

Correlation With Self-Assessment of Health Status and Bowel Movement Frequency in Depressive Tendency of High School Students

高校生の抑うつ傾向と健康状態の自己評価ならびに排便との関わり

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Abstract : Depressive tendency and bowel movement status were decided to be examined as a method for improving quality of life in order to promote health maintenance among high school students.

A survey was conducted from April to June, 2010 on 961 male and 1242 female high school students residing in O prefecture. The contents consisted of a self-evaluation of current health status and a survey of mental condition in order to determine depression status using the Birleson depression self-rating scale. On the other hand, bowel movement frequency was surveyed using the categories of: (1) every morning, (2) daily but at different times, (3) once every 2 to 3 days, and (4) once every 4 to 5 days. The resulting data was subjected to statistical processing of depressive tendency scores (referred to as depression scores) according to health status and bowel movement frequency.

As a result, depressive tendency according to health status was observed to demonstrate a statistically significant decrease moving from “not healthy” to “extremely healthy” for both boys and girls.

Next, in the evaluation of bowel movement status, depression scores were the lowest for those subjects who had bowel movements “every morning”, and the scores increased significantly moving from “every morning” to “once every 4 to 5 days”.

Keywords : High School Students, health status, bowel movement frequency, depressive tendency

I. Purpose

Enhancement of quality of life (QOL) is becoming an important issue as an approach for promoting mental and physical health maintenance among high

school students.

In order to prevent the occurrence of depression tendencies for the purpose of mental stability as a means for enhancing QOL¹⁾, it was decided to conduct a study on the correlation between manic

depression tendency and bowel movement frequency as an indicator of metabolic rhythm, while conducting an additional examination of whether or not maintaining regular bowel movements can function as a preventive measure against the onset of manic depression.

II. Methods

A survey was conducted on 961 male and 1242 female high school students attending three high schools located in O prefecture during the period from April to June, 2010.

The contents of the survey consisted of a self-assessment of current health status, and a questionnaire comprised of 18 questions²⁾ relating to mental status (10 questions relating to manic state and 8 questions relating to depressive state) was conducted and scored in order to determine the student's state of depression using the Birleson depression self-rating scale (Table 1).

On the other hand, bowel movement frequency was also examined (by assigning a score of 1 for every morning, 2 for daily but at different times, 3 for once every 2 to 3 days and 4 for once every 4 to 5 days).

The resulting data was analyzed by analyzing each of the scores for bowel movement frequency as well as manic state and depressive state according to health status by one-way analysis of variance.

Statistical processing of the data was performed using SPSS Statistics Ver. 21 available from IBM Corp.

The students were provided with an explanation of the purpose of the study when the study was conducted, and only those students that consented to participate were selected as study subjects.

III. Results

In looking at the scores for current health status, first with respect to manic tendency, manic scores decreased with statistical significance from "not healthy" to "extremely healthy" for both boys and girls.

Depression scores demonstrated a similar trend. Thus, even in the case of combining manic and depression scores, the scores decreased significantly as current health status improved (Table 2).

On the basis of these results, self-assessment of health status was clearly determined to be reflected in manic depression scores for both boys and girls.

Table 1 Birleson Depression Self-Rating Scale (DSRS-C)

Item	Always	Sometimes	Never	
Have many things to look forward to	0	1	2	Manic Score
Sleep extremely well	0	1	2	
Enjoy recreational activities	0	1	2	
Feel great	0	1	2	
Enjoy eating	0	1	2	
Can stand up for myself when bullied	0	1	2	
Able to effectively do what I set out to do	0	1	2	
Routinely take pleasure everything I do	0	1	2	
Recover quickly when feel depressed	0	1	2	
Enjoy talking with family members	0	1	2	
Feel like crying	2	1	0	Depression Score
Feel like running away	2	1	0	
Stomach hurts	2	1	0	
Do not take pleasure in living	2	1	0	
Have bad dreams	2	1	0	
Feel alone	2	1	0	
Times when feel extremely sad	2	1	0	
Times when feel extremely bored	2	1	0	

"Depressive tendency" present for score of 16 or higher (total for manic score + depression score)

Next, in comparing scores when categorized according to bowel movement frequency between boys and girls, both manic scores and depression scores decreased among students who had bowel movements “every morning”, and the scores increased significantly in all cases as bowel movement frequency decreased to “once every 4 to 5 days” (Table 3).

IV. Discussion

Current satisfaction with health status and daily morning bowel movements both contribute to maintaining a low depression score. In other words, since such factors as regular eating habits, dietary intake, proper exercise and avoidance of stress are involved in regular bowel movements, depression scores were suggested to be increased by

constipation^{3) 4) 5)}. On the basis of the results of this survey as well, getting into a habit of daily morning bowel movements was suggested to be important. Thus, factors behind a response of favorable regular bowel movements when self-evaluating health status have a favorable effect on promoting mental health maintenance.

V. Summary

A study was conducted on 2203 high school students consisting of self-assessment of current health status, scoring of manic depressive tendencies using the Birleson depression self-rating scale, and scoring of manic depression in relation to bowel movement frequency.

As a result, it was determined that regular bowel movements every morning are a prerequisite for

Table 2 Health Status and Depressive Tendency

Health Status		Frequency	Mean*±S.D.	Significant Difference
Boys	(1) Extremely dissatisfied	58	14.21±6.31	(1),(2),(3)>(4) (4)>(5) (1),(2),(3),(4)>(5)
	(2) Somewhat dissatisfied	211	14.53±5.33	
	(3) Neither satisfied or dissatisfied	278	14.22±5.00	
	(4) Somewhat satisfied	251	11.57±4.69	
	(5) Extremely satisfied	134	8.47±5.75	
	Total	932	12.75±5.60	
Girls	(1) Extremely dissatisfied	64	12.31±7.37	(2)>(1),(4),(5) (3)>(1),(4),(5) (4)<(2),(3) (5)<(1),(2),(3),(4)
	(2) Somewhat dissatisfied	309	14.43±5.70	
	(3) Neither satisfied or dissatisfied	318	14.71±5.65	
	(4) Somewhat satisfied	368	11.12±4.92	
	(5) Extremely satisfied	144	9.60±6.00	
	Total	1203	12.80±5.92	

*Mean ± standard deviation(depression score)
Frequency : Number of persons(N)

P<0.05

Table 3 Bowel Movement Frequency and Depressive Tendency

Health Status		Frequency	Mean*±S.D.	Significant Difference
Boys	(1) Every morning	396	11.63±5.70	(1)<(2),(3),(4)
	(2) Daily at different times	383	13.60±5.55	
	(3) Once every 2 to 3 days	142	13.39±4.98	
	(4) Once every 4 to 5 days	11	15.27±5.37	
	Total	932	12.75±5.61	
Girls	(1) Every morning	230	11.43±5.55	(1)<(2),(3),(4)
	(2) Daily at different times	427	12.83±5.98	
	(3) Once every 2 to 3 days	473	13.21±5.80	
	(4) Once every 4 to 5 days	73	14.25±6.64	
	Total	1203	12.80±5.91	

*Mean ± standard deviation(depression score)
Frequency : Number of persons(N)

P<0.05

maintaining favorable health status among high school students, and it was simultaneously found that establishing regular bowel movements is necessary for preventing symptoms of depression and improving QOL.

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