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3 **Eating behaviors as predictors of satisfaction with food related**
4 **life**

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9
10 **Abstract**

11 **Objective:** To identify how different eating behaviours are correlated, and to
12 analyse which behaviour is a true predictor of food satisfaction while comparing
13 the pattern in gender behaviours.

14 **Methods:** The correlational study was conducted at the Department of
15 Humanities, COMSATS University, Islamabad, Pakistan, from January to May,
16 2019, and comprised adult individuals of both genders from different
17 universities and food outlets located in Islamabad. Data was collected using the
18 adult eating behaviour questionnaire and satisfaction with food-related life
19 scale. Data was analysed using SPSS version 25.

20 **Results:** Of the 430 subjects, 183(42.5%) males and 247(57.4%) were females.
21 All subscales of the adult eating behaviour questionnaire were correlated
22 positively with the satisfaction with food-related life scale scale except for
23 satiety responsiveness which showed negative correlation ($r=-0.07$). Enjoyment
24 of food, food responsiveness and hunger subscales acted as true predictors of
25 satisfaction with food-related life with correlation values of 0.37, 0.38 and 0.33
26 respectively. Significant difference was found across gender only on satiety
27 responsiveness ($p<0.05$).

28 **Conclusion:** Increase in enjoyment of food, food responsiveness and hunger
29 were found to increase satisfaction with food-related life.

30 **Key Words:** Eating behaviours, Satisfaction with food-related life, Satiety
31 responsiveness, Enjoyment of food.

32

33 **Introduction**

34 Eating, a requisite for human life, can be defined as an essentially rewarding
35 behaviour which is intrinsically accompanied by mood and emotions.¹ A
36 person's social, genetic, physiological and psychological factors interact with
37 one another and influence his food preferences, meal timing and quantity of
38 food, and, therefore, they collectively are eating behaviour.² Physiological and
39 emotional states of an individual are greatly affected by consuming food,³
40 therefore the significance of food is inevitable for the sustenance of human life.⁴

41 Eating, indeed, is indispensable for survival, but lack or access of it can lead to
42 under-nutrition, over-nutrition and eating disorders.⁵ Moreover, over-eating
43 often leads to obesity and may create health problems.^{6,7} Externality theory is
44 one of the prominent theories which focus on the importance of external cues in
45 obese people compared to internal hunger and satiety signals. According to this
46 theory, obese people react more to external cues than internal hunger^{8,9}.
47 According to psychosomatic theory, excessive stress and low mood lead to
48 over-eating in people.^{8,9} It occurs when people become unable to differentiate
49 between hunger and adverse emotional conditions. Thus, this inability causes
50 over-eating in many people. It could also be termed emotional eating.^{8,9}

51 People having food approach traits, such as 'food responsiveness' usually have
52 larger appetite or show greater interest in food.¹⁰ Some people possess food
53 avoidance traits, such as 'satiety responsiveness', and, thus, have smaller
54 appetite or lower interest in food.¹⁰ Demographic variables, such as age, gender,
55 and socioeconomic status (SES), and other factors, such as delivery and

56 distribution of food to markets, affect the choice and intake of food within a
57 culture.¹¹ Moreover, socio-cultural and ethnic factors also affect choice of food
58 and role of food in people's life.¹² Studies^{13,14} have shown food and diet quality
59 as an important domain of life that is positively linked with overall life
60 satisfaction. Satisfaction with life is defined as an overall assessment of feelings
61 and attitudes about one's life at a particular point in time ranging from negative
62 to positive.¹⁵ A person's overall assessment regarding their food and eating
63 habits is termed satisfaction with his food-related life (SWFRL).¹⁶ People
64 experience significant change and improvement in their mood after food
65 consumption and intake of calories.¹⁷

66 The current study was planned to explore eating behaviours closely linked to
67 SWFRL.

68

69 **Subjects and Methods**

70 The correlational study was conducted at the Department of Humanities,
71 COMSATS University, Islamabad, Pakistan, from January to May, 2019, and
72 comprised adult individuals of both genders from different universities and food
73 outlets located in Islamabad. After approval from the institutional ethics review
74 board, the sample size was calculated using Raosoft online calculator¹⁸ with
75 95% confidence interval (CI) and 5% margin of error.

76 The sample was raised using purposive sampling technique from among adults
77 at different universities, including COMSATS University, Bahria University,
78 and Quaid-e-Azam University (QAU) and restaurants including Roasters,
79 Ginyaki and KFC in Islamabad. Permission from respective managements was
80 obtained in this regard. Online Google forms¹⁹ were also used to approach
81 prospective subjects.

82 Those included were educated individuals of either gender aged >20 years who
83 could understand the English language. The rest were excluded.

84 After taking informed consent of the subjects, they were categorised into two
85 age groups; 20-35 years; and >35 years.

86 Data was collected using a demographic sheet along with adult eating behaviour
87 questionnaire (AEBQ) and the SWFRL scale which were all in the English
88 language. The AEBQ was originally found to be valid and reliable with alpha
89 value >0.70¹⁰. It is a self-report inventory based on 35 items, including four
90 food approach subscales and four food avoidance subscales. The responses are
91 scored using a likert scale ranging from 'strongly disagree' to 'strongly agree'.
92 Higher score shows higher indication of occurrence of that eating behaviour.
93 The questionnaire includes questions about different eating behaviours,
94 including food responsiveness (FR), emotional over-eating (EOE), emotional
95 under-eating (EUE), enjoyment of food (EF), hunger (H), satiety responsiveness
96 (SR), food fussiness (FF) and slowness in eating (SE). The AEBQ's subscales
97 showed good internal reliability with cronbach alpha value >0.70 in the current
98 study.

99 SWFRL scale¹⁷ is a valid and reliable tool with reported alpha value of 0.852²⁰.
100 It comprises 5 items scored on a likert scale ranging from 'strongly disagree' to
101 'strongly agree'. The scores range from 5 to 30 and higher scores reflect
102 elevated level of a person's satisfaction with his food-related life. The alpha
103 coefficient of the scale in the present study was 0.75.

104 Data was analysed using SPSS version 25. Frequencies and percentages of
105 demographic data were computed. Percentages of eating behaviours were
106 calculated using descriptive statistics. Mean values and standard deviations
107 were used to express differences across gender on eating behaviours assessed
108 with t test. Correlation between subscales of AEBQ and SWFRL scale was also
109 found using Pearson correlation analysis. $P < 0.05$ was considered statistically
110 significant.

111

112 **Results**

113 Of the 430 subjects, 183(42.5%) males and 247(57.4%) were females. The
114 highest mean value was for EF 4.07+/-0.79, indicating that most participants
115 enjoyed themselves while eating food.

116 A significant positive correlation was found between SWFRL and FR ($r=0.38$),
117 EF ($r=0.37^{**}$), and H ($r=0.33$) subscales, while SR showed negative correlation
118 (Table 1).

119 Multiple linear regression showed that EF and FR accounted for unique
120 variance in SWFRL (Table 2).

121 No significant difference was found across gender in eating behaviours except
122 for SR, with females scoring higher than males ($p<0.05$).

123

124 **Discussion**

125 The study found that EF, FR and H had significant positive relationship with
126 SWFRL. EF and FR were significant in predicting a participant's satisfaction
127 with food-related life. A significant difference was found across the gender only
128 on SR.

129 Positive correlation found between EF and SWFRL is also supported by earlier
130 findings²¹. Positive correlation found in the current study between FR and
131 SWFRL is also in line with literature.^{17,22} In the current study, H was also
132 found to be positively correlated with SWFRL and literature has shown that
133 food nourishes our body and makes us feel wholesome and complete²³. SR
134 showed negative correlation with SWFRL in the current study, indicating that
135 decrease in SR will increase SWFRL. It is in accordance with previous
136 research²⁴.

137 Regression analysis showed that EF and FR were significant in predicting a
138 participant's SWFRL. This is supported by previous studies.^{22,17}

139 There was no major difference across gender in terms of eating behaviours
140 except for SR where females scored higher than males. These findings are in
141 line with earlier research²⁵.

142 The current study has limitations as participants of all ages were not included.
143 There were only a few participants in the category of middle adulthood.
144 Furthermore, population unable to understand the English language was also
145 excluded.

146

147 **Conclusion**

148 People mostly eat for enjoyment and increase in EF increased SWFRL. The
149 positive correlation between FR and H with SWFRL indicated that FR and H
150 also heightened people's SWFRL.

151

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155

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247 **Table 1: Pearson correlation analysis between sub-scales of adult eating behaviours**
 248 **questionnaire (AEBQ) and satisfaction with food-related life (SWFRL) scale.**

Variables	SWFRL	<i>M</i>	<i>SD</i>
EF	.37**	4.07	.79
EOE	.13	2.74	.97
EUE	.04	3.12	.85
FF	.10	3.22	.74
FR	.38**	3.38	.85
H	.33**	3.27	.74
SE	.09	2.93	.77
SR	-.07	2.99	.78

249 *p<0.05, **p<0.01, M: Mean scores, SD: Standard deviation, EF: Enjoyment of food, EOE:
 250 Emotional overeating, EUE: Emotional under-eating, FF: Food fussiness, FR: Food
 251 Responsiveness, H: Hunger, SE: Slowness in eating, SR: Satiety responsiveness.
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255 **Table 2: Predictors of satisfaction with food-related life (SWFRL).**

256

Variables	B	SWFRL		257
		LL	UL	258
Constant	12.7	11.15	14.16	259
EF	.95	.513	1.38	260
FR	.92	.518	1.32	261
F	45.7			262
R ²	.18			263
				264
				265
				266
				267
				268
				269
				270
				271

272 LL: Lower limit, UL: Upper limit, EF: Enjoyment of food, FR: Food responsiveness.
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276 **Table 3: Mean (M), standard deviation (SD) and t-values of eating behaviours on the**
 277 **basis of gender (N=430)**

Variables	Males (n=183)		Females (n=247)		<i>t</i>	<i>P</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		

EF	4.08	.84	4.06	.74	.25	.80
EOE	2.7	.97	2.7	.97	.14	.89
EUE	3.0	.87	3.1	.83	1.94	.05
FF	3.2	.71	3.2	.77	.27	.79
FR	3.4	.85	3.3	.85	.28	.78
H	3.2	.76	3.2	.73	.08	.93
SE	2.9	.82	2.9	.74	.60	.54
SR	2.8	.80	3.0	.75	3.12***	.00

278 EF: Enjoyment of food, EOE: Emotional overeating, EUE: Emotional under-eating, FF: Food
 279 fussiness, FR: Food responsiveness, H: Hunger, SE: Slowness in eating, SR: Satiety
 280 responsiveness, p<0.001.
 281