

A Survey on Symptoms of Depression and Socio-Demographic Profile of Adolescents during Covid-19 Pandemic in Valenzuela City, Philippines

Sanam Afreen, Dorlyn Doroan Billones, Ma. Teresa S. Fajardo, Zandra M. Notario, Soputhirith Seng

(Department of Pediatrics, Fatima University Medical Center, Philippines)

Abstract:

Background: COVID-19 has spread throughout the world since its discovery in December 2019, causing over 90 million infected persons prompting the World Health Organization to declare the disease as pandemic. Governments all over the world have implemented measures such as quarantine to limit the spread of the virus. Businesses and schools have closed down and people, especially children have been forced to stay at home. Across the world, different kinds of mental health issues have been noted in adults as well as children and teenagers in light of this.

Materials and Methods: Descriptive method using online survey questionnaire was used. The participants' email addresses were collected and a descriptive consent form and the online link to the questionnaire was sent to the participants. The signed consent form was returned to the researcher and the survey was answered and submitted online by the participants. Once accomplished, the researcher scored and tabulated the results based on the specific guidelines of the research instrument that were used.

Conclusion: With regards to the level of depression among adolescent respondents in the midst of COVID 19 pandemic, the largest number of participants had symptoms of moderate and mild, and moderately severe forms of depression. The investigation disclosed that regardless of their socio-demographic characteristics, depression could be seen in the population included in the study

Key Word: Depression, Patient Health Questionnaire-9(PHQ-9), Adolescents

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I. Introduction

In December 2019, a group of patients were reported to have experienced high fever, with cough and clinical features of pneumonia in the city of Wuhan, China. This led to the recognition of a species of Coronavirus named the SARS-COV-2.¹ Since its discovery, the virus has spread throughout the world causing more than 90 million people to be infected as of January 24, 2021. The easy communicability of this virus led the World Health Organization (WHO) to declare COVID-19 infection as a global pandemic disease.² The very word "pandemic" is known to instill fear since this means that the disease spreads to a wider geographical area affecting all countries in the world regardless of their economic status, population or even the advancement of healthcare facilities. The ongoing pandemic has lasting effects on people around the world.³⁻⁴⁻⁵

Due to rising number of deaths caused by COVID-19 infection, governments all over the world have taken a number of steps such as quarantine and a series of lockdown in order to contain the spread of the virus and decrease load on the healthcare department in their countries.⁶⁻⁷ This has yielded to costing people their liberty and several limitations affecting their daily activities. In the Philippines, President Rodrigo Duterte placed the entire Luzon archipelago on enhanced community quarantine on March 16, 2020.⁸ There was implementation of check-points, travel restrictions and curfews. Business and school activities were suspended indefinitely.⁹ People were forced to stay in their homes. Although these measures are known to decrease the rate of transmission, they have not proven to prevent the development of anxiety and stress in the general population.¹⁰ Across the world, different kinds of psychological issues have been noted both in adults and in children.¹¹

Due to schools closing and as the mode of education delivery became through online, a change in the routine and healthy behaviors of children has been noted. Adolescents especially, tend to give up on healthy habits such as physical activity, adequate diet, or good sleeping patterns. Also, as a recent review of studies concludes, the limited social interaction increases loneliness, which is associated with mental health problems in

children and adolescents.¹² During this pandemic, one particularly vulnerable group has been found to be high school students whose mental health is being affected at an alarming rate.¹²

It is imperative to determine the prevalence of adverse mental health issues among this age group during this pandemic and mitigate its psychological risks and consequences. To date, there are no studies that examine the psychological impact of COVID-19 pandemic, solely to the adolescent population in the Philippines. Therefore, this study aims to establish if there is a surge of mental health issues, more specifically depression, and to identify risk factors contributing to psychological stress among adolescents staying at home during the COVID-19 pandemic. At this juncture, this investigation was conducted in order to determine presence of symptoms of depression among adolescents in Valenzuela City.

General Objective

To screen for level of depression among adolescents (13-18 years old) in Valenzuela city

Specific Objectives

The following are the specific objectives of the study:

1. To determine the baseline demographic characteristics of adolescent respondents in Valenzuela city according to:
 - 1.1. Age;
 - 1.2. Sex;
 - 1.3. Level of education;
 - 1.4. Parents' Marital Status; and
 - 1.5. Parents' Monthly Income
2. To determine the level of depression among adolescent respondents in Valenzuela city
3. To determine the significant correlation between level of depression among adolescent respondents in Valenzuela city and their demographic profile in terms of:
 - 3.1. Age;
 - 3.2. Sex;
 - 3.3. Year Level;
 - 3.4. Parents' Marital Status; and
 - 3.5. Parents' Monthly Income

Significance of the Study: The highly infectious COVID-19 has caused a great number of problems in the general and medical community. Moreover, children and adolescents in particular have also been affected by COVID-19 by hampering their daily life activities such as playing outdoor, interacting and bonding with friends and even schooling in campus. In few investigations that have been done to explore the mental health of the general community in relation to this pandemic, little is known about the prevalence of depression caused by COVID-19 among adolescents. It is in this regard that this investigation was perceived to benefit the following:

For clinicians, this study may prove significant in providing necessary guidance in drafting an effective counselling approach to adolescents who are clinically diagnosed or are susceptible to be diagnosed with depression directly related to COVID-19 pandemic

By noting the significant relation between the socio-demographic profiles of the adolescents and the level of depression among them, it could be helpful in devising risk factors for depression in these adolescents. This could in turn make the healthcare providers more aware of the group more prone to developing mental health issues and thus take necessary steps towards perceiving and improving their psychological condition.

Future Researchers: This particular study can serve as a spring board for medical investigations that would be centered on drafting some anticipatory guidelines to identify and treat depression in this age group. The researcher expects that future investigators would be able to use the data that would be generated in this investigation in augmenting their respective results.

Review of Related Literature: The COVID-19 pandemic has spread to different countries around the globe. This means that the disease could affect almost all kinds of individuals, be it the general community, health care sector and even children.¹³ This pandemic also raised a number of concerns affecting families and communities with psychological consequences.¹⁴ In one investigation, at least 50% of the health care community suffered from depression due to COVID-19 pandemic and around 45% of these individuals had anxiety and experienced sleep problems.¹⁵ Anxiety and stress about disease could cause strong emotions in both adults and children.¹⁶ Hence, it was derived that this pandemic could cause an outbreak of various psychological issues depending on the personality and background of individual.¹⁷

In a study about depression and mental health problems brought about by COVID-19 pandemic, it was found that females were more likely to suffer from depression than males. Furthermore, it was found that single individuals were more likely to experience anxiety as opposed to those who were married. Children also showed

a degree of fear and depression most likely due to the fear that infection can occur within their families.¹⁸ Another research also disclosed that both adults and children could suffer from depression and even anxiety. This was observed across major continents with females outnumbering male patients regarding depression and anxiety. This means that COVID-19 pandemic could in fact lead to the onset of agitation, or irritation and this could cause the emergence of psychological issues among the community.¹⁹ One online survey conducted in the Philippines among 1800 participants including adolescents and adults, who were all social media users, revealed that there existed moderate to severe level of depression among participants in the early months of the quarantine started in the pandemic.¹²

Scope and Limitations: The main goal of this study was to screen for the level of depression among adolescent-respondents in Valenzuela city. The age group of adolescents covered was 13 to 18 years old (middle to late adolescents). With regard to the adolescents' socio-demographic profile, the investigator assessed their age, sex, education level, parental marital status, and monthly income of patients. The level of depression was measured using a standardized tool, specifically the Patient Health Questionnaire (PHQ-9). This was used since this was perceived to provide an objective assessment of adolescent patients' level of depression. The investigation had several limitations and/or weaknesses. Due to restriction of movement around the province, the geographical area covered was limited to one city of the National Capital Region of the Philippines and the number of participants were markedly reduced, which may serve as a limitation to the population intended in this study. Inclusion of early adolescents(10-12 years) could also provide additional information, however as many studies have proven that the period of middle to late adolescence may be considered a critical period associated with heightened vulnerability to depression, especially with a newly diagnosed one¹⁷, such approach was not considered in this particular research paper. The researcher could also consider a prospective analysis as to following up participants with moderate to severe depression with a psychiatrist could give a better picture of the state, however, due to the constraints of financial resources and time, such approach was not done. A follow up survey after consultation with psychiatrist for respondents noted with moderate to severe depression symptoms could also be considered, but since the identification of the participants was not revealed, this could not be possible. Since the questionnaire used focuses on the symptoms of depression rather than its cause, the major limitation to this study was that the investigator presumed that the major cause of depression was the factors brought about by the pandemic, whereas adolescents may suffer from mental health issues due to many ongoing factors in their lives apart from the presumed cause, which could not be ruled out due to limited resources

II. Methodology

Research Design

This investigation determined the level of depression among adolescent-respondents at Valenzuela city. The main proponent utilized in this study was a standardized questionnaire, specifically the Patient Health Questionnaire 9 (PHQ-9). Therefore, this particular research approach called for the utilization of a Descriptive Correlational method.

Study Population

The study population consisted of adolescents 13 to 18 years of age. They comprised of male and female population who are currently residing in Valenzuela city. The respondents who were covered in this study were not clinically diagnosed with depression. With regard to their year level, the researcher presumed that, based on their age group, they were in first year, second year, third year and senior level high school. Marital and monthly income status of these respondents were believed to vary as well. The parents of all the respondents who were covered in this research provided their consent to participate in this study.

Ethics

No financial assistance was received for this study. As such, no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; membership, employment, or expert testimony), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript. All data generated from the study were treated with utmost confidentiality and access would not be granted to anyone except upon the approval of the Research Committee of the Department of Pediatrics. No information of the participants was released to protect data privacy. The author fully agreed in concordance with the Data Privacy Act of 2001, that all documents, information and materials that were obtained during the conduct of this investigation were used for exclusive interpretation of results in accordance to the declared objectives of this research paper.

Inclusion Criteria

The parameters declared in the study were used in recruiting participants for this investigation. Inclusion Criteria are enumerated below:

1. Adolescents, male and female, aged 13 to 18 years old
2. Residents of Valenzuela city
3. Capable of understanding the questionnaire, specifically the content of the Patient Health Questionnaire 9 (PHQ-9)
4. Are available during the fielding of the survey, have strong good internet connection and are able to answer using online approach
5. Have parents/guardians who signed the consent form for their participation

Exclusion Criteria

The following criteria were used in removing participants for the study. These parameters were declared below:

1. All children aged 12 years old and below
2. Adult patients, male and female aged 19 years old and above
3. Those who live in cities outside of Valenzuela
4. Those whose consent forms were not returned to the main proponent of the study
5. Those who were clinically diagnosed with depression or any other psychological disorder before the pandemic and its measures were implemented in the Philippines

Research Instrument

In order to accomplish this main goal, a standardized research questionnaire was deemed fit to be utilized for this investigation. The research instrument consisted of three (3) parts. The first part of the research instrument comprised of a check-list that covered the respondents' age, sex, year level, parents' marital status and their family income. The second part consisted of a question asking whether the respondent has been diagnosed with depression prior to the pandemic. Respondents answering yes were excluded from the study

The third part of the research instrument was the Patient Health Questionnaire (PHQ-9). This is a pre validated and reliable measure of depression severity which incorporates each of the 9 DSM-IV depression diagnostic criteria from not at all (0) several days (1) more than half the days (2) and to nearly every day (3).

2.6 Scoring the Patient Health Questionnaire (PHQ-9)

In order to interpret the test result, total points for each of the row 1-9 were added separately. This was calculated by assigning scores of 0,1, 2 and 3, to the response categories of "not at all", "several days", "more than half the days" and "nearly every day". The total score was then used as the basis for the severity score. The PHQ-9 total score for 9 items ranges from 0-27. A score of 0-4 would indicate no depression while a score of 5-9 would indicate mild depression. Respondents who got a score of 10-14 were more categorized into having moderate depression. A score of 15-19 was presumed to be moderately severe depression and respondents obtaining a score of >20 were more likely suffering from severe form of depression.

Sample Size and Sampling Techniques

It was presumed that a total of at least n=200 adolescents, male and female aged 13 to 18 years old residing in Valenzuela city will be able to participate. In order to obtain the correct number of sample size with strong statistical significance, a probability sampling technique was utilized, specifically the Proportion Sampling method.

$$n = \frac{[(DEFF) (NP) (1-p)]}{[d^2/Z^2 1-\alpha/2(N-1)+p(1-p)]}$$

Using this particular formula, 95% confidence interval with 5% margin of error was used. The design effect for cluster survey was set to 1.0 with 50% anticipated frequency. Thus, the sample size estimation was n=145

Data Gathering Procedure

Before any actual gathering of data was carried out, the main researcher coordinated with the research adviser first. The research proposal was forwarded to the co-proponent for initial checking. Once it had been made, the researcher forwarded the research protocol to the department of Pediatrics of Fatima University Medical Center. Suggestions and comments were solicited from the experts and allotment and research protocol was retrieved. After approval from ethics committee of Fatima University Medical Center, potential participants were identified and their email addresses were noted. The electronic copy of consent form and questionnaire were sent to these addresses. Instructed to get consent forms signed by their parent/guardian and send back via email, then the respondents were asked to answer the survey and submit online. They were provided ample

amount of time to understand the content of the research survey. Once accomplished, the results were scored and tabulated based on the specific guidelines of the research instrument that were used. Initial encoding was done on Microsoft Excel version 2017

Statistical Analysis

All information collected were prospectively reviewed. It was coded in Microsoft Excel and SPSS version 23 was employed. The following statistical approaches were used in this study.

Frequency and Distribution Percentage: This was used to determine the socio-demographic profile of respondents at Valenzuela city according to age, sex, year level, parents’ marital status and monthly income.

Standard Scoring: This was used to determine the level of depression among respondents at Valenzuela city

Chi Square/ Fischer Exact Test: These were used to determine the significant difference between level of depression among respondents at Valenzuela city and their socio-demographic profile in terms of age, sex, education level, parents’ marital status and monthly income

III. Result

This chapter of the research investigation shows the salient findings of the study. The presentation, interpretation and analysis of data are shown according to the objectives declared in this investigation

Table 1. Socio-Demographic Profile of Adolescent-Respondents, Valenzuela city

Parameters	n	%
Age		
13-14 years old	44	30.3
15-16 years old	37	25.5
17-18 years old	64	44.1
Sex		
Male	59	40.7
Female	86	59.3
Civil Status of Parents		
Single	47	32.4
Married	84	57.9
Separated	12	8.3
Widowed/er	2	1.4
Year Level		
First Year	23	15.9
Second Year	29	20.0
Third Year	27	18.6
Fourth Year	14	9.7
Senior High 1	38	26.2
Senior High 2	14	9.7
Monthly Income		
< 30,000 pesos	49	33.8
30,001-50,000 pesos	28	19.3
50,001-70,000 pesos	16	11.0
70,001-90,000 pesos	20	13.8
>90,001 pesos	32	22.1

Table 1 shows the socio-demographic profile of adolescent-respondents who participated in this investigation. The majority of respondents were in the age group of 17 to 18 years old. There were 64 participants in this category and they comprised the 44.1% of the population. This was followed by 44 respondents who were in the 13 to 14 years of age. These participants comprised the 30.3% of the population. The lowest number of participants were the 37 adolescents in the 15 to 16 years of age. These participants constituted the 25.5% of the population. The highest number of participants were females. There were 86 participants in this category and they constituted the 59.3% of the population. On the other hand, there were only 59 male participants and they constituted the 40.7% of the population.

The majority of participants’ parents were married. There were 84 participants in this group and they comprised the 57.9% of the population. This was followed by 47 participants whose parents were single. These participants constituted the 32.4% of the population. There were 12 participants who have parents who were separated. They comprised the 8.3% of the population. There were only 2 participants whose parents were widowed/ widower. These constituted the 1.4% of the population. Most of the participants were in grade 11. There were 38 participants in this category and they comprised the 26.2% of the population. There were 29 participants who were in second year high school and they constituted the 20% of the population. This was followed by 27 participants who were in their third year level and these participants constituted the 18.6% of the population. There were 23 participants who were in the first year high school level. These participants

comprised the 15.9% of the population. There were 14 participants who were in the fourth year high school and grade 12. These participants completed the 9.7% of the population who joined in this study. With regards to the monthly income, the majority of participants' parents were earning <30,000 pesos. There were 49 participants in this group and they constituted the 33.8% of the population. This was followed by 32 participants whose parents were earning > 90,001 pesos. They comprised the 22.1% of the population. This was followed by 28 participants who had parents earning an income of 30,001 to 50,000 pesos. They constituted the 19.3% of the population. There were 20 participants whose parents were earning an income of 70,001 to 90,000 pesos. These participants constituted the 13.8% of the population. There were only 16 participants who were earning an income of 50,001 to 70,000 pesos. These participants comprised the 11% of the population.

Table 2. Level of Depression among Adolescent-Respondents, Valenzuela city

Level of Depression	n	%
No Depression	20	13.8
Mild	36	24.8
Moderate	38	26.2
Moderately Severe	27	18.6
Severe	24	16.6
Total	145	100

Table 2 shows the level of depression among adolescents who participated in this investigation. In the study done, the largest number of participants were experiencing symptoms of moderate depression during this COVID 19 pandemic (38; 26.2%). This was followed by 36 participants who were having mild symptoms of depression. They comprised the 24.8% of the population. There were 27 participants who were experiencing symptoms of moderately severe form of depression. These participants constituted the 18.6% of the population. There were 24 participants who were suffering from symptoms of severe form of depression. These participants constituted the 16.6% of the population. Lastly, there were only 20 participants who had no signs of depression. These participants constituted the 13.8% of the population.

Table 3. Significant Difference between Level of Depression and Socio-Demographic Profile of Adolescent Respondents, Valenzuela city

Parameters	0	1	2	3	4	Total	p
Age							.650
13-14 years old	7(4.8)	13(9)	10(6.9)	6(4.1)	8(5.5)	44(30.3)	
15-16 years old	3(2.1)	7(4.8)	9(6.2)	10(6.9)	8(5.5)	37(25.5)	
17-18 years old	10(6.9)	16(11)	19(13.1)	11(7.6)	8(5.5)	64(44.1)	
Sex							.187
Male	10(6.9)	15(10.3)	19(13.1)	10(6.9)	5(3.4)	59(40.7)	
Female	10(6.9)	21(14.5)	19(13.1)	17(11.7)	19(13.1)	86(59.3)	
Civil Status of Parents							.918
Single	8(5.5)	10(6.9)	15(10.3)	8(5.5)	6(4.1)	47(32.4)	
Married	11(7.6)	23(15.9)	18(12.4)	16(11)	16(11)	84(57.9)	
Separated	1(.7)	2(1.4)	4(2.8)	3(2.1)	2(1.4)	12(8.3)	
Widowed/er	0(0)	1(.7)	1(.7)	0(0)	0(0)	2(1.4)	
Year Level							.061
First Year	4(2.8)	7(4.8)	1(.7)	5(3.4)	6(4.1)	23(15.9)	
Second Year	1(.7)	10(6.9)	9(6.2)	5(3.4)	4(2.8)	29(20)	
Third Year	5(3.4)	10(6.9)	7(4.8)	2(1.4)	3(2.1)	27(18.6)	
Fourth Year	4(2.8)	3(2.1)	1(.7)	4(2.8)	2(1.4)	14(9.7)	
Senior High 1	4(2.8)	6(4.1)	12(8.3)	9(6.2)	7(4.8)	38(26.2)	
Senior High 2	2(1.4)	0(0)	8(5.5)	2(1.4)	2(1.4)	14(9.7)	
Monthly Income							.105
< 30,000	5(3.4)	11(7.6)	16(11)	10(6.9)	7(4.8)	49(33.8)	
30,001-50,000	0(0)	9(6.2)	10(6.9)	4(2.8)	5(3.4)	28(19.3)	
50,001-70,000	7(4.8)	2(1.4)	3(2.1)	2(1.4)	2(1.4)	15(11)	
70,001-90,000	2(1.4)	7(4.8)	3(2.1)	4(2.8)	4(2.8)	20(13.8)	

> 90,001	6(4.1)	7(4.8)	6(4.1)	7(4.8)	6(4.1)	32(22.1)	
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0 No Depression; 1 Mild Depression; 2 Moderate Depression; 3 Moderately Severe Depression; and 4 Severe Depression

Table 3 shows the significant difference between level of depression and socio-demographic profile of adolescent respondents who participated in this study. The investigation disclosed that most were in the 17 to 18 years of age (64; 44.1%). Of the 64 participants in this age group, 19 (13.1%) were experiencing symptoms of moderate depression and 16 (11%) had mild symptoms of depression. There were 37 (25.5%) participants who were in the 15 to 16 years of age. In this group, 10 (6.9%) participants were suffering from symptoms of moderately severe depression ($p .650 > .05$). There were 86 (59.3%) females who participated in this study. Of these, 21 (14.5%) were suffering from symptoms of mild depression. Moreover in this group, 19 (13.1%) participants were suffering from moderate depression symptoms and another 19 (13.1%) were noted to have severe depression symptoms. There were 59 (40.7%) male participants. Among them, 19 (13.1%) were noted to have moderate depression symptoms ($p .187 > .05$).

With regard to the civil status of parents of participants, the majority of the participants' parents were married (84; 57.9%). Among these, 23 (15.9%) participants were suffering from symptoms of mild depression. This was followed by 18 (12.4%) participants having moderate depression symptoms. There were 47 (32.4%) participants whose parents were single. In this group, 15 (10.3%) were experiencing symptoms of moderate depression. Only 2 (1.4%) participants had parents who were widowed/ widower. In this group, 1 (1.7%) was suffering from mild symptoms of depression and another 1 (1.7%) participant was experiencing moderate symptoms of depression ($p .918 > .05$).

The participants who joined in the study were in Grade 11 (38; 26.2%). In this group, 12 (8.3%) parents were having symptoms of moderate depression and 9 (6.2%) were experiencing symptoms of moderately severe depression. This was followed by 29 (20%) participants who were in their second year high school. In this group, 10 (6.9%) suffered from mild symptoms of depression and 9 (6.2%) participants had symptoms of moderate depression. There were 14 (9.7%) participants who were in their fourth year and Grade 12 levels. In the 14 fourth year high school students who participated, 4 (2.8%) had no signs of depression while 4 (2.8%) participants were noted to have symptoms of moderate form of depression. On the other hand, among the 14 Grade 12 senior high students who participated, 8 (5.5%) participants had moderate symptoms of depression ($p .061 > .05$).

As for monthly income, the majority of participants' parents were earning an income of < 30,000 pesos (49; 33.8%). Of the 49 participants in this category, 16 (11%) had moderate depression symptoms. There were 11 (7.6%) participants noted to have symptoms of mild depression. This was followed by participants whose parents were earning an income of > 90,000 pesos (32; 22.1%). In this group, 7 (4.8%) participants were noted to have symptoms of mild depression and another 7 (4.8%) were found to have those of moderately severe depression. There were 28 (19.3%) participants whose parents were earning an income of 30,001-50,000 pesos. In this group, 10 (6.9%) participants were noted to have moderate depression symptoms. There were only 15 (11%) participants whose parents were earning an income of 50,000-70,000 pesos. In this group, 7 (4.8%) participants had no depression ($p .105 > .05$).

IV. Discussion

A series of infection was noted in the province of Wuhan China around December of 2019. These patients were seen to exhibit several clinical presentations such as fever, cough, and pneumonia.²⁰ The disease was later found to have been caused by Coronavirus which was named as SARS-COV-2. Since then, the infection has spread throughout the world, causing over a million of infected people prompting the World Health Organization to declare the disease as pandemic on March 11, 2020.²¹ Due to the high transmission and infection rate, the number of infected individuals has increased considerably causing lockdowns in several communities and government.²² The high influx of patients being admitted due to COVID 19 and the death reports have caused the population to experience psychological distress, emotional burden and huge concerns among doctors and other health care professionals, in the community and in the general public.

Such level of burden and fears have been observed as well whenever there is a recorded cases of infections such as the Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS) and other diseases.²³⁻²⁴ During this outbreak, a number of people have reported depression, anxiety, psychomotor distress, panic attack, suicide and stress symptoms.²⁵⁻²⁶⁻²⁷ Children, especially teenagers were also observed to exhibit these mental concerns.²⁸⁻²⁹⁻³⁰⁻³¹ It is in this regard, this investigation was conducted in order to determine the level of depression among adolescents living in Valenzuela City.

This survey was conducted during sixth to seventh month from when the enhanced community quarantine was implemented in the Philippines. This investigation brought to light that a number of adolescents are suffering from symptoms of different levels of depression. In particular, around 26% of the study population

were seen to have symptoms of moderate depression, 25% were found to have that of mild form of depression and 18% of these had moderately severe depression symptoms. The results indicate a significant finding that more than 50% of adolescents were prone to suffering from some form of depression during COVID-19 pandemic crisis. These findings are comparable to several studies, one in general adult population where the result reported students of adolescent age group experiencing more depressive and other psychological symptoms than adult population in the initial months of the pandemic.¹² Several factors could play an integral role as to why this was noted in the study population. Major contributing factors that can be assumed are effects on daily life and routine, delay and uncertainty in academic schedule and perhaps decreased social support.³² Another study has backed this effect on adolescents more than in adults and the reasoning proved was their heightened vulnerability towards negative effect of stress. They are highly attuned to peer groups due to developmental motivation and hormonal changes making it more challenging for them to isolate at home.³³⁻³⁴ It could be noted that there was a longer duration of quarantine that was imposed in all cities in Manila compared to other provinces in the Philippines. Lockdowns were implemented to prevent spread of infection, several malls were either closed or had a limited number of operating hours. Even parents were instructed to not allow their children to step outside among other age groups such as elderly population. This, along with reduced social interaction, fear of the disease, difficulty in school work, boredom at home and change in daily routine could have dramatically led to negative psychological effects among these adolescents. Inability to hang out with friends and share their inner thoughts with them could also have led to the feeling of loneliness.

The data obtained in the current study were supported by several other authors who also mentioned that isolation and quarantine could lead to several mental disorders. These were particularly observed early on during the spread of infections such as SARS and MERS, where a number of patients developed mental disorders due to the strict quarantine and isolation measures.³⁵⁻³⁶⁻³⁷ Another group of investigators also have showed support in the current data obtained. In these studies, they noted that anxiety and depression were seen in the adult and pediatric population since social activities were minimized, and depression and other mental issues were noted to have lingered even though there was already a decline of infected cases in the area.³⁸⁻³⁹ Another interesting data of the study was that there was no significant difference noted between level of depression and socio-demographic profiles of the adolescents included in this research. More specifically, in terms of age and sex, most number of participants were from 17-18 and 15-16 years age group in which about 59% were suffering from moderate to severe depression. Among 13-14 years age group, least number of participants were involved and 72% of them were affected with moderate to severe depression. Even though no significant difference was seen, more females(63%) were affected than males(57%). This can be backed by an investigation studying age and sex related difference in depression which concluded that around 13-14 years of age girls present higher depression rate than other age groups.⁴⁰ Most participants' parents were married, followed by single parents but depressive symptoms were observed in all these groups with no significant difference in between them which indicates that during the pandemic times, all the adolescents, regardless of their parents' marital status and their mental well being, were prone to developing depression. Many studies were found to gather similar data with that of the current research. In particular, one research noted that depression occurring in children and adults never showed any variance with their socio-demographic strata. This means that variations were not seen when adult and children were grouped according to sex, or even monthly income⁴¹⁻⁴², which has also been observed in this study.

Depression could occur to any person, regardless of their race, age group, monthly income or place of origin. This indicates that even children are not immune to suffering from depression, especially when they are subjected to isolation with poor interaction among family members.⁴³⁻⁴⁴ In the current research, even children whose parents were married, those whose parents had impressive monthly income earnings, were noted to experience depression. This only indicates that good family relation, and stable monthly income may not fully prevent one from experiencing mental concerns especially during this COVID 19 pandemic, hence the need to provide emotional support

V. Conclusion

Based on the foregoing findings of the study, the following conclusions are presented according to the specific objectives set for in this investigation. The participants in the investigation were found to be mostly in the 17 to 18 years of age, with female students accounting for the majority of the population. The largest number of participants had parents who were married. As for the year level of these respondents, the majority were in third year high school. The parents of these participants were earning an income of < 30,000 pesos.

With regards to the level of depression among adolescent respondents in the midst of COVID 19 pandemic, the largest number of participants were found to have symptoms of moderate depression, followed by mild and moderately severe forms of depression. The investigation disclosed that there was no significant difference between level of depression and socio-demographic profiles of participants specifically their age, sex, grade level, civil status of parents, and monthly income. The data indicates that over 50% adolescents in the

study had symptoms of moderate to moderately severe depression. This means that regardless of their socio-demographic characteristics, depression could be seen in the population included in the study. Based on the conclusions drawn from this study, the following recommendations are forwarded:

Since symptoms and affinity to depression is encountered among adolescents included in the study, it is crucial that further psychological evaluation and psychosocial support be provided to vulnerable adolescents.

Parents should provide their children the needed emotional support and assistance, more than financial favor. Quality time with their children is seen essential.

Since depression is seen across every year level and age group, the education sector should consider including mental health education and counselling as part of the curriculum

More studies focusing on the mental health issues in adolescents in the Philippines are recommended in order to understand their psychology and be able to help them as needed

In particular, a follow up study is to this research can be considered in the same population after the quarantine period is over and schools and lives are back to normal, to study the change in the level of depression among adolescents.

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