NUTRITIONAL KNOWLEDGE AND PRACTICES IN RELATION TO THE NUTRITIONAL STATUS OF THE SECONDARY STUDENTS AT MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY, MINDANAO, PHILIPPINES, 9000

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ABSTRACT

The main purpose of this study was to determine the nutrition knowledge and practices in relation to the nutritional status of Secondary students in Mindanao University of Science and Technology. Specifically, the study answered the question on the profile of the students in in terms of age, sex, mental ability, socio – economic status, size of the family, height, weight, and hemoglobin level. It likewise sought to answer on how do the student factors and socio-demographic factors influence the nutritional knowledge and practices of the students. It further assesses to what extent do nutritional knowledge and practices influence the nutritional status of the students. There are 324 secondary students of MUST, as respondents of this study. A listing of all secondary students of MUST enrolled during the school year was taken from the principal's office. In like manner, the respondents have already their records at the MUST medical clinic. The researcher had to ask the assistance of Dr. Socessa M. Saquilayan, a medical officer IV of the college, and Mrs. Luchie Demetrio, public health nurse I, who helped in facilitating the medical records. In each student's records, the researcher got the data on their height and weights of each student were then computed using the tan Hauser method. To find the mental ability of the respondents, the guidance center Placement Services conducted an IQ test (OTIS – LENNON Standard Test – Intermediate Level) to the high school students. In finding out the hemoglobin level of each student, a competent medical technologist from Northern Mindanao Medical Center (NMMC) was requested especially for the purpose. Hemoglobin determination was done during the period of health classes and it lasted for five days. To get the data on nutritional knowledge and practices, questionnaires were given to the respondents. The nutrition knowledge has five (5) areas of concern such as: food groups, functions of nutrients, diet and exercise, physiological basis of nutrition, and recommended amount of food groups to adolescents both males and females. Likewise, the nutritional practices had two (2) areas of concern namely: food selection and food preparation. Furthermore, the statistical tools used were: frequency and percentage distribution to describe the profile of the respondents. Means and standard deviation were used to measure diffusion, as measures of central tendency and variability respectively; stepwise regression analysis was utilized to determine the extent of influence of certain variables on the nutritional knowledge and practices of the students; and simple regression analysis was used to determine the extent of influence of the nutritional knowledge and practices on the nutritional status of the students.

Keywords: nutrition, knowledge, practices students, nutritional status

INTRODUCTION

Education and health play a significant role in the development of a country. The country's growth is always propelled and supported by individuals who are gifted with intellectual, physical, and social capacities. People, therefore, are of paramount importance in this newly industrialized country.

Stressing the relevance of a physically fit person, Oliveros (1982) pointed out that nutritional status of a child determines, to a large extent, his success in school, and the quality of life he will have as an adult. She further stressed that the person's nutritional status will determine the child's capacity to attain his genetic potential for optimum growth and mental maturation.

The school health and Nutritional Unit Center in its efforts to improve education has monitored and evaluate the health and nutritional program in the Region. Some of their targets are: (1) to examine

38,500 pupils for possible kidney problem, positive error of refraction and eye defect; (2) to conduct extraction to 20% of the pupils with dental cases; (3) to conduct physical examination to all pupils to determine rheumatic fever and rheumatic heart disease suspects; (4) to actualize x-ray and sputum examinations to 50% of teachers throughout the region; (5) to treat 50% of positive cases of tuberculosis; (6) to deform 70% of school children; and (7) to improve by 40% of the nutritional status of elementary school children.

In the annual status report of Dep-Ed – Region 10 (1993-94) of the Nutritional status of Elementary school children, the report disclosed that out of 59,349 enrollees of Cagayan de Oro City public schools, 1,525 are severely underweight; 10,906 moderately underweight; 16,744 mild; 28,551 normal; and 1,623 overweight. The foregoing finding connotes an alarming situation not only among the Nutrition Health units but this scenario is also a major concern of every citizen not only in Region X but throughout the country. Malnutrition, therefore, has become one of the problems confronting the country today.

The aforecited reason is the rallying point that motivated the researcher to look into the nutritional status of the students at Mindanao University of Science and Technology relation to the Nutrition knowledge and practices and other variables. Through this Study, she hoped to gain insights that would improve teaching and enhance learning in schools, not only in Cagayan de Oro but throughout the country as well.

MATERIALS AND METHODS
This study presents the methodology of the present study. It includes the discussion of the following points: (1) respondents of the study; (2) data gathering instruments; (3) research instrument; (4) validation of the instruments; and (5) statistical treatment of the data.

Respondents of the Study

The respondents of this study were 324 secondary students of MUST, of which 172 are males, and 152 are females. The researcher got the total number of MUST secondary students who are enrolled at the registrar's office. Table 1 shows the number of secondary students in MUST with the corresponding year level.

Data gathering procedure

The respondents of this study had already their records at the medical clinic of MUST. The researcher had to ask the assistance of Dr. Socessa M. Sauilayan, a medical officer IV of the college, and Mrs. Luchie Demetrio, public health nurse I, who helped in facilitating the medical records. In each student's records, the researcher was able to get data on their height, weight, age and sex. The results of height and weight of each students were then computed using the tannhausers method.

Table 1.Distribution of Respondents of the Study

Year Level	Section	No. of Students
I	Lily	43
	Gladiulus	41
II	Daisy	38
	Sampaguita	42
III	Tulip	35
	Rose	38
IV		
	Catleya	46
	Dahlia	<u>41</u>
		324

To find the mental ability of the respondents, the Guidance Center and Placement Services conducted an IQ test (OTIS – LENNON Standard test – Intermediate Level) to the High school students.

To get the other data, the researcher had to seek permission from the college President for the approval of the conduct of the study. After which, she personally administered the questionnaire to the respondents, expect of the students whose questionnaires were distributed and administered by their respective teachers.

In finding out the hemoglobin level of each student, a competent medical technologist from Northern Mindanao Medical Center Hospital (NMMC) was requested especially for the purpose. Two sections were scheduled every day in order that classes would not be disturbed. A group of medical technologist came and hemoglobin determination was done during the period of health classes. The determination of the hemoglobin level lasted for five days.

Cyamethemoglobin reagent of testing for hemoglobin level was used. In this method, one of the five fingers of the students was pricked. After which, the blood was sucked with capillets and transferred to shale pipette up to 20 mm. After the process, the blood was brought to Northern Mindanao Medical Center Hospital laboratory for analysis.

In the NMMC laboratory, each pipette total volume was blown to cymethemoglobin reagent. After five minutes, the reading followed through the spectrophotometer at 540 mm against reagent blank, with the purpose of determining the hemoglobin level of the students.

The research instrument

 Four sets of instruments were used in the study. The first set of data gathering instrument was the data sheet on the nutritional status. The instrument elicited information about height, weight, age and sex. The second set of gathering date was the data sheet on OTIS – LENNON Standardized Test – Intermediate Level that was conducted by one of the Guidance Counselors. The third gathering data sheet was on laboratory examination for hemoglobin level. A competent medical

 Technologist of Northern Mindanao Medical Center Hospital did this. And the fourth set was the researcher's made questionnaire.

Part I of the questionnaire was on personal data sheet which elicited information about parent' income, number in the family and parents' occupation.

Part II of the of the questionnaire asked information from the students regarding their nutritional knowledge and practices.

Out of fifty-four (54) item on nutritional knowledge, ten (10) items gathered information on basic food groups, seventeen (17) items asked for functions of nutrients, five (5) items delved on diet and exercise, twelve (12) items asked on physiological basis of nutrition, and ten (10) items focused on the recommended amount of food groups to adolescents both male and female.

Out of twenty – seven (27) item in nutritional practices, (12) items asked about food preparation, fifteen (15) items inquired on food selection.

Validate of the Instrument

To validate the questionnaire, copies of these were shown to the Home Economics Majors, Nutritionist and Dietitians, and the Dean of Graduate School, Lourdes College, Cagayan de Oro City. The questionnaire was then retrieved, making it acceptance to the respondent's point of view.

After integrating the suggestion into the draft, the questionnaire was again subjected to another critiquing by an expert especially along the field of research. After which, the draft was finalized.

Statistical Treatment of the Data

For problem number (1) Frequency and Percentage distribution were used to describe the profile of the respondents. Means and standard deviations were used as measures of central tendency and variability respectively. In problem number 2, the mean was used as a measure and the standard deviation as a measure of diffusion. Problem number three (3) furthermore, made use of stepwise regression analysis. This was utilized to determine the extent of influence of certain variables on the nutritional knowledge and practices of the student, and problem number four (4) likewise employed simple regression analysis to determine the extent of influence of the nutritional knowledge and practices on the nutritional status of the students.

The data on nutritional knowledge followed certain scales with its corresponding interpretations is thus, illustrated.

Scale   Interpretation

3   Sufficient knowledge (Respondents have sufficient knowledge in nutrition)

2   Sufficient knowledge (Respondents have doubtful knowledge in nutrition)

1   I don't know (respondents have no knowledge in nutrition)

Furthermore, data on nutrition practices used the following scale and interpretation:

Scale   Interpretation

3   Always practices (Respondents always do the nutrition practice)

2   Sometimes practiced (respondents do nutrition practices but not all times)

1   Never practices (Respondents do not do nutrition practices)

The tannhauser's method was used in order to get the weight of the respondents and evaluation based on the following degree of malnutrition:

(1) Normal, when the weight within the range of ideal body weight

(2) Slightly underweight, when the weight is 10% below ideal body weight;

(3) Slightly overweight, when the weight is 10% above ideal body weight;

(4) Severely underweight, when the weight is 205 below ideal body weight;

(5) Severely overweight or obese, when the weight is 20% above ideal body weight.

The index suggestive of anemia was used t determine whether the respondents were anemic or not.

Indices suggestive of anemia. The index taken from NMMC laboratory was used as guideline in determining whether the respondents were anemic or not.

Normal Range:

        Male   =   13 – 18 grams %

        Female =   11 – 16 grams %

RESULTS AND DISCUSSION

In this chapter, the presentation, analysis, and interpretation of the data are given. The order of presentation is as follows: (1) students profile in terms of age, sex, mental ability, socio – economic

status and size of the family; (2) profile of the nutrition knowledge and practices of the students; (3) the nutritional status of the respondents according to height, weight, and hemoglobin level; (4) the extent to which student factors and socio- demographic factors influence the nutritional knowledge and practices of the students; and (4) the extent to which student's nutritional knowledge and practices influence their nutritional status.

Problem Number 1:

What is the profile of the secondary school students of Mindanao University of Science and Technology in terms of: student's factors; sex, age, mental ability; and socio-demographic factors: socio-economic status, size of the family?

Age. Table 2 shows the age distribution of the secondary students of MUST. Tabular values shows that a significant number of the respondents are 15 years old as shown in the frequency count of 80 or 24.69 percent. The cumulative percentage of students belonging to 13 to 16 years old, moreover, is approximately 92%. This means that a very significant majority of the respondents have varying ages ranging from 13 to 16 years old.

Table 2.Profile of Students by Age

Variable	Frequency	
Ages:		
12 years old	2	0.6173
13 years old	78	24.074
14 years old	70	21.6049
15 years old	80	24.6915
16 years old	75	23.7654
17 years old	13	4.0123
18 years old	4	1.2346
Total	324	100

The cumulative percentage of students belonging to 13 to 16 years old, moreover, is approximately 92%. This means that a very significant majority of the respondents have varying ages ranging from 13 to 16 years old.

Variable	Frequency	Percentage
Males	172	53.0864
Females	152	46.9136
Total	324	100

Sex. Tables 3 shows the distribution of respondents according to sex. The data indicate that there are more male respondents than the female counterparts as revealed in the frequency count of 172 for males and 152 for females.

Table 4. Profile of Students by Mental Ability

Variable	Row Score	% Ranks	Frequency	Percentage
High Average	53	99	19	5.8642
Above average	37.9	64	96	29.6296
Average	34.5	86	186	57.4074
Below Average	23	16	13	4.0122
Low Average	13	4	10	3.0864

Total			324	100

Mental Ability. Table 4 shows the mental ability profile of the students. Results disclose that 57.41% of the respondents belong to the average category. More than twenty –nine percent (29.63%) are on the above average level. Only 10 or 3.08% are found to be in the low average mental ability. The data show that majority of the secondary students of Mindanao University of Science and Technology are with average IQ

Table 5. Profile of Students by Socio-economic Status

VARIABLE	FREQUENCY	PERCENTAGE
3,750 – 4,583.33	123	37.9630
4,583.42 – 5,416.67	71	21.9136
5,416.75 – 6,666.66	42	12.9629
6,666.75 – 10,833.33	39	12.0371
10,833.42 – 4,166.67	22	6.7901
14,166.75 – 7,500.00	10	3.0864
17,500.08 – 20,833.33	5	1.5432
20,833.42 – above	12	3.7037
Total	324	100.00

Socio-Economic Status. Table 5 shows the socio-economic status profile of the students. Most of the students belong to the 3,750 – 4,583.33 income bracket with a

percentage of 37.96%. Out of 324 students, only five students belong to 17,500.08 – 20, 833.33 income bracket which has the lowest frequency with 1.54%.

It can be gleaned from the above – mentioned table that almost sixty percent of the respondents have an income ranging from P3, 750.00 and below to 4, 583.42 and 5,416.67.

Table 6 Profile of Students by Size of the Family

No. of Children in the Family	Variable	Frequency	Percentage
1	Child	0	0.0000
2	Children	4	1.2346
3	Children	16	4.9382
4	Children	52	16.0494
5	Children	88	27.1604
6	Children	71	21.9135
7	Children	57	17.5926
8	Children	18	5.5555
9	Children	12	3.7037
10	Children	3	0.9259
11	Children	2	0.6173
12	Children	1	0.3085
	Total	324	100.00

Size of the family.   Table 6 shows the students' size of the family. Eighty – eight or 27.16% of the respondents   comes from family with five children. The figures also show that out of 324 students-respondents, 21.91% of them belong to a family with six (6) children and almost eighteen

percent (17.59%) of them are categorized with seven children in the family. The data tell that majority of the respondents come from a family with an average size ranging from 4-7 children.

Problem Number 2:

What are the nutritional knowledge and practices of the secondary school students of MUST**?**

Table 7. Summary of values showing the nutritional knowledge Practices of the students

Variable	Mean	Standard Deviation	Interpretation
Nutritional Practices Nutritional Knowledge	1.4395 2.4236	0.2399 0.4039	Sometime Practiced Sufficient Knowledge

Table 7 shows the summary of values showing the nutritional knowledge and practices of the students. The results reveal that nutritional practices are actualized "sometimes" only as indicated in the mean score of 1.44. The table further shows that "sometimes" only indicated in the mean score of 1.44. The table further shows that respondents have sufficient knowledge in nutrition. This means that MUST students know about the basic food groups, their nutrient and their functions. The physiological basis of nutrition, or the digestive process and the relevance of diet and exercises are likewise known by then. Furthermore, their students have enough background about the requisites of a balanced diet.

The results implies that even if the respondents know nutrition, it is most likely to occur that MUST high school students do not always practices what they do know. This finding concern concurs with Claudio et al. (1982) when he cited that students who do not eat breakfast are not ignorant of the nutritional value of breakfast but hey just don't have the proper attitude towards food. The inconsistency between knowledge and practices of nutrition could possibly be attributed, then, to the attitude factor.

Problem Number 3:

What is the nutrition status of the secondary students of MUST in terms of: height, weight, and hemoglobin level?

Height. Distribution of respondents according to height is reflected in table 8. Result shows that respondent have heights between 60" and 65" as indicated by the 55.56%. More than twenty five percent (25.92%) though stand from 54" to 59".

Table 8.Nutritional Status of Students According to Height

Variable	Frequency	Percentage
Height Range:		
66" and above	33	10.1852
60" – 65"		
54" – 59"	180	55.5555
49" – 53"		
48" and below	84	25.9250
	20	6.1728
	7	2.1625

	Total = 324	100.00

Seemingly, the figure indicate that majority of the high school respondents are generally tall.

Table 9. Nutritional Status of Students According to Weight

Variable	Frequency	Percentage
Normal Weight	48	14.8148
Slightly underweight	58	17.9012
Severely underweight	202	62.3457
Slightly overweight	7	2.1616
Severely overweight	9	2.7777
	Total = 324	100.00

Weight. Table 9 shows the weight distribution of the respondents. It is surprising to note from the above that 62% are severely underweight. Only more than fourteen percent (14.814%) are normal in weight. It can be deduced from the table that a significant majority of the respondents are severely underweight. The data imply that malnutrition is really a problem among the secondary students of MUST.

Table 10. Nutritional Status of Students According to Hemoglobin Level

Variable	Frequency	Percentage
Normal Condition		
Males	138	42.5926
Females	168	51.8518
Abnormal Condition		
Males	13	4.0124
Females	5	1.5432
	Total = 324	100.00

Hemoglobin Level. The hemoglobin level of the students is reflected in table 10. Most of the respondents have normal hemoglobin levels of 94.44% while only about 5% have abnormal hemoglobin conditions. Abnormalities are more amomg the females as shown on the percentage of 15%. The data on the succeeding table is based on the results given by the Northern Mindanao Medical Center Hospital (NMMC) Laboratory Department. According to this source, the accepted value of hemoglobin for boys is 13-18 grams % and 11 – 16 gram for girls.

Problem Number 4:

Is there a significant relationship between the student's factors and socio-demographic factors and the nutrition knowledge and practices of the students?

From the above cited problem, the succeeding hypothesis is thus formulated and illustrated.

Ho1:   There is no significant relationship between the student's factors and socio-demographic factors and the nutrition knowledge and practices of the students.

Nutritional Practices. Table 11 shows the stepwise regression analysis performed with nutritional practice as the dependent variable.

Tabular values shows that age is the best single predictor of nutritional practices. The positive regression coefficient of 15.8023 shows that the older respondents are associated with nutritional

practices. This computed regression coefficient is found to be very significant beyond the 0.01 probability level with an F-value of 8.315. This means that there is a very significant relationship between age and nutritional practices. This finding tends to confirm the fact that nutritional practices can be developed through time and that mature people tend to be more careful about their nutritional practices.

Table 11. Regression Analysis with Nutritional Practices

As the dependent Variable

Step 1. Variable   :   Age Entered
Dependent Variable   :   Nutritional Practices

Variable	Regression Coefficients	Standard Error	F (1.323)	Probability
Age Constant	15.8023 401.0965	5.4802	8.315	0.0004
Standard Error of Estimate = 66.1629 R^2 = 0.0384 R = 0.1961				
Search Terminated at Step 1. Variables not in Equation				

Variables	Partial R^2	R – Value	Probability
Sex SES Size of the Family Mental Ability	0.0053 0.0021 0.0032 0.0017	0.7280 0.0458 0.0565 0.0412	0.2398 0.5154 0.4154 0.5559

The search for best predictors, however, terminated at stage 1 which means that the variables of sex, socio-economic status, size of the family and mental ability do not significantly influence the nutritional practices of the respondents.

Table 12. Regression Analysis with Nutritional KnowledgeAs The Department variable

Step 1. Variable   :   Age Entered
Dependent Variable   :   Nutritional Knowledge

Variable	Regression Coefficients	Standard Error	F (1.323	Probability	
Age Constant	15.9963 438.2570	6.6100	5.7820	0.0171	
Standard Error of Estimate = 80.3123 R^2 = 0.0270 R = 0.1645					
Step 2. Variable : Mental Ability Entered Dependent variable : Nutritional knowledge					
Variable	Regression Coefficients	Standard Error	F (1.323)	Probability	Partial R^2
Age Mental Ability Constant	15.3878 1.5879 369.5381	6.6100	5.4190	0.0171	0.0255

Standard Error of Estimate	=	79.7199	
R^2	=	0.0367	
R	=	0.2144	
Search Terminated at Step 1. Variables not in Equation			
Variables	Partial R^2	R – Value	Probability
Sex	0.0029	0.0539	0.2012
SES	0.0000	0.0000	0.9925
Size of the Family	0.0071	0.0843	0.2258

Nutritional Knowledge.   Table 12 shows the same kind of analysis performed on nutritional knowledge using stepwise regression analysis. Tabular values show that the best single predictor of nutritional knowledge is again age with a positive regression coefficient of 15.9963. This means that the older respondents tend to have better nutritional knowledge than the younger respondents do. This relationship was found to be very significant with an F-value of 5.7820 exceeding the required value for significant even at the 0.01 probability level.

The second good predictor of nutritional knowledge is mental ability. The computed regression coefficient of 1.5879. This implies that those with higher mental ability tend to have better nutritional knowledge.

The above finding conforms, in one way or another, with the concept of Oliveros (1982) when she pointed out that nutritional status of a child determines, his success in school, and the quality of life he will have as an adult.

The rest of the dependent variables such sex, SES, and size of the family do not significantly influence the nutritional knowledge of the students.

Table 13. Regression Analysis of nutritional practices and thePredictor Variables Using Simple Regression

Dependent Variable   :   Nutritional Practices

Variable	Regression Coefficients	Standard Error	T (DF=320)	Probability	Partial R^2
Mental Ability	1.0002	0.6565	1.5240	0.1291	0.0112
Age	15.7753	6.6522	5.7820	6.0171	
Constant	=	231.4239			
Standard Error of estimate	=	66.7563			
R^2	=	0.2594			
Multiple R	=	0.5093			

Full regression with nutritional Practices as the dependent variable.   Table 13 exhibits the full regression analysis performed using nutritional practices as the dependent variable.

Tabular values show the joint effect of all the independent variables on the dependent variables as measured by the squared multiple correlation coefficient amounted to 0.2594 explained by the mental Ability. The remaining 74% of the variance in the nutritional practices of the respondents remained unaccounted for. This means that roughly 26% of the variance in the nutritional practices of the respondents may be explained by the mental ability.

Table 14. Regression Analysis of nutritional Knowledge and the Predictor Variables Using Simple Regression

Variable	Regression Coefficients	Standard Error	T (DF=320)	Probability	Partial R^2
Mental Ability	1.6427	0.7935	2.0700	0.0396	0.0205
Constant = 227.9433 Standard error of Estimate = 80.6915 R^2 = 0.5758 R = 0.3316					

Full regression with Nutritional Knowledge as the dependent variable. Table 14 exhibits the summary of the full regression analysis performed on nutritional knowledge and the various independent variables.

The computed squared multiple correlation coefficient amounted to 0.5758 which shows that roughly 58% of the variance in the nutritional knowledge of the respondents are accounted for by the variables of mental ability. The variance is already explained by the respondents' mental ability. The results tend to indicate that the over half of the variance in the nutritional knowledge of the respondents can be explained by this variable. Only 42% of the variance in the nutritional knowledge of the respondents remained unaccounted for.

Problem Number 5:

Is there a significant relationship between the nutritional knowledge and practices and the nutritional status of the students?

The null hypothesis for the foregoing problem is thus illustrated.

Ho_2: There is no significant relationship between nutritional knowledge and practices and the nutritional status of the students.

Table 15. Regression Analysis with Hemoglobin counts as Dependent Variable

Variable	Regression Coefficients	Standard Error	T (DF=320)	Probability	Partial R^2
Knowledge	0.2834	0.1966	1.442	0.20897	0.2936
Practice	0.3960	0.1874	2.081	0.09199	0.4640
Constant = 0.6082 Standard Error of Estimate = 0.6082 R^2 = 0.0145 Multiple R = 0.1205					

Tables 15 show the summary of the regression analysis done using nutritional knowledge and practices as independent variables and hemoglobin count (Nutritional Status) as the dependent variable. Tabular values shows that of the two variables, the stronger determinants of hemoglobin count ar nutritional practices with a positive regression coeficient of 0.3900. This regression coefficient shows that better nutritional practices are associated with higher hemoglobin count. The t-value of 2.081 in found to be significant at the 0.09 (10%) probability level.

However, nutritional knowledge does not show significant effect on hemoglobin count (t=1.442). The two variables together explained 1.45% of the total variance in the hemoglobin count of the respondents (R^2=0.0145).

Table 16. Regression Analysis with Weight As dependent Variable

Variable	Regression Coefficients	Standard Error	T (DF=320)	Probability	Partial R^2
Knowledge	**0.4783**	**0.9098**	**0.526**	**0.62130**	**0.0525**
Practice	**0.9933**	**0.8652**	**1.146**	**0.30372**	**0.2080**
Constant = **0.6082**					
Standard error of estimate = **2.8122**					
R^2 = **0.0139**					
R = **0.1183**					

Table 16 shows the summary of the regression analysis done using nutritional knowledge and practices as independent variable and weight (nutritional status) as the dependent variable. Tabular values show that two variables do not significantly relate with weight. This is indicated in the regression coefficient of 0.9933 with a t-value of 1.146 at the 0.30377 probability level.

This means that nutrition knowledge and practices do not show significant effect on weight (t=0.526). The two variables together explained 1.39% of the total variance in the weight of the respondents (r^2=0.0139).

Table 17. Regression Analysis with Height As Department Variable

Variable	Regression Coefficients	Standard Error	T (DF=320)	Probability	Partial R^2
Knowledge	0.0169	0.0249	0.676	0.52878	0.0838
Practice	0.0280	0.0238	1.176	0.29259	0.2166
Constant = 0.6082					
Standard error of estimate = 0.0773					
R^2 = 0.0126					
R = 0.1125					

Table 17 shows the summary of the regression analysis done using nutritional knowledge and practices as independent variable and height (nutritional status) as the dependent variable. Tabular values show that the two variables do not significantly relate with height. This is shown in the regression coefficient of 0.280 with a t-value of 1.176 at the 0.29259 probability level.

This means that nutritional knowledge and practices do not show significant effect on height (t=0.676). The two variable together explained 1.26% of the total variance in the height of the respondents (R^2=0.0126).

CONCLUSIONS
Based on the finding of the study, the following conclusions are drawn:

1. Majorities of the secondary students of Mindanao University of Science and Technology had ages ranging from 13 to 16 years old. Most of them had an average mental ability. Their income likewise ranged from Php 3,750.00 to Php 4,583.33 and they come from a family with five children.

2. Majority of the secondary students were generally tall and their hemoglobin level was just normal; however, most of these respondents were severely underweight.

3. Age was a good predictor of nutritional knowledge. The older the respondents are, the better is the nutritional knowledge as compared with the younger counterparts.

4.   Age had a significant influence on the respondent' nutritional practices. The older respondents tend to have better actualized of their nutritional practices.

5.   Mental ability was a strong determinant for nutritional knowledge. The higher mental ability, the better is the nutritional knowledge.

6.   The secondary students of Mindanao University of Science and Technology had the sufficient nutritional knowledge; however, their nutrition practices were sometimes actualized.

7.   Nutritional practices had significant effect on the respondents' nutritional status particularly on the respondents' hemoglobin level.

RECOMMENDATIONS
Based on the findings and conclusions, the following recommendation are offered:

1. It is suggested that the teaching of food and nutrition subjects in the secondary curriculum be strengthen through:

1.1 reviews of the existing technology and Home economic syllabi to include and to stress content and approaches that would minimize display / exhibit of information relative to nutrition knowledge and practices in conspicuous corners in the classrooms;

1.2 continuous encouragement and motivation of students to actualize the basic food groups' recommended daily dietary allowances for Filipino.

1.3 continuous upgrading of Home Economic teachers in terms of content and teaching methodology in order to effect productive and meaningful learning.

1.4 identification of meaningful strategies that will encourage parents and students to participate actively in the National Nutrition Month Celebration.

2. It is recommended that the parent-teacher Association include in their plan of act ivies nutrition education project among parents to enhance their level of awareness regarding nutrition. In effect, parents especially the mothers could help motivate and monitor the kind and quality of food those there children take.

3. It is suggested that the school canteen/ Cafeteria consider the offering of nutritious and delicious foods.

4. Massive information drive about nutrition concept and the ill effects of malnutrition be seriously considered in the school and by the mass media especially radio, television and print.

5. It is strongly recommended that the Department of Education (Dep-Ed). Nutrition Planning and Monitoring Office conduct a research on the nutritional status of the students in all public secondary schools and eventually come up with nutrition program for the students in the secondary schools.

6. For further researchers, further study about nutritional status among secondary schools in both private and public schools in the city be undertaken. A more in depth study be likewise considered like making use of clinical assessment as one way of determining or assessing the nutritional status of the respondents.

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