

## Psycho-Social Determinants of Acne in Rural Community of Lahore

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### ABSTRACT

Acne is a common human skin disease, characterized by areas of skin with seborrhea (scaly red skin), comedones (blackheads and whiteheads), papules (pinheads), pustules (pimples), nodules (large papules) and possibly scarring. Acne affects mostly skin with the densest population of sebaceous follicles. These areas include the face, the upper part of the chest, and the back.

**Objectives:** To determine the association between various psycho-social factors and acne.

**Design:** Population based Case-Control Study.

**Place & Duration:** Galvera Village, Lahore from May 2019 to July 2019.

**Subjects & Methods.** A population based case-control study with 1:1 case to control ratio was conducted. A total of 100 persons (50 cases and 50 controls) were recruited in the study. Selection was made on laid down criteria from adult population living in rural community of Lahore after taking due consent. Interviews were conducted through a pretested questionnaire by a 10 membered team of group 01, 4<sup>th</sup> year MBBS students of Rashid Latif Medical College, Lahore under direct supervision of Department of Community Medicine, Rashid Latif Medical College (RLMC). Data was collected, compiled and analyzed through SPSS version 25.

**Results:** Overall 48% were males and 52% were female in the study. Among acne cases, mostly were males(70%), above the age of 30 years (80%) and educated (88%). In bivariate analysis, Acne was found more related with aggression (OR 2.302, 95% CI=1.021-5.190), anxiety (OR 3.857, 95% CI=1.670-8.911), constipation (OR 6.143, 95% CI=2.323-16.242), depression (OR 3.019, 95% CI=1.315-6.929), dusty environment (OR 2.528, 95% CI=1.112-5.744), stress (OR 4.644, 95% CI=1.981-10.883), high fat diet (OR 3.551, 95% CI=1.541-8.181), immediate rest after dinner (OR 3.841, 95% CI=1.610-9.161), introvert personality (OR 3.407, 95% CI=1.401-8.285), irregular timings of meal (OR 8.273, 95% CI=3.357-20.388), junk food (OR 4.896, 95% CI=2.044-11.728), lack of personal hygiene (OR 4.472, 95% CI=1.355-14.755), lack of regular intake of fruits (OR 5.310, 95% CI=1.913-14.745), lack of regular intake of vegetables (OR 4.162, 95% CI=1.744-9.935), lack of regular prayers (OR 2.455, 95% CI=1.097-5.494), lack of rest after lunch (OR 2.333, 95% CI=1.027-5.300), undue late night working (OR 6.612, 95% CI=2.762-15.831), high carbohydrate diet (OR 3.622, 95% CI=1.559-8.418), dandruff (OR 2.279, 95% CI=1.017-5.108), exposure to sunlight (OR 6.000, 95% CI=2.528-14.240), habit of skin scratching (OR 8.500, 95% CI=3.412-21.177), intake of carbonated drinks (OR 3.622, 95% CI=1.559-8.418), lack of cleansing before sleep (OR 4.125, 95% CI=1.792-9.497) and less intake of water (OR 4.644, 95% CI=1.981-10.883). However after multivariate analysis while controlling all other listed risk factors, acne was found more related with constipation (OR 4.012, 95% CI=1.067-15.084), dusty environment (OR 2.639, 95% CI=1.035-6.732), stress (OR 3.288, 95% CI=1.022-10.580), irregular timings of meals (OR 5.809, 95% CI=1.359-24.830), undue late night working (OR 3.584, 95% CI=1.251-10.271), exposure to sunlight (OR 5.194, 95% CI=1.677-16.092), habit of skin scratching (OR 6.334, 95% CI=2.378-16.873), lack of cleansing before sleep (OR 3.109, 95% CI=1.203-8.034) and less intake of water (OR 4.518, 95% CI=1.250-16.324)

**Conclusion:** Acne was found significantly associated with constipation, dusty environment, stress, irregular timings of meals, undue late night working, exposure to sunlight, habit of skin scratching, lack of cleansing before sleep and less intake of water.

**Keywords:** Acne, psychological factors, social factors, urban, community

### INTRODUCTION

Acne is a common human skin disease, characterized by areas of skin with seborrhea (scaly red skin), comedones (blackheads and whiteheads), papules (pinheads), pustules (pimples), nodules (large papules) and possibly scarring. Acne affects mostly skin with the densest population of sebaceous follicles. These areas include the face, the upper part of the chest, and the back. In the previous studies carried out regarding acne dieting<sup>1</sup>, high fat diet<sup>2</sup>, immediate rest after dinner<sup>3</sup>, irregular timings of meals<sup>4</sup>, junk food<sup>5</sup>, lack of regular intake of fruits<sup>6</sup>, lack of regular intake of vegetables<sup>7</sup>, lack of rest after lunch<sup>8</sup>, obesity<sup>9</sup>, smoking<sup>10</sup>, excessive intake of spicy food<sup>11</sup>, eating fish<sup>12</sup>, excessive intake of nuts<sup>13</sup>, excessive intake of dairy products<sup>14</sup>, excessive intake of tea<sup>15</sup>, high carbohydrate diet<sup>16</sup>, intake of chocolates<sup>17</sup>, intake of carbonated drinks<sup>18</sup>, less intake of water<sup>19</sup>, aggression<sup>20</sup>, anxiety<sup>21</sup>, depression<sup>22</sup>, emotional stress<sup>23</sup>, introvert personality<sup>24</sup>, lack of sound sleep<sup>25</sup>, lethargy<sup>26</sup>, type A personality, broken families, constipation<sup>27</sup>, family illiteracy, joint family system, lack of exercise<sup>28</sup>, lack of personal hygiene<sup>29</sup>, lack of regular prayers, peer pressure, poverty<sup>30</sup>, sedentary life style<sup>31</sup>, undue late night working<sup>32</sup>, exposure to sunlight<sup>33</sup>, dusty environment<sup>34</sup>, overcrowding in houses<sup>35</sup>, smoky environment<sup>36</sup>, dandruff<sup>37</sup>,

excessive use of cosmetics<sup>38</sup>, habit of skin scratching<sup>39</sup> and lack of cleansing before sleep<sup>40</sup> were found to be associated with it.

Acne is emerging as a major health issue in rural communities. Little work has been done in finding the association of various psycho-social factors with acne in rural community. So there was a dire need to conduct this study to identify various psycho-social factors associated with acne, to identify the most important predictors of acne while controlling the other factors studied, to compare the results with the already conducted studies and to make the students capable of making the community aware of the various psycho-social factors associated with acne in order to improve their health status.

### SUBJECTS AND METHODS

A case-control study was conducted to identify various psycho-social factors associated with acne in rural community, Lahore from May 2019 to July 2019. Study population was divided into two groups. Case group included adult patients suffering from acne and were not suffering from any other major medical or surgical illness and were fulfilling the criteria laid down for acne<sup>1</sup>. The control group comprised of healthy adults who did not suffer from acne or any other major medical or surgical illness. Written consent was obtained from all selected study subjects. Data was collected

by interviews conducted by the members of group 01 of 4<sup>th</sup> year MBBS students of Rashid Latif Medical College, Lahore using pretested and close ended questionnaire, while keeping all ethical and social considerations in mind. Data collection was supervised by the staff of Department of Community Medicine Rashid Latif Medical College, Lahore.

Data entry and analysis was done by statistical software SPSS version 25 at RLMC. After describing the demographic characteristics using frequency tables, simple and multivariate logistic regression was used to calculate odds ratio and their 95% confidence intervals.

**RESULTS**

Among Acne cases mostly were males(70%), below the age of 30 years (80%) and

Educated (88%). In the control group majority belonged to females (60%), below the age of 30 years (78%) and less educated (92%). See Fig.1,2,3.

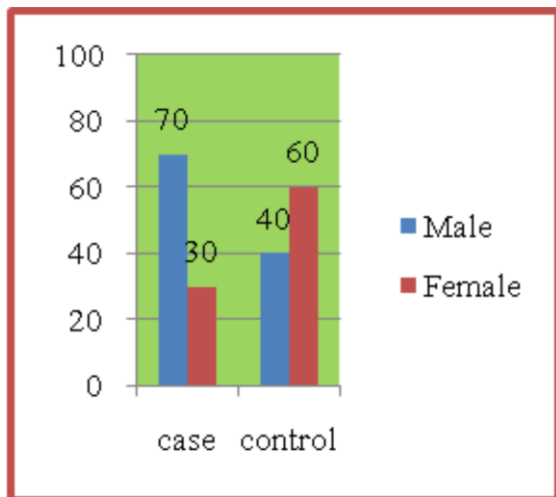


Figure 1: Gender distribution

immediate rest after dinner (OR 3.841, 95% CI=1.610-9.161), introvert personality (OR 3.407, 95% CI=1.401-8.285), irregular timings of meal (OR 8.273, 95% CI=3.357-20.388), junk food (OR 4.896 , 95% CI=2.044-11.728), lack of personal hygiene (OR 4.472, 95% CI=1.355-14.755), lack of regular intake of fruits (OR5.310, 95% CI=1.913-14.745), lack of regular intake of vegetables (OR 4.162, 95% CI=1.744-9.935), lack of regular prayers (OR 2.455, 95% CI=1.097-5.494), lack of rest after lunch (OR 2.333, 95% CI=1.027-5.300), undue late night working (OR 6.612, 95% CI=2.762-15.831), high carbohydrate diet (OR 3.622, 95% CI=1.559-8.418), dandruff (OR 2.279, 95% CI=1.017-5.108), exposure to sunlight (OR 6.000, 95% CI=2.528-14.240), habit of skin scratching (OR 8.500, 95% CI=3.412-21.177), intake of carbonated drinks (OR 3.622, 95% CI=1.559-8.418), lack of cleansing before sleep (OR 4.125, 95% CI=1.792-9.497) and less intake of water (OR 4.644, 95% CI=1.981-10.883) whereas broken families, dieting, family illiteracy, joint family system, lack of exercise, lack of sound sleep, lethargy, obesity, overcrowding in houses, peer pressure, poverty, sedentary life style, smoking, smoky environment, excessive intake of spicy food, type A personality, eating fish, excessive intake of nuts, excessive intake of dairy products, excessive intake of tea, intake of chocolates and excessive use of cosmetics were not significantly associated with acne.

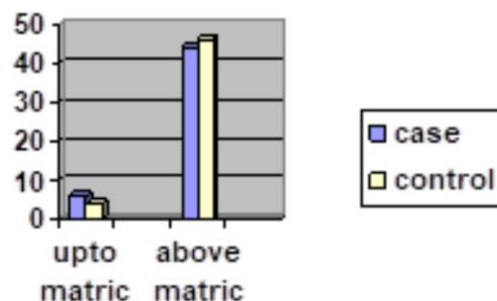


Figure 3: Education distribution

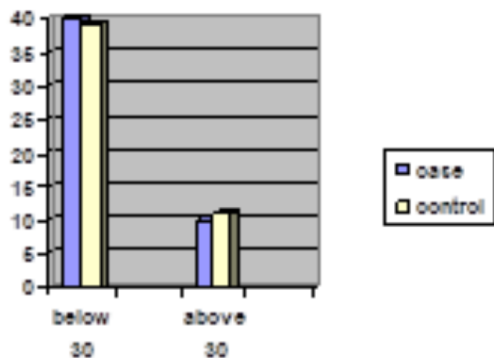


Figure 2: Age distribution

In bivariate analysis the psychosocial factors which were found significantly associated with Acne were aggression (OR 2.302, 95% CI=1.021-5.190), anxiety(OR 3.857, 95% CI=1.670-8.911), constipation (OR 6.143, 95% CI=2.323-16.242), depression (OR 3.019, 95% CI=1.315-6.929), dusty environment (OR 2.528, 95% CI=1.112-5.744), stress (OR 4.644, 95% CI=1.981-10.883), high fat diet (OR 3.551, 95% CI=1.541-8.181),

Multivariate logistic regression model was used to control possible confounding effect. It was observed that there were some changes between the crude odds ratios and the adjusted odds ratios. It was observed that after controlling all the factors studied, the strongest statistically significant association was exhibited by constipation (OR 4.012, 95% CI=1.067-15.084), dusty environment (OR 2.639, 95% CI=1.035-6.732), stress (OR 3.288, 95% CI=1.022-10.580), irregular timings of meals (OR 5.809, 95% CI=1.359-24.830), undue late night working (OR 3.584, 95% CI=1.251-10.271), exposure to sunlight (OR 5.194, 95% CI=1.677-16.092), habit of skin scratching (OR 6.334, 95% CI=2.378-16.873), lack of cleansing before sleep (OR 3.109, 95% CI=1.203-8.034) and less intake of water (OR 4.518, 95% CI=1.250-16.324). Other not significantly associated factors included aggression, anxiety, broken families, depression, dieting, family illiteracy, high fat diet, immediate rest after dinner, introvert personality, joint family system, junk food, lack of exercise, lack of personal hygiene, lack of regular intake of fruits, lack of regular intake of vegetables, lack of regular prayers, lack of rest after lunch, lack of sound sleep, lethargy, obesity, overcrowding in houses, peer pressure, poverty, sedentary life style, smoking, smoky environment, excessive intake of spicy food, type A personality, eating fish, excessive intake of nuts, excessive intake of dairy products, excessive intake of tea, high carbohydrate diet, intake of chocolates, dandruff, excessive use of cosmetics and intake of carbonate drinks. See Table

Table 1: Association of Psycho-social factors with Acne, Urban Community, Lahore

Sociodemographic Factors		Acne		Bivariate Analysis			Multivariate Analysis		
		Case n=50	Control n=50	Crude Odds ratio	95% CI		Adj. Odds ratio	95% CI	
					Lower	Upper		Lower	Upper
01	Dieting	50.0%	32.0%	2.125	.943	4.789	.882	.191	4.082
02	High fat diet	58.0%	28.0%	3.551	1.541	8.181	.758	.162	3.556
03	Immediate rest after dinner	52.0%	22.0%	3.841	1.610	9.161	3.037	.765	12.063
04	Irregular timings of meals	78.0%	30.0%	8.273	3.357	20.388	5.809	1.359	24.830
05	Junk food	78.0%	42.0%	4.896	2.044	11.728	1.693	.372	7.710
06	Lack of intake of fruits	42.0%	12.0%	5.310	1.913	14.745	2.125	.333	13.565
07	Lack of intake of vegetables	54.0%	22.0%	4.162	1.744	9.935	1.624	.346	7.618
08	Lack of rest after lunch	50.0%	30.0%	2.333	1.027	5.300	.929	.233	3.701
09	obesity	16.0%	16.0%	1.000	.343	2.913	.922	.172	4.939
10	smoking	12.0%	14.0%	.838	.260	2.695	.108	.009	1.308
11	Excessive intake of spicy food	76.0%	52.0%	2.923	1.245	6.865	.598	.130	2.749
12	Eating fish	28.0%	50.0%	.389	.170	.892	.339	.084	1.371
13	Excessive intake of nuts	46.0%	50.0%	.852	.388	1.868	.366	.066	2.028
14	Excessive intake of dairy products	12.0%	26.0%	.852	.134	1.122	.773	.103	5.817
15	Excessive intake of tea	50.0%	50.0%	1.273	.579	2.795	4.011	.735	21.886
16	High carbohydrate diet	74.0%	44.0%	3.622	1.559	8.418	.402	.030	5.404
17	Intake of chocolates	58.0%	42.0%	1.907	.862	4.220	2.433	.541	10.944
18	Intake of carbonated drinks	74.0%	44.0%	3.622	1.559	8.418	2.207	.455	10.708
19	Less intake of water	62.0%	26.0%	4.644	1.981	10.883	4.518	1.250	16.324
20	Aggression	52.0%	32.0%	2.302	1.021	5.190	1.928	.712	5.223
21	Anxiety	60.0%	28.0%	3.857	1.670	8.911	2.095	.697	6.300
22	Depression	54.0%	54.0%	3.019	1.315	6.929	1.992	.688	5.766
23	Stress	62.0%	26.0%	4.644	1.981	10.883	3.288	1.022	10.580
24	Introvert personality	46.0%	20.0%	3.407	1.401	8.285	2.348	.829	6.652
25	Lack of sound sleep	40.0%	34.0%	1.294	.573	2.921	.379	1.290	1.200
26	Lethargy	62.0%	46.0%	1.915	.863	4.250	1.174	.433	3.181
27	Type A personality	56.0%	48.0%	1.379	.628	3.029	.547	.189	1.587
28	Broken families	8.0%	8.0%	1.000	.236	4.241	.728	.084	6.340
29	Constipation	50.0%	14.0%	6.143	2.323	16.242	4.012	1.067	15.084
30	Family illiteracy	26.0%	44.0%	.447	.192	1.039	.349	.107	1.137
31	Joint family system	46.0%	40.0%	1.278	.578	2.825	.972	.328	2.879
32	Lack of exercise	78.0%	60.0%	2.364	.984	5.677	2.013	.613	6.607
33	Lack of personal hygiene	28.0%	8.0%	4.472	1.355	14.755	1.345	.293	6.171
34	Lack of regular prayers	64.0%	64.0%	2.455	1.097	5.494	2.460	.827	7.318
35	Peer pressure	18.0%	10.0%	1.976	.612	6.380	1.348	.205	8.869
36	poverty	20.0%	30.0%	.583	.233	1.463	.543	.153	1.922
37	Sedentary life style	64.0%	48.0%	1.926	.865	4.290	.941	.284	3.113
38	Undue late night working	72.0%	28.0%	6.612	2.762	15.831	3.584	1.251	10.271
39	Exposure to sunlight	70.0%	28.0%	6.000	2.528	14.240	5.194	1.677	16.092
40	Dusty environment	52.0%	30.0%	2.528	1.112	5.744	2.639	1.035	6.733
41	Overcrowding in houses	14.0%	24.0%	.516	.184	1.443	.322	.103	1.008
42	Smoky environment	50.0%	34.0%	1.941	.867	4.346	1.661	.663	4.159
43	Dandruff	66.0%	46.0%	2.279	1.017	5.108	1.862	.718	4.831
44	Excessive use of cosmetics	40.0%	26.0%	1.897	.812	4.431	.889	.311	2.543
45	Habit of skin scratching	68.0%	20.0%	8.500	3.412	21.177	6.334	2.378	16.873
46	Lack of cleansing before sleep	68.0%	34.0%	4.125	1.792	9.497	3.109	1.203	8.034

## DISCUSSION

The determinants of acne are complex and can differ from country to country or even from one community to another. Many psychosocial factors determine the state of acne. Taking into account the psychological factors, stress<sup>23</sup> was found to be associated with acne which is consistent with the previous studies. On the other hand aggression<sup>20</sup>, anxiety<sup>21</sup>, depression<sup>22</sup>, introvert personality<sup>24</sup>, lack of sound sleep<sup>25</sup>, lethargy and type A personality<sup>26</sup> were observed to have no association with acne which is contrary to previous studies. Among the environmental and social factors, undue late night working<sup>32</sup> and exposure to sunlight<sup>33</sup> were seen to cause acne in accordance with the former studies. However broken families, family illiteracy<sup>25</sup>, joint family system, lack of exercise<sup>28</sup>, lack of personal hygiene<sup>28</sup>, lack of regular prayer<sup>29</sup>s, peer pressure, poverty<sup>30</sup> and sedentary life style<sup>31</sup> were negated as causative factors of acne in current study in contrast to the former studies. On considering the physical environmental factors, dusty environment<sup>34</sup> was shown to increase acne as is cited in the earlier studies. In contrast overcrowding in houses<sup>35</sup> and smoky environment<sup>36</sup> were found to be unrelated with acne while previous

studies exhibit their definite association. Taking into account the nutritional factors irregular timings of meals<sup>18</sup> and less intake of water<sup>19</sup> were found to be associated with acne which is consistent with the previous studies. On the other hand dieting<sup>1</sup>, high fat diet<sup>2</sup>, immediate rest after dinner<sup>3</sup>, junk food<sup>4</sup>, lack of regular intake of fruits<sup>6</sup>, lack of regular intake of vegetables<sup>7</sup>, lack of rest after lunch<sup>8</sup>, obesity<sup>9</sup>, smoking<sup>10</sup>, spicy food<sup>11</sup>, eating fish<sup>12</sup>, excessive intake of nuts<sup>13</sup>, excessive intake of dairy products<sup>14</sup>, excessive intake of tea<sup>15</sup>, high carbohydrate diet<sup>16</sup>, intake of chocolates<sup>17</sup> and intake of carbonated drinks<sup>18</sup> were observed to have no association with acne which is contrary to previous studies. In the miscellaneous group, habit of skin scratching<sup>39</sup> and lack of cleansing before sleep<sup>40</sup> were found to be associated with acne which is in accordance with the previous studies. However, dandruff<sup>37</sup> and excessive use of cosmetics<sup>38</sup> were not found to be associated with acne which is contrary to the previous studies.

## CONCLUSION

Acne was found more in males, below the age of 30 years and educated ones.

The determinants of acne identified included constipation, dusty environment, stress, irregular timings of meals, undue late night working, exposure to sunlight, habit of skin scratching, lack of cleansing before sleep and less intake of water while aggression, anxiety, broken families, depression, dieting, family illitracy, high fat diet, immediate rest after dinner, introvert personality, joint family system, junk food, lack of exercise, lack of personal hygiene, lack of regular intake of fruits, lack of regular intake of vegetables, lack of prayers, lack of rest after lunch, lack of sound sleep, lethargy, obesity, overcrowding in houses, peer pressure, poverty, sedentary lifestyle, smoking, smoky environment, excessive intake of spicy food, type A personality, eating fish, excessive intake of nuts, excessive intake of dairy products, excessive intake of tea, high carbohydrate diet, intake of chocolates, dandruff, excessive use of cosmetics and intake of carbonated drinks were not found to be significantly associated.

**Limitation of the study:** As the exposure and outcome were assessed almost simultaneously in this study, temporal association between acne and factors studied could not be adequately established; which can be remedied by conducting a cohort study in a similar population.

**Acknowledgement:** We, the group members, are thankful to the community's co-operation for data collection, staff of computer lab at Rashid Latif Medical College, Lahore for extending nice assistance. We are extremely obliged to the staff of Community Medicine Department, Rashid Latif Medical College, Lahore for overall help, guidance, training and supervision.

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