way ANOVA test

**Table (5) Individual behavioral physiological and facial parameters and mean PIPP after gentle human touch**

Item		Group I	Group II	Group III	Test value	P-value	Sig .
		No. = 30	No. = 30	No. = 30			
Score GA	Median	1 (0 – 1)	1 (1 – 1)	1 (0 – 1)	2.825 $\neq$	0.243	NS
	(IQR)						
	Range	0 – 1	0 – 1	0 – 1			
Behavioural state	Median	2 (2 – 2)	2 (1 – 2)	2 (2 – 2)	2.715 $\neq$	0.257	NS
	(IQR)						
	Range	1 – 3	1 – 3	1 – 3			
Brow bulge	Median	2 (2 – 3)	2 (2 – 3)	2 (2 – 3)	2.168 $\neq$	0.338	NS
	(IQR)						
	Range	1 – 3	1 – 3	1 – 3			
Eye Squeeze	Median	3 (2 – 3)	3 (2 – 3)	3 (2 – 3)	2.516 $\neq$	0.284	NS
	(IQR)						
	Range	2 – 3	2 – 3	2 – 3			
Nasolabial Furrow	Median	3 (2 – 3)	3 (2 – 3)	3 (2 – 3)	0.654 $\neq$	0.721	NS
	(IQR)						
	Range	2 – 3	2 – 3	2 – 3			
PIPP HR	Median	2 (2 – 3)	2 (2 – 2)	2 (2 – 3)	1.357 $\neq$	0.507	NS
	(IQR)						
	Range	1 – 3	2 – 3	2 – 3			
PIPP Saturation	Median	2 (2 – 3)	2 (2 – 2)	2 (2 – 2)	0.030 $\neq$	0.985	NS
	(IQR)						
	Range	1 – 3	2 – 3	2 – 3			
Mean PIPP Score	Median	14 (13 – 16)	14 (13 – 16)	15 (14 – 16)	1.473 $\neq$	0.479	NS
	(IQR)						
	Range	11 – 18	12 – 18	12 – 18			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

$\neq$ : Kruskal-Wallis test

**Table (6) PIPP score before and after gentle human touch in group I**

Item	Group I		Test value	P-value	Sig.	
	Before human touch	After human touch				
Baseline heart rate	Mean ± SD	131.77 ± 12.73	131.27 ± 11.76	0.828•	0.415	NS
	Range	108 – 160	108 – 150			
Peak heart rate	Mean ± SD	173.60 ± 16.92	156.10 ± 11.45	9.077•	0.000	HS
	Range	128 – 200	128 – 178			
Increase in heart rate from baseline	Mean ± SD	41.43 ± 15.18	24.83 ± 9.40	8.630•	0.000	HS
	Range	17 – 62	9 – 45			
Heart rate 1 min post exam	Mean ± SD	152.97 ± 13.62	144.83 ± 11.10	5.668•	0.000	HS
	Range	120 – 174	120 – 160			
Baseline saturation	Mean ± SD	97.83 ± 2.34	97.67 ± 1.95	1.000•	0.326	NS
	Range	93 – 100	94 – 100			
Lowest saturation during exam	Mean ± SD	91.07 ± 2.86	91.73 ± 2.45	-3.084•	0.004	HS
	Range	85 – 95	87 – 95			
Saturation 1min after exam	Mean ± SD	96.70 ± 3.14	96.53 ± 2.85	4.419•	0.000	HS
	Range	90 – 100	90 – 100			
Difference in saturation	Mean ± SD	6.83 ± 1.32	5.97 ± 1.38	1.095•	0.283	NS
	Range	5 – 10	4 – 9			
GA Score	Median (IQR)	1 (0 – 1)	1 (0 – 1)	0.000≠	1.000	NS
	Range	0 – 1	0 – 1			
Behavioral state	Median (IQR)	3 (2 – 3)	2 (2 – 2)	-4.291≠	0.000	HS
	Range	2 – 3	1 – 3			
Brow bulge	Median (IQR)	3 (2 – 3)	2 (2 – 3)	-3.300≠	0.001	HS
	Range	2 – 3	1 – 3			
Nasolabial furrow	Median (IQR)	3 (2 – 3)	3 (2 – 3)	-1.069≠	0.285	NS
	Range	2 – 3	2 – 3			
Eye squeeze	Median (IQR)	3 (2 – 3)	3 (2 – 3)	-1.414≠	0.157	NS
	Range	2 – 3	2 – 3			
PIPP saturation	Median (IQR)	2 (2 – 2)	2 (2 – 3)	-1.292≠	0.196	NS
	Range	1 – 3	1 – 3			
Mean PIPP Score	Median (IQR)	16 (15 – 17)	14 (13 – 16)	-3.635≠	0.000	HS
	Range	14 – 19	11 – 18			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

•: Paired t-test; ≠: Wilcoxon Signed Ranks tes

**Table (7) PIPP before and after gentle human touch in group II**

Item	Group II		Test value	P-value	Sig.	
	Before human touch	After human touch				
Baseline heart rate	Mean ± SD	128.90 ± 13.41	127.43 ± 12.78	-2.369•	0.025	S
	Range	108 – 152	103 – 152			
Peak heart rate	Mean ± SD	174.17 ± 17.86	161.17 ± 12.89	-7.259•	0.000	HS
	Range	127 – 200	127 – 187			
Increase in heart rate from baseline	Mean ± SD	45.10 ± 17.64	32.97 ± 9.44	-6.626•	0.000	HS
	Range	14 – 71	14 – 48			
Heart rate 1 min post exam	Mean ± SD	156.47 ± 15.33	146.23 ± 11.48	-5.480•	0.000	HS
	Range	118 – 182	118 – 169			
Baseline saturation	Mean ± SD	97.33 ± 2.48	98.00 ± 2.18	-2.660•	0.013	S
	Range	92 – 100	94 – 100			
Lowest saturation during exam	Mean ± SD	90.17 ± 2.77	91.50 ± 2.33	-5.637•	0.000	HS
	Range	85 – 95	87 – 95			
Saturation 1min after exam	Mean ± SD	95.23 ± 3.04	95.73 ± 2.72	-2.392•	0.023	S
	Range	88 – 100	91 – 100			
Difference in saturation	Mean ± SD	7.13 ± 1.38	6.50 ± 1.31	-2.628•	0.014	S
	Range	5 – 9	5 – 10			
Score GA	Median (IQR)	1 (1 – 1)	1 (1 – 1)	0.000≠	1.000	NS
	Range	0 – 1	0 – 1			
Behavioral state	Median (IQR)	3 (2 – 3)	2 (1 – 2)	-3.933≠	0.000	HS
	Range	2 – 3	1 – 3			
Brow bulge	Median (IQR)	3 (2 – 3)	2 (2 – 3)	-1.961≠	0.050	NS
	Range	2 – 3	1 – 3			
Nasolabial furrow	Median (IQR)	3 (2 – 3)	3 (2 – 3)	-0.243≠	0.808	NS
	Range	2 – 3	2 – 3			
Eye squeeze	Median (IQR)	3 (2 – 3)	3 (2 – 3)	-0.728≠	0.467	NS
	Range	2 – 3	2 – 3			
PIPP HR	Median (IQR)	3 (2 – 3)	2 (2 – 2)	-3.900≠	0.000	HS
	Range	2 – 3	2 – 3			
PIPP saturation	Median (IQR)	2 (2 – 2)	2 (2 – 2)	-1.069≠	0.285	NS
	Range	1 – 3	2 – 3			
Mean PIPP Score	Median (IQR)	16 (15 – 17)	14 (13 – 16)	-4.132≠	0.000	HS
	Range	14 – 19	12 – 18			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

•: Paired t-test; ≠: Wilcoxon Signed Ranks test

**Table (8): PIPP before and after GHT in group III**

Item	Group III		Test value	P-value	Sig.	
	Before human touch	After human touch				
Baseline heart rate	Mean ± SD	136.40 ± 14.24	133.17 ± 10.22	-2.355•	0.025	S
	Range	108 – 160	110 – 150			
Peak heart rate	Mean ± SD	181.67 ± 10.55	168.03 ± 8.43	-8.866•	0.000	HS
	Range	160 – 200	150 – 182			
Increase in heart rate from baseline	Mean ± SD	45.27 ± 11.52	34.13 ± 6.57	-7.201•	0.000	HS
	Range	25 – 72	18 – 47			
Heart rate 1 min post exam	Mean ± SD	161.07 ± 9.96	146.47 ± 7.86	-7.513•	0.000	HS
	Range	142 – 177	134 – 164			
Baseline saturation	Mean ± SD	97.03 ± 2.19	98.03 ± 1.75	-3.257•	0.003	HS
	Range	93 – 100	95 – 100			
Lowest saturation during exam	Mean ± SD	90.27 ± 2.56	91.50 ± 1.83	-3.725•	0.001	HS
	Range	86 – 94	88 – 95			
Saturation 1min after exam	Mean ± SD	93.37 ± 3.31	95.43 ± 2.33	-1.070•	0.293	NS
	Range	88 – 99	92 – 100			
Difference in saturation	Mean ± SD	6.77 ± 1.07	6.53 ± 1.07	-5.269•	0.000	HS
	Range	5 – 10	4 – 8			
Score GA	Median (IQR)	1 (0 – 1)	1 (0 – 1)	-0.000≠	1.000	NS
	Range	0 – 1	0 – 1			
Behavioral state	Median (IQR)	3 (2 – 3)	2 (2 – 2)	-4.123≠	0.000	HS
	Range	2 – 3	1 – 3			
Brow bulge	Median (IQR)	3 (2 – 3)	2 (2 – 3)	-1.606≠	0.108	NS
	Range	2 – 3	1 – 3			
Nasolabial furrow	Median (IQR)	3 (2 – 3)	3 (2 – 3)	-0.577≠	0.564	NS
	Range	2 – 3	2 – 3			
Eye squeeze	Median (IQR)	3 (2 – 3)	3 (2 – 3)	-0.500≠	0.617	NS
	Range	2 – 3	2 – 3			
PIPP HR	Median (IQR)	3 (2 – 3)	2 (2 – 3)	-3.207≠	0.001	HS
	Range	2 – 3	2 – 3			
PIPP saturation	Median (IQR)	2 (2 – 2)	2 (2 – 2)	-1.000≠	0.317	NS
	Range	1 – 3	2 – 3			
Mean PIPP Score	Median (IQR)	16 (15 – 17)	15 (14 – 16)	-3.807≠	0.000	HS
	Range	13 – 19	12 – 18			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

•: Paired t-test; ≠: Wilcoxon Signed Ranks test