- **Research instrument:** A one-on-one guided interview using the Columbia Suicide Severity Rating Scale (C-SSRS)
- **Sampling technique:** Non-probability sampling technique was employed and purposive sampling, specifically total population enumeration was utilized.
- **Statistical treatment:** The study used descriptive statistics in summarizing and describing the data that were gathered. All data were described using frequency and percentage. Statistical analyses were generated using Microsoft Excel.
- **Ethical considerations:** To address the inherent sensitivity of the topic, the research proposal was submitted to a psychiatrist for evaluation and was duly approved. The researcher was also mentored by the psychiatrist on how to properly conduct the interview.

To promote objectivity and eliminate possible factors that could influence the child's answer, the researcher conducted the one-on-one interview prior to the adolescent's discharge to ensure that the child has sufficiently recovered from the disease condition and is already in good physical and mental health. The interview was conducted in a vacant room available in the pediatric or surgical ward without the parents or guardian around.

Voluntary participation was assured. An informed consent was sought from either parent or from the de facto guardian in cases where both parents are absent or not the one taking care of the child. The parents or guardian were provided with the questionnaire for them to know the content and to help them decide whether they will allow the child to participate in the study or not. Aside from the informed consent, an assent was also obtained without coercion from the child himself. Information regarding the study was explained in the simplest manner for the child to fully understand. The child was given the liberty to refuse to participate and to discontinue participation at any time.

Confidentiality and anonymity were upheld. However, if the patient was at risk of harming himself, the researcher was obliged to take the necessary action to prevent harm. The mother was informed of the child's risk and a referral to the psychiatrist was done for prompt intervention. The psychiatric consultation fee was waived as the psychiatrist was one of the co-authors of the study.

### Duration of the study

The study commenced on November 11, 2020 and ended on November 10, 2021.

### Data gathering method

After the approval from the hospital Technical Review Board (TRB) and the Institutional Review Board (IRB) was granted, the researcher started to gather data. Recruitment was facilitated by reviewing the daily admissions for adolescents admitted to the pediatric and surgical ward. These patients were followed up daily for the possibility of discharge. Once a discharge order was made by the resident-in-charge, the researcher approached the parent or the guardian initially to explain the study, gave them a copy of the questionnaire and asked for an informed consent. Once an informed consent was given, the researcher then approached the adolescent to explain the study to him and to ask for an assent.

Once the adolescent gave his assent, the researcher provided him with both the English and Cebuano version of the C-SSRS questionnaire and asked him to choose the version he was comfortable with. The researcher then conducted a one-on-one interview with the adolescent using the questionnaire that the adolescent chose in a vacant room available in the pediatric or surgical ward in the absence of the parent or the guardian. The questions were answered by either a "yes" or "no". The researcher asked the first and second question successively, regardless of the answer to the first question. If the answer to question 2 is a "yes", the researcher proceeded to ask questions 3, 4, 5, and 6. If the answer to question 2 is a "no", the researcher went to ask question 6 directly. The responses to the questions were used to assess the suicide risk of the adolescent basing on the criteria mentioned in the C-SSRS.

The data gathered were duly recorded and tabulated.

## Results

There were 135 adolescents admitted at the pediatric and surgical ward of Governor Celestino Gallares Memorial Hospital from November 11, 2020 to November 10, 2021. All 135 adolescents are non-COVID-19 patients. Of these, only 35 were eligible for inclusion in the study and gave consent.

Table 1 shows the sociodemographic profile of the subject population. There are no adolescents aged 10 years old who were admitted during the study period. The majority of the admitted adolescents are 16 years of age, accounting for 31.4% of the subjects. Female adolescents accounted for 54.3% and male adolescents for 45.7% of the subject population.

Figure 1 shows the distribution of adolescents with or without suicide ideation and behavior. Out of 35 adolescents interviewed, 7 (20%) wished to be dead, and the remaining 28 (80%) did not have any suicidal ideation or behavior.

Figure 2 shows the distribution of adolescents with suicidal ideation. There were 4 (57.1%) of the 7 adolescents who wished to be dead that had suicidal thoughts. Of these, 3 (75%) had thoughts of the method by which they would commit suicide. Two of the adolescents with suicidal thoughts had suicidal intent without a specific plan (50%), and 2 (50%) had suicidal intent with a specific plan. All the 4 adolescents with suicidal intent had suicidal behavior (100%).

| Sociodemographic Features | Frequency | Percentage |
|---|---|---|
| Age (years) | | |
| 10 | 0 | 0 |
| 11 | 3 | 8.6% |
| 12 | 4 | 11.4% |
| 13 | 3 | 8.6% |
| 14 | 4 | 11.4% |
| 15 | 4 | 11.4% |
| 16 | 11 | 31.4% |
| 17 | 6 | 17.2% |
| Sex | | |
| Male | 16 | 45.7% |
| Female | 19 | 54.3% |

**Table 1:** Sociodemographic Profile of Adolescents Admitted in GCGMH.

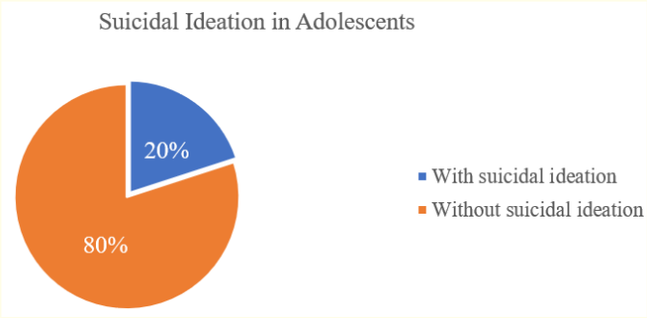


**Figure 1:** Distribution of Adolescents with Suicide Ideation.

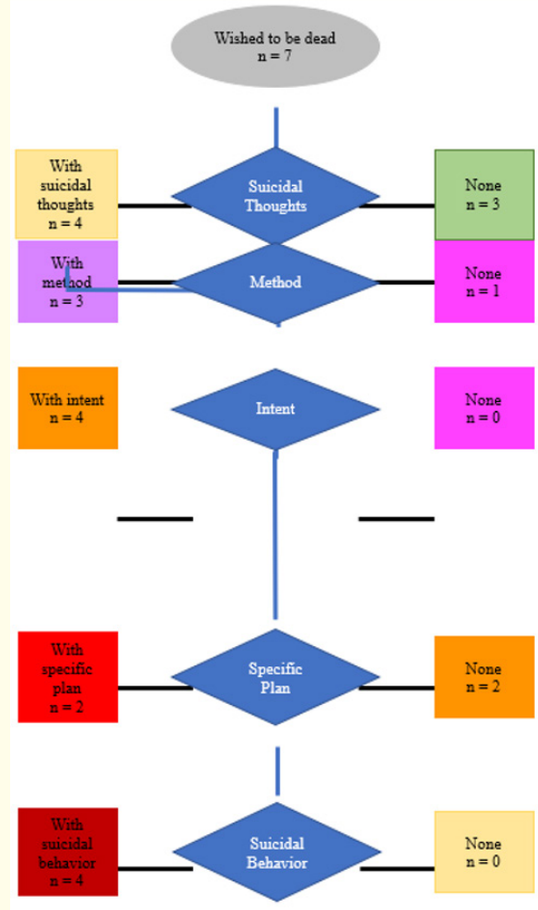


**Figure 2:** Distribution of Adolescents with Suicidal Ideation and Behavior According to C-SSRS.

Table 2 shows the responses of the adolescents admitted in GCGMH to the questions in the Columbia-Suicide Severity Rating Scale (C-SSRS) in relation to the sociodemographic profile. Six of the 7 adolescents who wished to be dead are girls 16 and 17 years old, and 1 was a 16-year-old boy. All the 4 adolescents who had suicidal thoughts, suicidal intent with or without plan, and suicidal behavior are girls. One of these is a 16-year-old, and the remaining 3 are aged 17 years.

Figure 3 shows the distribution of suicide risk among adolescents admitted in Gov. Celestino Gallares Memorial Hospital. Based on the C-SSRS criteria, all 4 (11.4%) adolescents who had suicidal thoughts, intent and behavior are considered high risk. There is no adolescent who is at medium risk for suicide. All the rest of the adolescents interviewed in the study are at low suicide risk.

Table 3 shows the suicide risk of adolescents admitted in Governor Celestino Gallares Memorial Hospital according to sociodemographic profile. All the adolescents considered high risk based on the C-SSRS are females aged 16 and 17 years old.

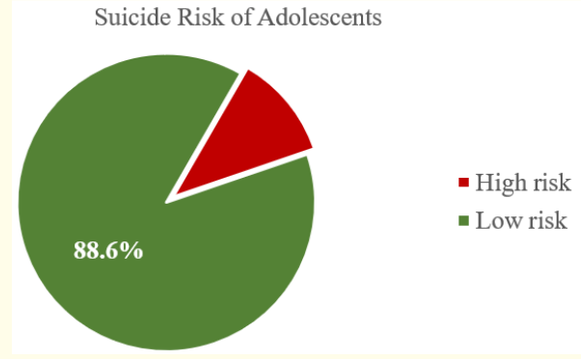


**Figure 3:** Distribution of Suicide Risk of Adolescents Admitted in GCGMH.

## Discussion

This study shows that the prevalence of suicidal ideation in hospitalized adolescents is 20%. This is much higher than the World Health Organization (WHO)-reported suicidal ideation prevalence rate of 11.6% among Filipino adolescents 13 to 17 years old [31]. The difference in the prevalence rates may be attributed to the

| Demographic Features | COLUMBIA SUICIDE SEVERITY RATING SCALE QUESTIONS | | | | | | |
|---|---|---|---|---|---|---|---|
| | Wish to be Dead (n = 7) | Suicidal Thoughts (n = 4) | Suicidal Thoughts with Method (n = 3) | Suicidal Intent (without specific plan)(n = 2) | Suicidal Intent (with specific plan) (n = 2) | Suicide Behavior (n = 4) | None (n = 28) |
| 10 years old | | | | | | | |
| Male | -- | -- | -- | -- | -- | -- | -- |
| Female | -- | -- | -- | -- | -- | -- | -- |
| 11 years old | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 1 (3.6%) |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 2 (7.1%) |
| 12 years old | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 2 (7.1%) |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 2 (7.1%) |
| 13 years old | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 3 (10.7%) |
| 14 years old | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 3 (10.7%) |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 1 (3.6%) |
| 15 years old | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 2 (7.1%) |
| Female | 0 | 0 | 0 | 0 | 0 | 0 | 2 (7.1%) |
| 16 years old | | | | | | | |
| Male | 1 (14.2%) | 0 | 0 | 0 | 0 | 0 | 4 (14.3%) |
| Female | 3 (42.9%) | 2 (50.0%) | 1 (33.3%) | 1 (50.0%) | 1 (50.0%) | 1 (25%) | 3 (10.7%) |
| 17 years old | | | | | | | |
| Male | 0 | 0 | 0 | 0 | 0 | 0 | 3 (10.7%) |
| Female | 3 (42.9%) | 2 (50.0%) | 2 (66.7%) | 1 (50.0%) | 1 (50.0%) | 3 (75%) | 0 |

**Table 2:** Suicidal Ideation and Behavior According to Sociodemographic Profile of Adolescents.

subject population and the number of subjects in the study. This study is conducted in hospitalized patients and included a small number of adolescents while the WHO survey was conducted in school-aged children and involved a total of 8,761 students. A review of the prevalence of suicidal ideation from studies conducted in other countries provides a comparison against the result of this local study. Countries with a lower suicidal ideation prevalence include Brazil (14%) [32], Guyana (18.4%) [33], and Thailand (8.8%) [34]. In contrast, Zambia has a higher suicidal ideation prevalence rate of 32.2% among adolescents [35]. The differences in these statistics may lie mainly on the differences of subject population. Data from countries abroad are gathered from studies on school-aged children before the COVID-19 pandemic while this local study is on school-aged children during the COVID-19 pandemic.

There is a scarcity of literature on the incidence of suicidal ideation and behavior among adolescents admitted for non-psychiatric problems before and during the COVID-19 pandemic. Most studies that can be found are report on emergency room encounters and hospitalizations for psychiatric disorders. For instance, in Korea, 23.7% of adolescents 18 years and younger who have psychiatric problems visited the emergency room at least once for suicidal attempts and/or non-suicidal self-injury [36]. This incidence is notably close to that found in our own subject population. It is surprising considering that the Korean study was conducted on adolescents with psychiatric problems while this local study was conducted on non-psychiatric adolescents. In the United States, a cross-sectional study that utilized the National Hospital Ambulatory Medical Care Survey (NHAMCS) Emergency Department database reported that from 2007 to 2015, 2.8% of emergency room visits by children younger than 18 years old were for suicide attempts and/or suicide ideation [37]. In a study conducted in another emergency room in the United States by Horowitz., *et al*. it is reported that 5.7% of children who visited the emergency room in for non-psychiatric complaints reported clinically significant suicidal ideation [38]. The varying degrees of discrepancy between these international studies and this local study may be due to the differences in the sample population. The Korean study had 194

subjects, the US NHAMCS study had 59,921 cases of emergency room visits, and the Horowitz study had 106 patients. Nevertheless, these studies have highlighted the important role of the Emergency Room as a screening venue for suicidality.

The COVID-19 pandemic has imposed a background filled with stressors that triggered concerns about the potential increase in suicide rates. Stressors include social isolation, economic stress, inaccessible mental health care, interpersonal conflict, and reduced access to religious and community support have been identified to increase the risk for suicide [39]. A survey on adolescents admitted to a psychiatric inpatient unit in the US reported that 47.2% claimed to have suicidal ideation in relation to COVID-19 [12]. This incidence is quite high compared to that seen in the local study; however, it is not also surprising considering that the subject population is composed of adolescents with psychiatric problems. Mayne and colleagues conducted a cross-sectional analysis of electronic health record data from the Children's Hospital of Philadelphia (CHOP) primary care network. The electronic health record data are from all preventive visits by adolescents aged 12 to 21 years from June 1, 2019, to December 31, 2020. In their study, they found that there are more adolescents positive for depressive symptoms during the pandemic (6.2% vs 5.0%), and that there is a higher positive suicide risk screens in 2020 (7.1%) than in 2019 (6.1%) [40]. These results give weight to the concern about COVID-19's impact on the mental health of adolescents.

Passive suicidal ideation, characterized by the wish to be dead, accounted for 7 (20%) cases of suicidal ideation and is the most common type of suicidal ideation reported in the subject population. However, 4 (57.1%) of these adolescents with passive ideation also reported non-specific active suicidal thoughts. These results are similar to those reported by Estrada., *et al*. in their study conducted on adolescents enrolled in the Alternative Learning System in Manila (ALS). In their ALS study, passive ideation is also the most frequently reported type of suicidal ideation among adolescents enrolled in ALS [41]. Burke., *et al*. conducted a survey on 143 adolescents admitted to a psychiatric inpatient unit in the US to investigate the presence of suicidal behavior by means of intentional COVID-19 exposure as well as the incidence of passive and active COVID-19 specific suicidal ideation. They reported that COVID-specific passive suicidal ideation predominates over COVID-specific active suicidal ideation (38.8% vs 23.1%) [42] just like the results of this local study.

Adolescents aged 11 to 15 years exhibited no suicidal ideation or behavior in contrast to adolescents 16 to 17 years old. This result affirms the finding of the ALS study which also reported that adolescents aged 16 to 17 years are more likely to hold suicidal ideation [41]. The preponderance of suicidal ideation in older adolescents has also been shown in a US study on emergency and inpatient encounters for suicidal ideation and suicidal attempt. In this study by Plemmons and colleagues, it is reported that the highest increase in the annual percentage of all visits for suicidal ideation and attempt occurs in adolescents 15 to 17 years old [43]. This propensity of suicidal ideation in older adolescents which is also the pattern seen for acts of suicide may be partly explained by increased psychosocial stress [44] as well as higher prevalence of mental health problems [45] in older adolescents. Moreover, younger children and early adolescents may not yet be able to fully comprehend the concept of death [46]; this may also partly explain why the younger adolescents showed no suicidal ideation or behavior.

This study shows that 6 out of 7 adolescents with suicidal ideation are females. This female preponderance is also reported by Campisi., *et al.* [47] and by Sadanand, Rangiah, and Chetty [48]. Additionally, this study also shows that adolescents who had active suicidal thoughts and behavior are all females who are 16 and 17 years of age. This is similar to the findings in the study conducted by Zygo., *et al.* in Eastern Poland. In this Polish study, there is a significant proportion of girls than boys who had suicidal thoughts and plans as well as suicide attempts (p =< 0.001) and the largest group of these female adolescents with suicidal ideation are aged 17 to 18 years [49]. The female predominance in terms of suicidal ideation and behavior has been reported in a cross-sectional study by Ridout., *et al*. to be existing even before the COVID-19 pandemic [50]. The higher incidence of suicidal ideation among females is congruent with the phenomenon called gender paradox of suicidality wherein suicidal ideation and behavior are higher in females than in males but the suicide mortality rate is lower in females than in males [51]. Kaess., *et al.* attempted in their study to explain why suicidal ideation is more prevalent in older female adolescent. They found out that female adolescents showed higher levels of internalizing problems, i.e., depressive disorders, anxiety disorders, or somatic complaints, compared to male adolescents, and are more likely to show auto-aggressive manifestations [52]. This may be related to the significant difference in the emotional development among same-aged female and male adolescents. In a study by Cyranowski., *et al*, the mechanisms by which changes in circulating gonadal hormones during puberty, as well as social mechanisms, increase the affiliative needs for pubertal females are discussed. Furthermore, how the interaction between the increased affiliative need and the transition difficulties during adolescence creates a predisposition to depression in at-risk females is also discussed [53]. Other authors support the theory that females are more likely to cogitate about the difficulties they encounter and this may cause gender differences in internalizing problems [54]. Another theory to explain the gender-gap in psychopathology is postulated by Schneider., *et al.* who found that there is sex-dependent lateralization of amygdala activation that suggests a sex-dependent differences in human emotion processing [55].

There are 4 high-risk adolescents seen in this study. These are adolescents who harbor suicidal thoughts and show suicidal behavior. All these adolescents were referred to and attended by a psychiatrist. In the study by King., *et al*, 16% of adolescents aged 13 to 17 years who sought pediatric and psychiatric emergency services screened positive for elevated suicide risk. Furthermore, 98% of these adolescents with suicide risk reported severe suicide ideation or a recent suicide attempt. Nineteen percent of these adolescents visited the emergency room for nonpsychiatric reasons [56]. This highlights the need for a stronger advocacy for suicidality screening and prevention. This is very important because according to Nock and colleagues, a large proportion of adolescents with a lifetime history of suicide ideation and attempt meet lifetime criteria for at least one of various DSM-IV disorders that include fear/anger disorders, distress disorders, disruptive behavior disorders, and substance abuse [57]. Thus, a comprehensive investigation on the suicidal ideation of an adolescent may lead to the discovery of an underlying mental health problem and the treatment of such may help in the prevention of suicide. Suicidality screening is also important because studies by Mars., *et al*. [58], and Scott., *et al.* [59] reported that individuals who reported both suicidal thoughts and non-suicidal self-harm at baseline are more likely to make a suicide attempt.

## Conclusion

Suicidal ideation is seen in 20% of hospitalized adolescents during the COVID-19 pandemic. A vast majority of adolescents with suicidal ideation is females. Adolescents at high-risk for suicide are females aged 16 - 17 years.

## Limitations and Recommendations

One of the major limitations of the study is the reduced number of admitted patients in Governor Celestino Gallares Memorial Hospital during the COVID-19 pandemic. It is recommended therefore to conduct a related study that will involve a broader population that includes healthy children, children attending face-to-face schooling, teenaged mothers, and children seen in the Women and Children Protection Unit (WCPU). Since children per se, and teenaged mothers as well as children in the WCPU are vulnerable subjects, the highest level of ethical consideration should be provided and followed. Another way to broaden the subject population may be the conduct of a multicenter study.

A study on the predisposing factors to suicidality may be conducted in the future. Data such as residence, socioeconomic status, level of education and family dynamics may be included to establish a possible correlation on the risk of suicide. This will help in the creation and establishment of policies that can prevent suicide.

Screening of children coming into the Emergency Room may be a good practice to establish. It has been shown by previous studies that it is feasible and acceptable to both parents and adolescents. Needless to say, the utmost care to uphold anonymity and confidentiality should be observed. This practice can help the pediatricians to catch adolescents with suicidal ideation and behavior earlier and enable them to refer these adolescents to experts so that appropriate intervention may be performed early on.

There is a stigma on suicide. This was palpable during the preparation of this research proposal. This may partly explain the dearth of studies on suicide ideation and behaviors among pediatric patients despite the increasing incidence of suicide cases. It would be best if the Department of Pediatric Medicine could promulgate and implement programs or activities that will break the stigma and promote open discussion about suicide and provide an environment conducive for help-seeking behavior, as well as easy access to mental health professionals that can help prevent the progression from suicidal ideation to behavior.

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