An Assessment of the Sense of Coherence among Third Year Medical Technology Students Taking Online Classes

Danica Louise Aguinaldo[1], Allen Gabriel Catapat[1], Sophia Angelique Chua[1], Kayne Davey Co[1], Earvin Angelo Cunanan[1], Jocelyn Domingo[2], Christine Lei Manalo[1]

[1]*Student, Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas, Manila, Philippines.*

[2]*Faculty, Department of Medical Technology, Faculty of Pharmacy, University of Santo Tomas, Manila, Philippines.*

Corresponding Author: earvinangelo.cunanan.pharma@ust.edu.ph

Abstract: - The COVID-19 pandemic has affected the whole world in a way that it has halted the normal effectiveness of the economy. One sector majorly affected was education which shifted the learning educational system towards a fully online system for universities. It is on this premise that the researchers decided to conduct a study on the sense of coherence of the students concerned. Sense of Coherence (SOC) is a form of measurement to interpret the efficiency of coping strategies against stressors in life. This study aims to determine the SOC of third-year Medical Technology students currently taking online classes, specifically by classifying the responses as either normal or low, determining possible factors (socio-demographic, lifestyle-related, academic-related) that affected the respondents' SOC, and by identifying which factors had the greatest impact in predicting the students' SOC. These were accomplished through a survey using a standard SOC questionnaire and answered online. The data gathered were analyzed using measures of central tendency, linear regression, and analysis of variance (ANOVA). The results showed that 64.5% of the respondents were classified with a low SOC and factors such as subjective health status, degree of health awareness, and pressure from family were significant in affecting the SOC scores. It was found that the factor with the greatest negative impact was pressure from family while subjective health status was the greatest positive predictor of SOC. It was concluded that majority of the students have a low SOC, and the factors identified can be improved to achieve a better SOC.

Key Words: — ***Sense of Coherence, Online learning, Salutogenesis, University students.***

I. INTRODUCTION

The COVID-19 pandemic has affected the whole world in a way that it has halted the normal effectiveness of the economy. Its high infection rate has alarmed nations around the world. As the cases continued to rise each day, the Philippine government implemented standards and guidelines to control and contain the highly contagious COVID-19. Travel bans were implemented, social distancing was enforced, and most notably, community quarantine was enacted. As an effect, multiple establishments and institutions were ordered to cease their activities [1]. People were given limited options since they were enforced to stay at home to lessen the risk of transmission.

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In the educational context, schools and universities opted to go online and implemented home-based learning. This paradigm shift in the learning system brought new struggles and problems for the students that undertook the new academic year through their computer screens. It is on this premise that the researchers were motivated and decided to conduct a study on the Sense of Coherence (SOC) of the students concerned. This study would allow the inquiry of how the students cope with the struggles brought by online classes. It is a form of measurement to visibly interpret the efficiency of these coping strategies. The researchers chose the third year Medical Technology students as their target population; this is the batch that the researchers are in and is believed to be the one of the most difficult batches facing the most challenges in online classes due to the dependence on laboratory classes as well as studying all professional courses related to Medical Technology.

There are multiple factors that affect online classes and they differ on a case-to-case basis. Internet connectivity, gadget availability, and the students' abilities to learn through online means are just a few factors that should be considered when studying the sense of coherence of the students as regards to their online classes [2]. The SOC was conceptualized by a medical sociologist named Aaron Antonovsky. It is designed to explain the differences on why some individuals remain healthy during times of strain while others become unhealthy under a similar degree of tension. It aims to reflect an individual's orientation to life especially when they are experiencing stressful situations; in this case, the sudden change to full online classes. This is an important matter and there are circumstances that may affect it [3]. This study aims to make those circumstances relevant and address them in a way that it would promote awareness to the university.

The main objective of the study is to determine the SOC of third year Medical Technology students currently taking online classes. Specifically, classify the respondents' SOC as either normal or low based on their answers to the survey questionnaires, determine possible variables or factors that could affect the respondents' response as regards to their SOC, and identify which factors had the greatest impact in predicting the students' SOC.

The researchers believe that this study would not only be beneficial to the third year Medical Technology students but also to different students taking online classes, as the results gained from the assessment would help the administrators, teachers, and guidance counselors in their decision-making as well as strategizing as regards to implementing online learning and programs to their students. This research would also be beneficial for researchers who want to develop studies related to their sense of coherence and its factors that affect the well-being of students. This research may also provide which factors affected the students' sense of coherence the most in their online setting of classes.

II. METHODS

A. Study Design

In order to accomplish the objectives of this study, a quantitative type of research was implemented, specifically the correlational research design using a survey tool. This type of study is suitable for this paper since multiple variables were used to determine the corresponding relationships among them. The main objective of determining the sense of coherence of third year Medical Technology students currently taking online classes as well as the specific objectives can be sufficiently answered through a quantitative approach. The study was conducted through the use of an online survey in which a questionnaire about sense of coherence and the factors affecting it were to be answered by the subjects. The various responses from this survey were used as data to meet the objectives and to answer the problem of the study. The researchers believe that this would be the most optimum approach for the study given the current circumstances of not meeting face to face.

B. Subjects and Study Site

A purposive sampling technique was employed to gather the necessary respondents for the survey. Purposive sampling is a widely used informant selection tool that uses the judgement of the researchers to select the appropriate persons for the study [4]. This sampling method would especially be helpful for the study at the given time due to the restraints of the COVID-19 pandemic. Specifically, the respondents that would be chosen for the study are third year Medical Technology students whom the researchers personally know as well as other people who may be related to the first respondents as either classmates or friends. This would speed up the process of gathering survey respondents due to the possibility of a snowball effect by the subjects. Although this sampling method can be prone to bias, it would be the most convenient and effective method at the time of the study.

For the inclusion criteria, third year Medical Technology students taking online classes who are enrolled regardless of the number of units in one of the universities in Manila would be included in the population of respondents. The participants' age must range from 19-23 years old as this is the most common age range for third year students. There are no exclusion criteria for gender. The research would be accomplished purely through online means since physical interaction is currently unavailable. Upon the recommendation from a statistician, the sample size was computed using Slovin's formula where N is the population size (955), e is the margin of error (0.05), the sample size n is given by the formula below:

$$n = \frac{N}{1 + Ne^2}$$
$$n = \frac{955}{1 + 955 * 0.05^2}$$
$$n = 281.92$$
$$\boldsymbol{n = 282}$$

C. Data Gathering Procedure

Gathering of data would begin with the identification of the key persons from the different sections of the third-year level and passing along the prepared questionnaire. These key persons would be identified by first creating a list of all the sections in the third- year level and listing all possible acquaintances who may serve as point persons to contact. They may be friends or acquaintances of the researchers who are then asked to send the questionnaire to their respective section group chats for proper dissemination. This is what is called the purposive sampling technique and it is the main way of data collection for this study. As more people would pass on the questionnaire, more respondents would be able to answer creating a snowball effect. Emails would also be obtained from their class presidents to better spread the questionnaire. The questionnaire would be disseminated in the format of a Google Form which would be connected to an Excel sheet. As each response was recorded, it was automatically transferred to the Excel sheet which would make the collation of data easier. Participants would only need less than 10 minutes to answer the questionnaire. After the target number of respondents is satisfied, the Google Form would be closed and the Excel sheet would be collected. The collated data would then be transferred to another program, SPSS, which was used for statistical analysis. The duration of data gathering would last for approximately 1-2 weeks.

D. Data Measure

Since the study is quantitative in nature, the choice of tool by the researchers is a questionnaire. The questionnaire is composed of three main parts and was adapted from multiple studies that are in relation to the objective of the study. The first part consists of the general information about the respondents which includes an optional name, age, sex, and section. This would provide the researchers a general background about the respondents who participated in the research study. The second part is the main questions consisting of the standard Sense of Coherence scale by Antonovsky (1991) [5], specifically the 13-item version and this measures the respondents SOC according to their comprehensibility, manageability, and meaningfulness. The third and final part of the questionnaire measures the different factors that could contribute and affect the sense of coherence of the respondents. Specifically, the factors could be divided into three categories: socio-demographic, lifestyle-related, and academic-related factors. The first two categories were derived from the study of Chu et al. (2016) [6] while the last one was adapted from Thuraiselvam and Thang (2015) [7]. These factors were included in the questionnaire to determine their relationship with SOC. This would enable the researchers to make a connection among which of the factors affect the most or the least of the SOC among the respondents.

E. Statistical Analysis

In analyzing the data gathered, the researchers would use SPSS as a tool to obtain the results. The questionnaire choices are based on a 7-point Likert scale where each option would have a corresponding score and would be totaled to obtain the final score of the participants. The scores would be collated and compared with the different variables. Upon recommendation from a statistician, descriptive analysis would be conducted first using measures of central tendency, measures of dispersion, frequency distributions as well as histograms and charts. For the inferential analysis, Analysis of Variance (ANOVA), and multiple linear regression would be used. ANOVA would be used since there are variables that have more than 3 categories or independent groups. This would determine if there are significant differences in the sense of coherence when the respondents are grouped according to their responses in the different factors being considered. Each factor would be compared against the score of the participants to determine which independent group affected the score the most. Multiple linear regression would be used to determine which of the factors significantly predict the sense of coherence among the students. All tests would be performed with a 95% confidence level and a 5% level of significance. The scores from the SOC test would be graded as either normal or low based on previous studies wherein tertiles were defined after the total score [8]. Scores in the highest tertile would be considered as normal, while scores belonging to the bottom two tertiles would be considered as low. The factors that affect the sense of coherence would be measured by plotting the scores from each factor and comparing them to whether they are consistent with the normal or low scores of SOC.

III. RESULTS AND DISCUSSION

A. Results

The minimum score was 18 while the maximum was 84. The mean was 44.26 with SD = 10.34. There were 100 respondents in which 35.5% can be categorized as having a normal SOC while the other 182 respondents or 64.5% have a low sense of coherence. Thus, almost two out of three respondents have a low SOC as seen in Table 1.

Table.1. Descriptive Statistics for Sense of Coherence

Interpretation of SOC	N	Minimum	Maximum	Mean	Std. Deviation
Normal	100	47.00	84.00	55.06	7.31
Low	182	18.00	46.00	38.32	6.08
Total	282	18.00	84.00	44.26	10.34

In determining possible variables and factors that could affect the third-year students' response as regards to their sense of coherence, Table 2 shows the comparison of mean sense of coherence scores in terms of socio-demographic factors using Analysis of Variance (ANOVA). Results show that respondents who only child in the family have higher mean SOC scores (M=45.95, SD=9.17) than a non-only child or those with siblings (M=44.12, SD = 10.44). However, the difference is not statistically significant (F=0.640, p = 0.424). Those who have strong religious beliefs have higher mean SOC scores (M=46.13, SD = 11.01) than those not having strong religious beliefs (M=42.33, SD = 9.26). The difference was statistically significant (F=9.82, p = 0.002). In terms of subjective health status, those who perceived themselves as having a good health status have a higher mean SOC score (M=45.48, SD = 10.03) than those who perceived themselves to have poor health status (M=37.10, SD = 9.33). The difference was statistically significant (F=24.95, p < 0.001). In terms of income sufficiency, those with sufficient income have higher mean SOC score (M=44.59, SD = 10.41) as compared with those with insufficient income (M=41.8, SD = 9.63). However, the difference was not statistically significant (F = 2.15, p = 0.144). In terms of performance compared with peers, those who perceived themselves having the same performance have the highest mean SOC score (M=45.77, SD = 10.52) although this is very close to those who perceived themselves having better performance (M=45.59, SD = 9.55). Those who perceived themselves having worse performance also have the lowest mean SOC score (M=39.82, SD = 8.84). The differences were statistically significant (F = 9.27, p < 0.001). In terms of satisfaction with social support, those who are satisfied have higher mean SOC score (M=45.86, SD = 10.27) than those who are dissatisfied (M=38.46, SD = 8.40) and the difference is also statistically significant (F = 26.71, p = <0.001). In terms of relation with parents, those who have good relation with parents have higher mean SOC score (M=44.87, SD = 10.35) than those with poor relation with their parents (M=40.22, SD = 9.51) and the difference is also statistically significant (F=6.64, p=0.011). In terms of relation with friends, those who have good relation have higher mean SOC score (M=44.40, SD = 10.41) than those with poor relation with friends (M=38.86, SD = 5.55) but the difference is not statistically significant (F=1.96, p=0.162). In terms of isolation in the university, those who perceived themselves as isolated have lower mean SOC score (M=40.44, SD = 8.26) than those who do not see themselves as isolated (M=45.19, SD = 10.60) and the difference is also statistically significant (F = 9.62, p = 0.002). Lastly, in terms of satisfaction concerning political situation, those who are satisfied have higher mean SOC score (M= 50.25, SD = 7.94) than those who are dissatisfied (M= 44.08, SD = 10.37) but the difference is not statistically significant (F = 2.78, 0.097). These results show that the socio-demographic factors that tend to significantly affect sense of coherence are (1.) having strong religious beliefs, (2.) subjective health status, (3.) performance compared with peers, (4.) satisfaction with social support, (5.) relation with parents, and (6.) isolation in the university.

Table 3 shows the comparison of mean sense of coherence scores in terms of the respondents' lifestyle-related profile using ANOVA. Results show that more frequent physical activities tend to be associated with higher mean SOC scores with those having physical activities at least three times a week having the highest mean SOC score (M=46.34, SD = 12.26), followed by those with physical activities once or twice a week (M= 44.41, SD = 11.13), while those with less than once a week physical activities got the lowest mean score (M=43.48, SD = 9.11). However, ANOVA results show that the differences are not statistically significant (F = 1.45, p = 0.236). In terms of degree of health awareness, those with high degree of awareness has higher mean SOC score (M=45.43, SD = 9.95) than those with low degree of health awareness (M=38.07, SD = 10.26) and the difference was shown to be statistically significant (F = 20.52, p < 0.001). In terms of perception of the importance of nutrition, those who see it as important have higher mean SOC score (M=44.34, SD = 10.24) than those who see nutrition as unimportant (M= 41.89, SD = SD = 13.59) but the difference is not statistically significant (F = 0.487, p = 0.486). In terms of satisfaction concerning weight, those who are satisfied have higher mean SOC scores (M=47.32, SD = 10.53) than those who are dissatisfied (M= 42.18, SD = 9.71) and the difference is also statistically significant (F = 17.71, p < 0.001). Lastly, in terms of amount of screen time each day, those with high screen time have higher mean SOC scores (M=44.31, SD = 10.40) than those with low screen time (M= 41.60, SD = 6.58) but the difference is not statistically significant (F = 0.336, p = 0.563). The results reveal that only

the degree of health awareness and satisfaction concerning weight tend to have a significant effect on the sense of coherence of the respondents.

Table.2. Socio-demographic Factors Affecting Sense of Coherence

Socio-demographic Factors	Response Choice	N	Mean SOC	SD	F	p-value
Only Child Status	Yes	22	45.95	9.17	0.640	0.424
	No	260	44.12	10.44		
Having strong religious beliefs	Yes	143	46.13	11.01	9.82	0.002
	No	139	42.33	9.26		
Subjective Health Status	Good	241	45.48	10.03	24.95	< 0.001
	Poor	41	37.10	9.333		
Income Sufficiency	Sufficient	248	44.59	10.41	2.15	0.144
	Insufficient	34	41.8	9.63		
Performance Compared with peers	Better	22	45.59	9.55	9.27	< 0.001
	The Same	189	45.77	10.52		
	Worse	71	39.82	8.84		
Satisfaction with social support	Satisfied	221	45.86	10.27	26.71	< 0.001
	Dissatisfied	61	38.46	8.40		
Relation with parents	Good	245	44.87	10.35	6.64	0.011
	Poor	37	40.22	9.51		
Relation with friends	Good	275	44.40	10.41	1.96	0.162
	Poor	7	38.86	5.55		
Isolation at university	Yes	55	40.44	8.26	9.62	0.002
	No	227	45.19	10.60		
Satisfaction concerning political situation	Satisfied	8	50.25	7.94	2.78	0.097
	Dissatisfied	274	44.08	10.37		

Table.3. Lifestyle-related Factors Affecting Sense of Coherence

Lifestyle-related Factors	Response Choice	N	Mean	SD	F	p-value
Physical activity frequency	Less than once a week	150	43.48	9.11	1.45	0.236
	Once to twice a week	82	44.41	11.13		
	at least three times a week	50	46.34	12.26		
Degree of health awareness	High	237	45.43	9.95	20.52	< 0.001
	Low	45	38.07	10.26		
Importance of nutrition	Important	273	44.34	10.24	0.487	0.486
	Unimportant	9	41.89	13.59		
Satisfaction concerning weight	Satisfied	114	47.32	10.53	17.71	< 0.001
	Dissatisfied	168	42.18	9.71		
Amount of screen time each day	High	277	44.31	10.40	0.336	0.563
	Low	5	41.60	6.58		

Table 4 shows the comparison of mean sense of coherence scores in terms of the respondents' academic-related factors profile using ANOVA. The results show that respondents who experience low pressure from deadlines have the highest mean SOC score (M=51.82, SD = 12.55) while those who experience high pressure have the lowest mean SOC scores (M=43.27, SD = 9.56) and the differences are found to be statistically significant (F = 7.35, p = 0.001). In terms of pressure due to overload, similar results are found with those experiencing low pressure having the highest mean SOC score (M= 50.57, SD = 8.92) while those who experience high pressure have the lowest mean SOC scores (M=43.97, SD = 10.37). However, the differences are not found to be significant (F = 1.89, p = 0.153).

In terms of pressure from family, close values for mean SOC scores were found for those who responded that the pressure does not affect them (M=47.27, SD = 11.47) and those who experience low pressure from family (M=46.92, SD = 9.99) while those who experience high pressure from family have the

lowest mean SOC scores (M= 4.98, SD = 8.97). The differences were found to be statistically significant (F = 14.65, p < 0.001). In terms of worrying and getting anxious about taking tests, results show that those who do not worry or get anxious have higher mean SOC scores (M=49.26, SD = 12.35) than those who worry and get anxious (M=43.48, SD = 9.80) and the difference is also statistically significant (F = 10.63, p = 0.001). Lastly, those who see good grades as important have higher mean SOC score (M=44.40, SD = 42.06) than those who treat good grades as unimportant (M=42.06, SD = 9.38) although the difference was found to be not statistically significant (F = 0.82, p = 0.367). These results generally point out that high pressure tends to be associated with low sense of coherence among students. Specifically, pressure from deadline and family, as well as worrying and getting anxious about taking tests tend to significantly impact sense of coherence negatively.

Table.4. Academic-related Factors Affecting Sense of Coherence

Academic-related Factors	Response Choice	N	Mean	SD	F	p-value
Pressure from deadline	High	232	43.27	9.56	7.35	0.001
	Low	17	51.82	12.55		
	Does not affect me	33	47.30	12.39		
Pressure due to an overload	High	264	43.97	10.37	1.89	0.153
	Low	7	50.57	8.92		
	Does not affect me	11	47.27	9.63		
Pressure from family	High	136	40.98	8.97	14.65	< 0.001
	Low	83	46.92	9.99		
	Does not affect me	63	47.84	11.47		
I worry and get anxious about taking tests	Yes	244	43.48	9.80	10.63	0.001
	No	38	49.26	12.35		
Importance of good grades	Important	265	44.40	10.40	0.82	0.367
	Unimportant	17	42.06	9.38		

Table.5. shows the multiple regression results having a total score of SOC as the dependent variable and the variables belonging to the socio-demographic factors as independent categorical variables. The significant variables turned out to be the following:

1. Having strong religious beliefs,
2. Subjective health status,
3. Performance compared with peers
4. Satisfaction with social support.

The B coefficient of 2.616 for religious (Yes) means that having strong religious belief increases the sense of coherence score by 2.616 points, on the average. The B coefficient of 7.130 for health status (Good) means that having a good subjective health status increases the sense of coherence score by 7.130 points.

The B coefficient of 4.910 (Better Performance) and 3.658 (Same Performance) for performance compared with peers means that sense of coherence score increases by 4.9100 if the respondent perceived his performance to be better, while the score also increases by 3.658 points if the respondent perceived his performance to be the same as his peers.

The B coefficient 4.619 for support (Satisfied) means that the sense of coherence score increases by 4.619, on the average, if the respondent is satisfied with social support.

Table 6 shows the multiple regression results having the total score of SOC as the dependent variable and the variables belonging to the lifestyle-related factors as independent categorical variables.

The significant variables turned out to be degree of health awareness, and satisfaction concerning weight. The B coefficient of 6.712 for health aware (High) means that having high awareness increases the sense of coherence score by 6.712, on the average.

On the other hand, the B coefficient of 4.216 for weight (Satisfied) means that being satisfied concerning weight increases the sense of coherence score by 4.216 points, on the average.

Table.5.Multiple Regression Analysis of Socio-demographic Factors

Parameter Estimates

Dependent Variable: Total Score of SOC

Parameter	B	Std. Error	t	p-value	95% Confidence Interval	
					Lower Bound	Upper Bound
Intercept	34.515	4.320	7.990	.000	26.010	43.020
[childstatus=1.00 (Yes)]	1.932	2.159	.895	.372	-2.319	6.183
[childstatus=2.00 (No)]	0[a]	.	.	.	.	.
[religious=1.00 (Yes)]	2.616	1.141	2.293	.023	.370	4.862
[religious=2.00 (No)]	0[a]	.	.	.	.	.
[healthstatus=1.00 (Good)]	7.130	1.729	4.124	< .001	3.726	10.534
[healthstatus=2.00 (Poor)]	0[a]	.	.	.	.	.
[income=1.00 (Sufficient)]	-2.308	1.866	-1.237	.217	-5.981	1.365
[income=2.00 (Insufficient)]	0[a]	.	.	.	.	.
[performance=1.00 (Better)]	4.910	2.367	2.074	.039	.250	9.570
[performance=2.00 (The Same)]	3.658	1.375	2.660	.008	.951	6.365
[performance=3.00 (Worse)]	0[a]	.	.	.	.	.
[support=1.00 (Satisfied)]	4.619	1.536	3.008	.003	1.595	7.642
[support=2.00 (Dissatisfied)]	0[a]	.	.	.	.	.
[parents=1.00 (Good)]	.504	1.783	.283	.778	-3.005	4.013
[parents=2.00 (Poor)]	0[a]	.	.	.	.	.
[friends=1.00 (Good)]	-2.288	3.895	-.588	.557	-9.957	5.380
[friends=2.00 (Poor)]	0[a]	.	.	.	.	.
[isolation=1.00 (Yes)]	-2.932	1.553	-1.888	.060	-5.988	.125
[isolation=2.00 (No)]	0[a]	.	.	.	.	.
[politics=1.00 (Satisfied)]	4.025	3.393	1.186	.236	-2.654	10.704
[politics=2.00 (Dissatisfied)]	0[a]	.	.	.	.	.

Table.6. Multiple Regression Analysis of Lifestyle-related Factors

Parameter Estimates						
Dependent Variable: Total Score of SOC						
					95% Confidence Interval	
Parameter	B	Std. Error	t	p-value	Lower Bound	Upper Bound
Intercept	35.840	5.704	6.284	.000	24.612	47.069
[physical=1.00 (Less than once a week)]	-1.301	1.657	-.785	.433	-4.564	1.962
[physical=2.00 (Once to thrice a week)]	-.558	1.812	-.308	.758	-4.124	3.009
[physical=3.00 (At least three times a week)]	0[a]	.	.	.	.	.
[healthaware=1.00 (High)]	6.712	1.674	4.009	< .001	3.416	10.007
[healthaware=2.00 (Low)]	0[a]	.	.	.	.	.
[nutrition=1.00 (Important)]	-2.155	3.473	-.621	.535	-8.992	4.682
[nutrition=2.00 ((Unimportant)]	0[a]	.	.	.	.	.
[weight=1.00 (Satisfied)]	4.216	1.248	3.378	.001	1.759	6.672
[weight=2.00 (Dissatisfied)]	0[a]	.	.	.	.	.
[screentime=1.00 (High)]	4.086	4.466	.915	.361	-4.705	12.878
[screentime=2.00 (Low)]	0[a]	.	.	.	.	.
a. This parameter is set to zero because it is redundant.						

Table.7. Multiple Regression Analysis of Academic-related Factors

Parameter Estimates						
Dependent Variable: Total Score of SOC						
					95% Confidence Interval	
Parameter	B	Std. Error	t	p-value	Lower Bound	Upper Bound
Intercept	49.320	3.683	13.391	.000	42.069	56.571
[deadline=1.00 (High)]	-2.165	2.037	-1.063	.289	-6.176	1.845
[deadline=2.00 (Low)]	3.553	3.181	1.117	.265	-2.709	9.816
[deadline=3.00 (Does not affect me)]	0[a]	.	.	.	.	.
[overload=1.00 (High)]	-1.183	3.226	-.367	.714	-7.534	5.168
[overload=2.00 (Low)]	-1.015	5.048	-.201	.841	-10.953	8.923
[overload=3.00 (Does not affect me)]	0[a]	.	.	.	.	.
[family=1.00 (High)]	-6.208	1.505	-4.125	.000	-9.170	-3.245
[family=2.00 (Low)]	-1.276	1.691	-.754	.451	-4.605	2.053
[family=3.00 (Does not affect me)]	0[a]	.	.	.	.	.
[tests=1.00 (Yes)]	-5.159	1.833	-2.814	.005	-8.768	-1.549
[tests=2.00 (No)]	0[a]	.	.	.	.	.
[grades=1.00 (Important)]	5.822	2.565	2.270	.024	.773	10.872
[grades=2.00 (Unimportant)]	0[a]	.	.	.	.	.
a. This parameter is set to zero because it is redundant.						

Table 7 shows the multiple regression results having total score of SOC as the dependent variable and the variables belonging to the academic-related factors as independent categorical variables. The significant variables turned out to be (1.) pressure from family, (2.) worrying and getting anxious about taking tests, and (3.) perceptions on the importance of grades. The B coefficient of -6.208 for family (High) means that having a high level of pressure from family decreases the sense of coherence score by 6.208 points, on the average. The B coefficient of -5.159 for tests (Yes) means that worrying and getting anxious about tests decreases the sense of coherence score by 5.159 points, on the average. The B coefficient of 5.8222 for grades (Important) means that treating grades as important increases the sense of coherence score by 5.822 points, on the average.

B. Discussion

Sense of Coherence Scores:

As seen in the results in Table 1, a majority of the respondents are classified as having a low score of sense of coherence. Specifically, 182 out of 282 respondents' scores are described as low based on the tertile scoring system. Since the third-year Medical Technology students are taking full online classes, this could have an effect on the students' ability to cope with the daily stressors of life since most college students rely on self-help ways to cope with stress such as asking for emotional support from friends [9]. Since online classes are in full effect, these types of coping strategies are not always available to the students; hence, lowering their SOC. Furthermore, another consequence of having fully online classes is increased screen time as evidenced by the number of respondents who answered that they have a high screen time as seen in Table 4. Increased screen time has been seen to lead to reduced self-esteem, increased prevalence and severity of mental health issues and addictions, delayed learning and acquisition, and an increased risk of premature cognitive decline [10]. Thus, all these factors contribute to a lower SOC among students as seen in the results of this study.

There have been varied results when it comes to the measurement of SOC of students like in the study of Biro et al. (2019) [8] which measured the SOC of students in higher education and found that only 25.1% of them can be classified as having a weak SOC. While, in the study of Chu et al. (2016) [6], a majority or 52.6% of the tertiary students were classified as having a weak SOC. However, this study differs from the rest since it only included students who are currently taking online classes.

According to Antonovsky (1987) [11], several environmental variables or stressors in life can negatively affect a person's SOC. Analyzing these variables are essential in figuring out which variables can have a positive or negative effect on a student's SOC, especially during this time of online classes. In this study, socio-demographic, lifestyle-related, and academic-related factors were measured against the SOC scores of the respondents and several of them were significant in affecting the scores. Therefore, this causes the researchers to accept the alternative hypothesis and can say that there is a correlation between the factors and the sense of coherence of the students. These factors or variables would be further discussed in the succeeding sections.

Socio-demographic Factors:

In terms of the socio-demographic variables, the factors that are significant are (1.) having strong religious beliefs, (2.) subjective health status, (3.) performance compared with peers, (4.) satisfaction with social support, (5.) relation with parents, and (6.) isolation in the university.

Those individuals having strong religious beliefs are reported to have a higher sense of coherence score since intrinsic religiousness plays an important role in coping with stress since it gives purpose and motivates one's life [12]. Religion seems to play a significant role in guiding or aiding individuals in managing situations or making crucial life decisions [13]. When handling stress, they accept it and try to find a positive and meaningful approach to deal with it. Faith is a source of identity for them as well as a point of reference when justifying or seeking to control things during difficult times. It has been proposed that participating in religious activities produces positive feelings and a sense of belonging, both of which may contribute to improved health [14]. This study also agrees with other literatures that state that higher SOC scores are seen in individuals with stronger religious beliefs. Having something to believe in life like faith can contribute to the mentality of a person by making them more motivated or inspired each day. The Philippines boasts to be the only Christian nation in Asia which makes it more likely that people are religious [15]. Religion, in this case, proves that having faith in a Supreme

Being enhances a student's sense of coherence and subsequently his ability to cope with everyday life.

In accordance with the Salutogenic Model of Health, a good health status, in turn, can facilitate the acquisition of Generalized Resistance Resistors (GRRs), therefore, strengthening one's sense of coherence [16]. In this study, better subjective health status is found to be more associated with higher SOC scores in students. This agrees with the notion that the more a person's health status becomes better, the less stress a person feels, and consequently raises the SOC. People who experience better health tend to have a stronger sense of coherence than those with weaker ones. The study of Chu et al. (2016) [6] also sees the same pattern in which Chinese students with better subjective health status were more likely to have a higher SOC. This confirms the basis of the paper's theoretical framework in which a higher SOC is strongly associated with better health.

Another factor seen affecting the sense of coherence is comparing themselves against their peers. Students who stated that they performed worse have generally a lower sense of coherence scores while those who performed the same or better had higher scores. Similarly, Li et al. (2005) [17] found that among Chinese college students, one of the greatest stressors was competition among students. Competition among students can be detrimental in promoting an environment that is willing to help others who are struggling. Performing worse compared to peers can have an effect on a student's ability to perform better academically. The student may realize that the effort exerted on academic tasks may not be worth it anymore when he or she sees that others performed better. This can act as a form of demotivation for the student seeing that there is no incentive when it comes to performing in school. This can lead to a lower SOC since this acts as a stressor to the student and may lead to worse academic performance.

In order to develop a strong sense of coherence, social support is an important coping resource. A study by Langeland and Wahl (2009) [18] suggests that in order to promote a stronger SOC, it may be necessary to improve the quality of social integration. Social support may have an indirect impact on health through improving mental health, reducing stress or promoting a feeling of purpose and meaning in life [19]. Likewise, when people are confronted with stressful physical and psychosocial events, social support gives physical and psychological benefits, and it is thought to be a determinant in reducing psychological distress [20]. Based on this premise, social support plays an important role in the SOC since it enables individuals to better confront stressful situations in life. From the results seen in Table 2, those who have a better social support system have generally a better SOC and this agrees with the previously mentioned studies.

The role of a parent in the development of a child is especially important during the adolescent phase. It has been identified that a negative relationship with a parent can lead to depressive symptoms later on in life [21]. In this research study, students who stated that they have a poor relationship with their parents had significantly lower sense of coherence scores than those with a good relationship. This negative relationship can contribute to the amount of stress a person experiences since the parents' responsibility is more than just taking care of a child physically, but also emotionally. As previously mentioned, the amount of stress is indirectly proportional to the SOC of a person and when the person is unable to cope with stress, other parts of his or her life may be affected. In contrast to this, a better relationship with the parents is synonymous to a better mental health and leads to a higher SOC. The results from this study are in agreement with results of Darling et.al. (2007) [22] on the effect of parental relations on the SOC of a person. Their discovered that females with less stress in their parental or familial connections have better emotional, physical, and mental health, as well as a higher quality of life, which are all linked to contribute to their SOC.

Social relations serve as a reference for social identity as well as a source of support and comfort during stressful situations. According to the study of Matthews at al. (2015) [23], social isolation is linked to mental health difficulties in both primary and secondary school-aged children. Similarly, Curelaru et al. (2021) [24] found that in patients with dementia, social isolation, and/or loneliness are connected to a worse quality of life, neuropsychiatric symptoms, and the use of psychotropic drugs. Social isolation serves as a strong predictor in older adults and is directly linked to social anxiety disorder [25]. In this study, respondents who stated that they felt isolated in the university have lower SOC scores than those who did not feel this way. Being isolated makes a person feel alone and with no one to turn to. This lack of social and emotional support from friends can contribute to a person's well-being, therefore, lowering the SOC. As seen on the previous variables, negatively affecting factors like isolation generally have a negative impact on the SOC. In support of this, the study of Chu et al. (2016) [6] also reported the same findings regarding isolation in the university and its negative effect on SOC.

Multiple regression analysis of the data shows that the variables that are able to predict the sense of coherence score are the following: (1.) having strong religious beliefs, (2.) subjective health status, (3.) performance compared with peers, and (4.) satisfaction with social support. Among all these variables in the socio-demographic area, the one that has the largest impact on the SOC the most is the subjective health status, specifically the "Good" option. As previously mentioned, the health status of an individual plays an important role in the SOC. Being healthy is an advantage as it enables the person to perform his every day's tasks better than those who are unhealthy. One of the main themes in the Salutogenic Model of Health is the acquisition of GRRs and in order to acquire these, a person must have a good health status [16]. This is fitting as having a good subjective health status predicts the SOC the most in this study. In contrast, the predictor with the least impact among all of these is having strong religious beliefs. This may be due to the fact that the number of responses per choice were almost identical as seen in Table 2. The Philippines has seen a decline in the recent years of the number of attendees of mass, specifically from 64% in 1991 to 37% in 2013 [26]. This may play a factor in the number of respondents that chose the option "No" in having strong religious beliefs even though the Philippines has been historically known as a very religious nation. Although this study still associates having strong religious beliefs as a positive predictor for SOC as seen in the results in Table 6

Lifestyle-related Factors:

In terms of lifestyle-related factors, the results that are significant are (1.) degree of health awareness and (2.) satisfaction concerning weight.

The results showed that those individuals with a high degree of health awareness tend to have a higher sense of coherence which is supported by Generalized Resistance Resources [27]. Health is a multidimensional concept which includes physical, social, mental, and spiritual health. It is not seen as an end in itself but rather as a means to live a good enough life [28]. According to Antonovosky (1996) [27], health is the movement on a continuum of ease and disease. It is referred to as the ability to comprehend the situation as a whole and the capacity to use the resources available for their sense of coherence. This capacity is a combination of the ability to assess and understand the situation that they are currently in, to find meaning to move in the direction of promoting health, in addition the capability to do so. This is considered as comprehensibility, meaningfulness, and manageability [29]. In this approach, no one can be categorized as healthy or even diseased. They consider everyone as somewhere in between the imaginary poles of total wellness and total illness. To put it into perspective, an energetic and symptom free individual is ultimately mortal, and they may have moments of depression, may wear glasses, and even have non-detectable malignant cells [30]. However, the ultimate question regarding being aware of their health is how they move towards the healthy pole, or in other words, how they take actions in promoting their health. This stressor, regarding health, can ultimately lower one's sense of coherence, in contrast, it can also serve as a means for people's way to cope with their situations. Antonovosky believes that these health events can strengthen individuals in the long term and makes it possible to manage stress, leading to a higher sense of coherence.

Meanwhile, those individuals with high satisfaction concerning weight are observed to have a stronger sense of coherence [6]. In a study by Kim et al. (2008), the perceptions of individuals towards body weight satisfaction are significantly higher in healthy individuals as compared to those unhealthy subjects. This is mainly because the question regarding weight satisfaction is based on a single question which led the respondents to derive their answers from feeling too overweight, satisfied being too thin or simply having a desirable body shape [32]. On the other hand, satisfaction concerning weight can also be associated with proper nutrition which is an important factor in having a higher sense of coherence [30]. According to a study by Zugravu (2021) [33], the health concept of individuals towards weight and proper nutrition are important factors in having a high sense of coherence that can be used for health promotion.

Multiple regression analysis of the data shows that the variables that are able to predict the sense of coherence score are the following: (1.) degree of health awareness and (2.) satisfaction concerning weight. Among the variables in the lifestyle-related area, the one that can predict the SOC the most is the degree of health awareness. As previously mentioned, health is the movement on a continuum of ease and disease [27]. In this case, health awareness is the manner in which the individual perceives health conditions. This allows people to take action and cope with life stressors that can strengthen their sense of coherence in the long term. In contrast, the predictor with the least impact among the variables is satisfaction concerning

weight. This may be due to the fact that the answers regarding the satisfaction concerning weight is derived from the feeling of the individuals towards their weight [32]. In addition, weight satisfaction is observed to be higher in healthy individuals [31]. This means that a high weight satisfaction consequently increases an individual's sense of coherence as seen in Table 8

Academic-related Factors:

In terms of the academic-related factors, the results that are significant are (1.) pressure from deadlines, (2.) pressure from family, and (3.) worrying and getting anxious about taking tests.

Individuals who feel pressured from deadlines tend to have lower SOC scores. In a study conducted by Moksnes et al. (2014) [34], it was stated that adolescents who have a higher SOC, when faced with stress from academic pressure, understand themselves to have more GRRs available; for example, social support from family and friends and self-esteem and would utilize these resources to successfully cope with the stressors. Thus, those who do not experience such GRRs tend to have lower SOC scores. Deadlines add stress to a student, especially if they start to overlap with other subjects. Third-year Medical Technology students also experience a lot of workload during this time since this is the semester that all major courses are taken. This leads to an increased workload where deadline may overlap with one another. Weaker SOC was also found in students who have severe competition with peers and high expectations from parents in a study made by Chu et al. (2016) [6]. This competition creates an environment that can be harmful to the way a student thinks because they may prioritize being better than their peers than improving their own works.

Meanwhile, individuals who feel pressured from their families have lower SOC scores as well. Parents who are under constant pressure to give their children a better education result in students having severe stress in their academics [35]. In Asian households, pressure from parents on their children to perform better in school is more seen than in other ethnicities [36]. This added pressure from the family can add up along with the pressure from deadlines and cause a lower SOC. The family should be a source of comfort for a student undertaking a lot of tasks, but in this case, pressure from th family also adds to the existing stress that the students experience, hence leading to lower SOC values. Similarly, in a study made by Saw et al. (2013) [37], tremendous pressure from family, specifically from parents, may cause stress and anxiety to students which may possibly result in greater self-doubt. As these factors add up, the student is subjected to a number of stressors in life that may affect his ability to cope with everyday life. This study is also in agreement with the previous researches that pressure contributes to a lower SOC.

Highly anxious students when taking exams also have lower SOC scores. Evaluative situations summon high levels of threat and anxiety to highly anxious people. This leads to unsuccessful handling of these situations, thus, resulting in failure or poor test performance, and eventually low SOC scores [38]. In addition, the pressure in preparing for examinations builds a high level of anxiety in many students, particularly for those who cannot match the potential they have when they are in less stressful situations [39]. All these three factors affect the sense of coherence of the participants in a negative manner.

Multiple regression analysis showed that (1.) pressure from family, (2.) worrying and getting anxious about taking tests, and (3.) perceptions on the importance of grades are significant. Among these factors, pressure from family is the predictor with the greatest impact negatively affecting the SOC, while anxiousness about tests is the least impactful among the three. As mentioned, getting high pressure from family and getting anxious when taking tests may result in decreased self-efficacy and poor performance respectively, leading to lower SOC results. Furthermore, pressure from deadlines also leads to students mishandling stressful situations when faced with academic pressure, thus, resulting in lower SOC scores. Students who treat grades as important have higher SOC scores compared to those who do not. Moreover, a study made by Colomer-Pérez et al. (2019) [40] affirmed that SOC is strongly associated with the contribution towards the achievement of good grades while suggesting that students with high SOC obtain better academic records and remain dedicated to their studies for longer, as well as being able to better focus their efforts.

IV. CONCLUSION

It can be concluded that a majority of the students surveyed were classified with a low sense of coherence at 182, while only a minority of 100 students scored as a normal SOC. Several factors or variables were identified that contributed to whether the SOC of a student would become higher or lower. Some of these variables were positively correlated with the total

SOC such as subjective health status and satisfaction with social support, while others like pressure from deadlines and parents, negatively affected the SOC. With this, the alternative hypothesis of there is a correlation between the factors and the sense of coherence of the students is accepted. It can also be said that some variables are able to predict the SOC more than others, thus, some variables have affected the SOC of a person more than others. These factors include subjective health status, degree of health awareness, and pressure from family. Recognizing these factors is important in order to help improve them and strengthen the SOC of all these people. The effects of fully online classes must also be taken into consideration in assessing the SOC of the respondents at the time of this study. Several factors that accompany online classes were seen to negatively affect the SOC of the students such as increased screen time and lack of social support due to no physical interaction with friends, which subsequently led to a lower SOC.

Based on the findings and conclusions stated above, the following recommendations can be made for future studies aiming to analyze sense of coherence in other contexts:

- Since the study was conducted in an online environment, it is possible in the future to compare and contrast the findings with those performed in a face-to-face environment to figure out if there are any differences caused by an online setting.

- The study's target population mainly consisted of students from one university under one program. It is possible to widen the scope of the study and include other universities as well. A wider scope would further validate or invalidate the findings of the study. Moreover, its aim is to make the findings more viable.

- As different year levels have varying difficulties, other studies may also conduct the survey to these groups in order to determine if the SOC varies among age groups and year level.

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