CHILD AND ADOLESCENT DEVELOPMENT

A Study on Physiological Functions and Emotional Intelligence in Relation to Dietary Habits and Duration of Stay among Orphan Adolescents

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Abstract

The present study aims to examine physiological functions and emotional intelligence in relation to dietary habits and duration of stay among orphan adolescents. Adolescence is an important developmental stage involving physical, physiological and emotional changes. The study focuses on understanding differences between vegetarian and non-vegetarian adolescents and between those staying in orphanage institutions for below five years and above five years. The physiological variables include tidal volume, residual volume, respiratory rate and breath-holding time. Emotional intelligence is assessed through self-awareness, self-management, social awareness and relationship management. A total of 75 orphan adolescent girls from the experimental group are considered for the analysis. The study uses a comparative research approach based on the selected demographic variables. Data are analysed using mean, standard deviation and independent sample t-test. The findings provide an understanding of the relationship between selected demographic characteristics, physiological functioning and emotional intelligence among orphan adolescents.

Keywords: Orphan adolescents; emotional intelligence; physiological functions; dietary habits; duration of stay; breath-holding time

1 Objectives of the study

1. To assess the physiological functions of orphan adolescents.
2. To examine emotional intelligence among orphan adolescents.
3. To find out differences in physiological functions based on dietary habits.
4. To identify differences in emotional intelligence based on dietary habits.
5. To examine physiological functions based on duration of stay.
6. To analyse emotional intelligence based on duration of stay.
7. To compare self-awareness, self-management, social awareness and relationship management between the selected groups.

2 Hypotheses

1. There will be no significant difference in tidal volume between vegetarian and non-vegetarian adolescents.
2. There will be no significant difference in residual volume based on dietary habits.

3. There will be no significant difference in respiratory rate based on dietary habits.
4. There will be no significant difference in breath-holding time based on dietary habits.
5. There will be no significant difference in emotional intelligence based on dietary habits.
6. There will be no significant difference in physiological functions based on duration of stay.
7. There will be no significant difference in emotional intelligence based on duration of stay.
8. There will be no significant difference in the dimensions of emotional intelligence based on duration of stay.

3 Methodology

The sample consisted of 75 orphan adolescent girls from the experimental group, selected by purposive sampling (Table 1). The tools used for the study are listed in Table 2.

Table 1. Sample of the study.

Particulars	Sample
Total experimental group	75
Vegetarian	18
Non-vegetarian	57
Below 5 years stay	39
Above 5 years stay	36
Sampling technique	Purposive sampling

3.1 Tools used for the study

Table 2. Variables and tools used for the study.

S.No.	Variables	Tools
1	Demographic details	Personal Data Sheet
2	Tidal volume	Physiological measurement instrument
3	Residual volume	Residual volume assessment instrument
4	Respiratory rate	Respiratory rate measurement
5	Breath-holding time	Breath-holding test
6	Emotional Intelligence	Emotional Intelligence Scale

Emotional intelligence was assessed in four dimensions: self-awareness, self-management, social awareness and relationship management.

4 Need for the study

Orphan adolescents may experience different physical, physiological and emotional challenges during their developmental period. Dietary habits and duration of institutional stay are important demographic characteristics that may be associated with their health and emotional development. Understanding these factors can help identify variations in physiological functioning and emotional

intelligence among orphan adolescents. Therefore, the present study is needed to examine physiological functions and emotional intelligence in relation to dietary habits and duration of stay. The findings may help psychologists, social workers, institutional caregivers and educators develop appropriate health and emotional well-being programmes for orphan adolescents.

5 Results

5.1 Physiological parameters by dietary habits

Table 3 presents the results for the physiological parameters by dietary habits.

Table 3. Mean gain, SD, t-value and p-value of the physiological parameters by dietary habits (experimental group).

Parameter	Food	n	Mean gain	SD	t	p	Significance
Tidal volume	Vegetarian	18	10.55	5.29	0.24	0.805	NS
Tidal volume	Non-vegetarian	57	10.26	4.03	0.24	0.805	NS
Residual volume	Vegetarian	18	53.77	35.33	0.18	0.852	NS
Residual volume	Non-vegetarian	57	55.17	24.83	0.18	0.852	NS
Respiratory rate	Vegetarian	18	1.90	1.60	0.90	0.34	NS
Respiratory rate	Non-vegetarian	57	1.75	0.57	0.90	0.34	NS
Breath-holding time	Vegetarian	18	2.83	0.61	.10	.917	NS
Breath-holding time	Non-vegetarian	57	2.80	1.00	.10	.917	NS

Note: NS = not significant; S = significant at $p < .05$.

Tidal volume: Participants following a vegetarian diet (n = 18) had a mean gain of 10.55 (SD = 5.29), whereas non-vegetarian participants (n = 57) had a mean gain of 10.26 (SD = 4.03). The t-value (0.24) and p-value (0.805) indicate that the difference between the two dietary groups is not statistically significant.

Residual volume: Participants following a vegetarian diet achieved a mean gain of 53.77 (SD = 35.33), while non-vegetarian participants had a mean gain of 55.17 (SD = 24.83). The t-value (0.18) and p-value (0.852) reveal that the difference between the two groups is not statistically significant.

Respiratory rate: Vegetarian participants had a mean gain of 1.90 (SD = 1.60), and non-vegetarian participants had a mean gain of 1.75 (SD = 0.57). The t-value (0.90) and p-value (0.34) indicate that the difference between the two groups is not statistically significant.

Breath-holding time: Participants following a vegetarian diet achieved a mean gain of 2.83 (SD = 0.61), whereas non-vegetarian participants had a mean gain of 2.80 (SD = 1.00). The t-value (.10) and p-value (.917) show that the difference is not statistically significant.

The analysis of physiological parameters based on participants' dietary habits (vegetarian and non-vegetarian) revealed no significant differences in any of the measured variables. Tidal volume, residual volume, respiratory rate, and breath-holding time showed similar mean gains for both vegetarian and non-vegetarian groups, indicating that dietary preference did not significantly influence these physiological characteristics.

5.2 Physiological parameters by duration of stay

Table 4 presents the results for the physiological parameters by duration of stay.

Table 4. Mean gain, SD, t-value and p-value of the physiological parameters by duration of stay (experimental group).

Parameter	Duration of stay	n	Mean gain	SD	t	p	Significance
Tidal volume	Below 5 years	39	10.76	4.72	0.90	0.368	NS
Tidal volume	Above 5 years	36	9.86	3.87	0.90	0.368	NS
Residual volume	Below 5 years	39	53.28	30.14	0.50	0.612	NS
Residual volume	Above 5 years	36	56.52	24.53	0.50	0.612	NS
Respiratory rate	Below 5 years	39	1.74	1.22	0.85	0.396	NS
Respiratory rate	Above 5 years	36	1.55	0.50	0.85	0.396	NS
Breath-holding time	Below 5 years	39	2.87	0.73	.567	0.573	NS
Breath-holding time	Above 5 years	36	2.75	1.10	.567	0.573	NS

Note: NS = not significant; S = significant at $p < .05$.

Tidal volume: Participants with a duration of stay below 5 years (n = 39) had a mean gain of 10.76 (SD = 4.72), whereas participants with a duration of stay above 5 years (n = 36) had a mean gain of 9.86 (SD = 3.87). The t-value (0.90) and p-value (0.368) indicate that the difference between the two groups is not statistically significant.

Residual volume: Participants with a duration of stay below 5 years achieved a mean gain of 53.28 (SD = 30.14), while participants above 5 years had a mean gain of 56.52 (SD = 24.53). The t-value (0.50) and p-value (0.612) reveal that the difference between the two groups is not statistically significant.

Respiratory rate: Participants with a duration of stay below 5 years had a mean gain of 1.74 (SD = 1.22), whereas participants with a stay above 5 years had a mean gain of 1.55 (SD = 0.50). The t-value (0.85) and p-value (0.396) indicate no significant difference between the two groups.

Breath-holding time: Participants with a duration of stay below 5 years achieved a mean gain of 2.87 (SD = 0.73), while those with a stay above 5 years had a mean gain of 2.75 (SD = 1.10). The t-value (0.567) and p-value (0.573) show that the difference between the two groups is not statistically significant.

The analysis of physiological parameters based on the duration of stay shows no significant differences between participants staying below 5 years and those staying above 5 years. Mean gains in tidal volume, residual volume, respiratory rate, and breath-holding time were similar across both groups, indicating that the duration of stay did not have a significant effect on physiological parameters.

5.3 Emotional intelligence by dietary habits

Table 5 presents the results for the emotional intelligence dimensions by dietary habits.

Table 5. Mean gain, SD, t-value and p-value of the emotional intelligence dimensions by dietary habits (experimental group).

Parameter	Food	n	Mean gain	SD	t	p	Significance
Self-awareness	Vegetarian	18	3.44	1.04	2.67	.009	S
Self-awareness	Non-vegetarian	57	4.40	1.39	2.67	.009	S
Self-management	Vegetarian	18	4.22	1.26	.19	.849	NS
Self-management	Non-vegetarian	57	4.14	1.67	.19	.849	NS
Social awareness	Vegetarian	18	3.27	1.31	.496	.621	NS
Social awareness	Non-vegetarian	57	3.47	1.50	.496	.621	NS
Relationship management	Vegetarian	18	3.11	1.02	1.975	.052	NS
Relationship management	Non-vegetarian	57	3.89	1.57	1.975	.052	NS
Total emotional intelligence	Vegetarian	18	14.90	2.28	1.34	.185	NS
Total emotional intelligence	Non-vegetarian	57	15.45	2.97	1.34	.185	NS

Note: NS = not significant; S = significant at $p < .05$.

Self-awareness: Participants following a vegetarian diet had a mean gain of 3.44 (SD = 1.04), while non-vegetarian participants had a mean gain of 4.40 (SD = 1.39). The t-value of 2.67 and p-value of .009 indicate a statistically significant difference, suggesting that non-vegetarian students had higher gains in self-awareness compared to vegetarian students.

Self-management: Vegetarian participants had a mean gain of 4.22 (SD = 1.26) and non-vegetarians had 4.14 (SD = 1.67). The t-value of .19 and p-value of .849 show no significant difference, indicating that self-management is not influenced by food habits.

Social awareness: The mean gain for vegetarian students was 3.27 (SD = 1.31), while non-vegetarian students had 3.47 (SD = 1.50). The t-value of .496 and p-value of .621 indicate no significant difference, showing that social awareness is independent of diet type.

Relationship management: Vegetarian participants had a mean gain of 3.11 (SD = 1.02), whereas non-vegetarians had 3.89 (SD = 1.57). The t-value of 1.975 and p-value of .052 suggest that the difference is marginally non-significant, meaning non-vegetarian students tended to show slightly higher gains in relationship management, but the difference is not statistically strong enough.

Total emotional intelligence: The overall Emotional Intelligence mean gain for vegetarian participants was 14.90 (SD = 2.28) and for non-vegetarians it was 15.45 (SD = 2.97). The t-value of 1.34 and p-value of .185 indicate no significant difference, suggesting that total emotional intelligence is not meaningfully affected by food habits.

The results revealed that there was no significant difference in total emotional intelligence between vegetarian and non-vegetarian participants. Although non-vegetarian participants showed a slightly higher mean score, the difference was not statistically significant. Therefore, food habits did not significantly influence the emotional intelligence of the participants.

5.4 Emotional intelligence by duration of stay

Table 6 presents the results for the emotional intelligence dimensions by duration of stay.

Table 6. Mean gain, SD, t-value and p-value of the emotional intelligence dimensions by duration of stay (experimental group).

Parameter	Duration of stay	n	Mean gain	SD	t	p	Significance
Self-awareness	Below 5 years	39	4.00	1.39	1.13	.260	NS
Self-awareness	Above 5 years	36	4.36	1.35	1.13	.260	NS
Self-management	Below 5 years	39	4.30	1.41	0.83	0.402	NS
Self-management	Above 5 years	36	4.00	1.74	0.83	0.402	NS
Social awareness	Below 5 years	39	3.48	1.41	.37	.710	NS
Social awareness	Above 5 years	36	3.36	1.51	.37	.710	NS
Relationship management	Below 5 years	39	3.55	1.45	1.28	0.204	NS
Relationship management	Above 5 years	36	3.82	1.44	1.28	0.204	NS
Total emotional intelligence	Below 5 years	39	15.12	2.78	1.04	0.299	NS
Total emotional intelligence	Above 5 years	36	15.83	3.05	1.04	0.299	NS

Note: NS = not significant; S = significant at $p < .05$.

Self-awareness: Participants who stayed less than 5 years had a mean gain of 4.00, whereas those who stayed more than 5 years had a mean gain of 4.36. The t-value (1.13) and p-value (.260) indicate no significant difference, suggesting that the duration of stay does not affect self-awareness.

Self-management: The mean gain for the below-5 years group was 4.30 and for the above-5 years group 4.00. The t-value (0.83) and p-value (0.402) show no significant difference, indicating self-management is independent of duration of stay.

Social awareness: Participants staying less than 5 years scored 3.48, and those staying more than 5 years scored 3.36. The t-value (.37) and p-value (.710) show no significant difference, implying social awareness is not influenced by duration of stay.

Relationship management: The below-5 years group had a mean gain of 3.55, while the above-5 years group had 3.82. The t-value (1.28) and p-value (0.204) indicate no significant difference.

Total emotional intelligence: The total mean gain for participants staying below 5 years was 15.12 and for those above 5 years 15.83. The t-value (1.04) and p-value (.299) show that overall emotional intelligence is not significantly affected by duration of stay.

The results revealed that there was no significant difference in total emotional intelligence between the participants staying below five years and those staying above five years. Although participants staying above five years showed a slightly higher mean score, the difference was not statistically significant. Therefore, duration of stay did not significantly influence the emotional intelligence of the participants.

5.5 Pre-test and post-test results

Results on emotional intelligence by dietary habits: The experimental group participant's emotional intelligence dimension of Vegetarian and Non Vegetarian food groups didn't differ significantly during pretest period and also post test period. The control group participant's all emotional intelligence dimensions self- awareness, social awareness, differ during pretest period significantly

and also during post test period. During posttest period all the emotional intelligence dimensions self -awareness, social awareness of Vegetarian and Non Vegetarian food group differ significantly

Results on emotional intelligence by duration of stay: The experimental group participant's emotional intelligence dimension of below 5 and above 5 stay of years group didn't differ significantly during pretest period During post test period all the emotional intelligence dimensions self-awareness of below 5 and above 5 stay of years groups differ significantly whereas all other emotional intelligence dimensions didn't differ during pre-test period significantly and also during post test period The below 5 and above 5 stay of years group control group participant's all emotional intelligence dimensions self- awareness, self- management, differ during pretest period significantly whereas all other emotional intelligence dimensions didn't differ during pre -test period significantly during pretest period During post test period all the emotional intelligence dimensions self-awareness of below 5 and above 5 stay of years groups differ significantly whereas all other emotional intelligence dimensions didn't differ during pretest period significantly

Results on physiological parameters by dietary habits: The experimental group participant's Physiological parameter 'respiratory rate breath holding time' of Vegetarian and Non Vegetarian food groups differ significantly during pretest period whereas all other Physiological parameter of Vegetarian and Non vegetarian food groups didn't differ significantly during pretest period. During post test period all the Physiological parameter of Vegetarian and Non vegetarian food group's breath holding time differ significantly. whereas all other Physiological parameter of Vegetarian and Non Vegetarian food groups didn't differ significantly during post test period The Vegetarian and Non Vegetarian food control group participant's all Physiological parameter didn't differ during pretest period significantly and also during post test period.

Results on physiological parameters by duration of stay: The experimental group participant's Physiological parameter below 5 and above 5'stay of years groups didn't differ significantly during pretest period and also post test period The below 5 and above 5'stay of years control group participant's all Physiological parameter didn't differ during pretest period significantly and also during post test period.

6 Summary, findings, suggestions and conclusion

6.1 Summary of the study

The present study was undertaken to examine the physiological functions and emotional intelligence of orphan adolescents in relation to their dietary habits and duration of stay in the orphanage. The study focused on four physiological variables: tidal volume, residual volume, respiratory rate and breath-holding time. Emotional intelligence was examined through four dimensions: self-awareness, self-management, social awareness and relationship management, along with total emotional intelligence.

The data were analysed based on dietary habits, namely vegetarian and non-vegetarian food habits, and duration of stay, namely below five years and above five years. The sample consisted of 75 orphan adolescents from the experimental group. The collected data were analysed using mean, standard deviation and independent sample t-test. The results were interpreted at the 0.05 level of significance.

6.2 Findings related to dietary habits and physiological functions

- There was no statistically significant difference in tidal volume between vegetarian and non-vegetarian orphan adolescents (p = .805).
- No significant difference was found in residual volume based on dietary habits (p = .852).
- Respiratory rate did not differ significantly between vegetarian and non-vegetarian adolescents (p = .340).
- Breath-holding time also showed no significant difference based on dietary habits (p = .917).

6.3 Findings related to duration of stay and physiological functions

- No significant difference was found in tidal volume between adolescents staying below five years and above five years (p = .368).
- Residual volume did not show a statistically significant difference based on duration of stay (p = .612).
- No significant difference was observed in respiratory rate (p = .396).
- Breath-holding time also showed no significant difference based on duration of stay (p = .573).

6.4 Findings related to dietary habits and emotional intelligence

- Self-awareness showed a statistically significant difference between vegetarian and non-vegetarian adolescents (p = .009).
- Self-management did not show a significant difference based on dietary habits (p = .849).
- Social awareness did not show a significant difference (p = .621).
- Relationship management did not reach statistical significance at the 0.05 level (p = .052).
- Total emotional intelligence did not show a significant difference based on dietary habits (p = .185).

6.5 Findings related to duration of stay and emotional intelligence

- Self-awareness did not show a significant difference based on duration of stay (p = .260).
- Self-management showed no significant difference (p = .402).
- Social awareness showed no significant difference (p = .710).
- Relationship management showed no significant difference (p = .204).
- Total emotional intelligence also showed no significant difference based on duration of stay (p = .299).

6.6 Suggestions

Based on the findings of the study, the following suggestions are offered:

- Orphan authorities may provide balanced and nutritious food to adolescents, considering their individual nutritional needs.
- Regular health check-ups may be conducted to monitor the physiological health of orphan adolescents.
- Emotional intelligence development programmes may be organised to improve self-awareness, self-management, social awareness and relationship management.
- Counselling services may be provided to adolescents to address their emotional and social needs.

- Special attention may be given to adolescents who have difficulty adjusting to the orphan environment.
- Teachers, caregivers and social workers may be trained to identify the emotional and psychological needs of orphan adolescents.
- Similar studies may be conducted with larger samples from different orphan and geographical areas.
- Future researchers may examine additional variables such as self-esteem, resilience, stress, coping strategies and psychological well-being.

6.7 Conclusion

The present study examined the physiological functions and emotional intelligence of orphan adolescents in relation to their dietary habits and duration of stay in the orphanage. The findings revealed that dietary habits and duration of stay did not show statistically significant differences in the four physiological variables studied. Similarly, duration of stay did not show significant differences in any of the emotional intelligence dimensions or total emotional intelligence. However, dietary habits showed a statistically significant difference in the self-awareness dimension of emotional intelligence ($p = .009$). The other dimensions and total emotional intelligence did not show statistically significant differences based on dietary habits. The study highlights the importance of providing appropriate nutritional support, regular health monitoring, emotional support and opportunities for physical activities among orphan adolescents. Integrated care involving caregivers, teachers, counsellors and health professionals may contribute to the overall development and well-being of adolescents living in institutional care. Thus, the study provides useful information about the relationship of dietary habits and duration of stay with selected physiological functions and emotional intelligence among orphan adolescents.

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