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Health-Related Quality of Life of Adolescents During the COVID-19 Pandemic: Evidence from Makilala, North Cotabato, Philippines

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ABSTRACT

The COVID-19 pandemic disrupted the lives of adolescents worldwide, affecting their physical, mental, and social well-being. This descriptive study assessed the health-related quality of life (HRQoL) of adolescents in Makilala, North Cotabato, Philippines, during the COVID-19 quarantine period. Using the EuroQol Five-Dimension, Five-Level (EQ-5D-5L) instrument, data were gathered from senior high school students aged fourteen to twenty-one years through an online survey. The study explored five dimensions of HRQoL—mobility, self-care, usual activities, pain or discomfort, and anxiety or depression—and analyzed results using measures of central tendency and standard deviation. Findings showed that most respondents were female and in the middle stage of adolescence. The majority reported no problems with mobility, self-care, daily activities, pain or discomfort, and anxiety or depression. These results indicate a generally high HRQoL among adolescents during Alert Level Two quarantine, suggesting that limited mobility allowances and partial reopening of schools contributed positively to their overall well-being. The study underscores the importance of sustaining physical and psychosocial activities in schools to promote adolescent health during and beyond public health emergencies.

Keywords: health-related quality of life, adolescents, COVID-19 pandemic, EQ-5D-5L, mental health, mobility, Makilala

Introduction

The coronavirus disease (COVID-19) pandemic has profoundly disrupted the daily lives of adolescents, affecting their physical, emotional, and social well-being. More than one billion young people worldwide have experienced significant lifestyle changes due to school closures, mobility restrictions, and social isolation measures (Ravens-Sieberer et al., 2021). Governments and health organizations have prioritized preventive interventions to control viral transmission, yet these same measures have inadvertently influenced adolescents' mental health and overall quality of life. Emerging evidence reveals that many adolescents reported heightened anxiety, loneliness, and depressive symptoms because of prolonged confinement and disrupted social interactions (Ellis et al., 2020; Loades et al., 2020; Li et al., 2021).

Health-related quality of life (HRQoL) is a multidimensional construct that reflects an individual's perceived physical, psychological, and social functioning (Centers for Disease Control and Prevention [CDC], 2021). It provides a comprehensive understanding of how health status and environmental factors influence overall well-being. The Johns Hopkins Arthritis Center (2015) defines HRQoL as the degree to which health enables individuals to live meaningful and fulfilling lives, encompassing both the positive and negative aspects of physical and mental health. Among adolescents, HRQoL serves as a critical measure of well-being, resilience, and adaptation to stress, particularly in times of crisis. Personal factors, such as self-efficacy and coping mechanisms, along with social influences like family support and peer relationships, play an essential role in shaping HRQoL (Barayan et al., 2018; Gil-Lacruz et al., 2020).

In the Philippines, the government implemented one of the world's longest and most stringent lockdowns to contain the spread of COVID-19 (Hapal, 2021). Guided by the Inter-Agency Task Force on Emerging Infectious Diseases (IATF-EID), community quarantine classifications restricted movement across regions, disrupted education, and limited access to health and recreational facilities. These restrictions, though necessary, may have had unintended consequences on adolescents' psychosocial well-being and quality of life. While numerous international studies have explored the pandemic's impact on adolescent HRQoL, limited evidence exists on how localized quarantine measures influenced Filipino adolescents, particularly in rural and semi-urban areas such as Makilala, North Cotabato.

This study aimed to evaluate the health-related quality of life of adolescents in Makilala, North Cotabato, during the COVID-19 pandemic. Specifically, it sought to: (1) Determine the demographic profile of participants in terms of sex and stage of adolescence and (2) assess the adolescents' health-related quality of life in terms of mobility, self-care, usual activities, pain or discomfort, and anxiety or depression.

Guided by these objectives, the study was designed using a descriptive research approach and employed the EuroQol Five-Dimension, Five-Level (EQ-5D-5L) instrument to measure the HRQoL dimensions. By providing empirical evidence on adolescent well-being during community quarantine, the study contributes to the growing body of knowledge on post-pandemic recovery and supports the development of health promotion strategies within

school and community settings. Ultimately, the findings aim to guide nursing professionals, educators, and policymakers in designing interventions that foster resilience, emotional stability, and holistic well-being among adolescents in the post-pandemic context.

Methods

Research Design

A descriptive-quantitative research design was employed to assess the health-related quality of life (HRQoL) of adolescents in Makilala, North Cotabato, during the COVID-19 pandemic. This design was deemed appropriate to systematically describe participants' health perceptions, functioning, and overall well-being as they naturally occurred, without manipulating variables. According to Gall et al. (1996), descriptive research enables researchers to summarize and interpret conditions or behaviors within their real-world context. Similarly, Dulock (1993) emphasized that descriptive designs are useful for identifying patterns in health phenomena that are not yet fully understood. In this study, the design allowed for an evidence-based exploration of adolescents' HRQoL during a period characterized by restricted mobility and social interaction.

Research Locale and Participants

The study was conducted in Makilala, a first-class municipality in North Cotabato, Philippines, characterized by both urban and rural features. Participants included senior high school students from public secondary schools who met the inclusion criteria of being between sixteen and twenty-one years old, currently enrolled, and residing in Makilala during the data collection period.

A total of two hundred twenty-eight adolescents participated in the study. Recruitment was conducted through digital platforms to ensure accessibility during community quarantine restrictions. Stratified random sampling was utilized to ensure proportional representation of respondents according to sex and stage of adolescence. Participants who failed to meet the criteria or provided incomplete responses were excluded from the analysis.

Research Instrument

The study utilized the EuroQol Five-Dimension, Five-Level (EQ-5D-5L) instrument to measure adolescents' HRQoL. This internationally recognized tool is designed to assess an individual's self-perceived health status across five key dimensions—mobility, self-care, usual activities, pain or discomfort, and anxiety or depression (Balestroni & Bertolotti, 2015). Each dimension contains five response levels, ranging from no problems to extreme problems, providing a comprehensive snapshot of participants' perceived health.

The EQ-5D-5L is widely validated, reliable, and adaptable for diverse cultural and population settings (EQ-5D-3L, 2021). For this study, the questionnaire was converted into a digital format using Google Forms to facilitate online data collection in compliance with COVID-19 health protocols. The instrument consisted of two parts: (a) participants' demographic profile, including sex and stage of adolescence, and (b) items related to the five HRQoL dimensions. The online administration ensured safe participation and increased reach while minimizing in-person contact.

Data Gathering Procedure

Data collection was conducted from March first to fifteenth, 2022, during the health and nutrition assessment activities of learners in Makilala. Coordination with school principals and advisers ensured proper dissemination of the survey link through social media platforms commonly accessed by students. Prior to answering the survey, participants were provided with an electronic informed consent form outlining the study's purpose, procedures, potential risks, benefits, and confidentiality measures. Only those who voluntarily consented were allowed to participate.

Completed responses were automatically stored in a secure, password-protected database accessible only to the researcher. Data were reviewed for completeness and accuracy prior to analysis. All ethical and data privacy standards were strictly observed throughout the research process.

Data Analysis

Descriptive statistics were employed to summarize and interpret the data collected. Measures of central tendency, particularly the mode, and measures of dispersion, specifically the standard deviation, were computed to describe the participants' responses to each HRQoL dimension. These statistical tools were selected based on the nominal scale of measurement used in the EQ-5D-5L. The mode identified the most common response among participants, while the standard deviation provided insights into the variability of their responses.

Data were processed and analyzed using Jeffreys' Amazing Statistics Program (JASP), an open-source statistical software known for its reliability and user-friendly interface (Spaan, 2022). Findings were presented in tabular form and interpreted in relation to existing literature to derive meaningful conclusions regarding adolescents' perceived quality of life during the pandemic.

Ethical Considerations

The study strictly adhered to ethical principles based on the Declaration of Helsinki and the Department of Education's research ethics guidelines. Participation was entirely voluntary, and respondents were assured of anonymity and confidentiality. No personally identifiable information was collected. Permission to conduct the study was obtained from the Schools Division Office of Cotabato, and formal approval from participating school heads was secured prior to data collection.

All procedures related to data storage, analysis, and reporting complied with ethical standards for educational and health research, ensuring the integrity and credibility of the study findings.

Results and Discussion

Table 1 presents the distribution of participants according to sex. Out of the total 228 respondents, 144 were female, representing 63.16% of the sample, while 84 were male, accounting for 36.84%. No missing data were recorded, reflecting the completeness and reliability of the dataset. The predominance of female respondents indicates a gender imbalance, with nearly two-thirds of the participants being adolescent girls.

The higher representation of female participants is consistent with trends observed in similar health and psychosocial research conducted during the COVID-19 pandemic (Ferreira et al., 2021; Bermejo-Martins et al., 2021). Several factors may explain this pattern. Culturally, female adolescents tend to demonstrate greater willingness to participate in research involving personal well-being, health perceptions, and emotional experiences. They are often more expressive about their feelings and more engaged in activities related to mental health, self-care, and educational surveys. In contrast, male adolescents may exhibit lower participation rates due to social expectations surrounding masculinity, which can discourage openness in discussing emotional or psychosocial issues (Panchal et al., 2021).

This finding holds significant implications for understanding the health-related quality of life (HRQoL) of adolescents during the pandemic. Research indicates that gender plays a critical role in shaping how young people perceive and manage their health. Female adolescents are more likely to report psychosomatic symptoms, anxiety, and mood fluctuations, whereas males typically emphasize physical aspects of well-being and may underreport emotional distress (de la Barrera et al., 2019; Tamarit et al., 2020). These gendered differences suggest that the female-dominant composition of the sample may provide deeper insights into the psychological and emotional dimensions of HRQoL, particularly the domains of anxiety, depression, and pain or discomfort.

From a developmental standpoint, adolescent girls are at a unique intersection of biological, cognitive, and social changes that heighten emotional sensitivity and health awareness (Li et al., 2021). During the pandemic, restrictions on movement, school closures, and reduced peer interactions may have disproportionately affected female adolescents, as they tend to rely more heavily on social connections and emotional support networks. Studies have shown that females reported higher levels of anxiety, stress, and depressive symptoms during lockdowns compared to males (Ellis et al., 2020; Nobari et al., 2021). Despite these challenges, female adolescents also exhibit adaptive coping mechanisms such as journaling, social communication, and engagement in wellness routines, which can contribute to maintaining a favorable perception of health-related quality of life (O'Brien et al., 2021).

The male subgroup, though smaller, remains a critical component of the sample. Male adolescents often display resilience through activity-oriented coping strategies, such as physical exercise or digital engagement, but may mask emotional distress due to societal norms of self-reliance (Ren et al., 2021). Consequently, health professionals should consider that males may underreport mental health challenges, leading to potential underestimation of their psychological well-being in self-administered instruments such as the EQ-5D-5L.

The gender composition observed in this study underscores the need for gender-responsive health promotion programs. Schools and community-based initiatives should tailor interventions to address the distinct health concerns and coping styles of both male and female adolescents. For female learners, programs emphasizing emotional resilience, stress management, and social connectedness may enhance mental well-being. For males, fostering open dialogue about emotions, encouraging participation in psychosocial activities, and challenging traditional gender norms can improve engagement in health-promoting behaviors.

Overall, the predominance of female participants provides an important perspective on adolescent health during the pandemic. It reflects the proactive participation of young women in health and wellness initiatives and highlights the gendered nature of health perception among Filipino adolescents. Understanding these differences is essential for designing targeted interventions that promote equitable well-being and inclusive recovery among all adolescents during and beyond the COVID-19 pandemic.

Table 1. Sex Distribution of Respondents

Sex	Frequency	Percent	Valid Percent	Cumulative Percent
Male	84	36.842	36.842	36.842
Female	144	63.158	63.158	100.000
Missing	0	0.000		
Total	228	100.000		

Table 2 presents the frequency and percentage distribution of respondents according to their stage of adolescence. Among the 228 participants, 160 or 70.18% were in the middle stage of adolescence, while 68 or 29.82% were in the late stage. No missing data were recorded, confirming the completeness and integrity of the dataset. The predominance of middle adolescents indicates that most participants were between approximately fourteen and seventeen years of age, whereas late adolescents, typically aged eighteen to twenty-one, represented a smaller portion of the sample.

The distribution suggests that the study population largely comprised students navigating the transitional phase between early dependence and growing autonomy. The middle stage of adolescence is characterized by rapid physical growth, heightened emotional sensitivity, increased peer influence, and an emerging sense of identity (Meeus et al., 2002; Steinberg, 2014). These developmental shifts make this age group particularly vulnerable to external

stressors such as the COVID-19 pandemic, which disrupted schooling, peer interaction, and normal routines (Ellis et al., 2020). The pandemic's restrictions limited opportunities for socialization—an essential developmental need in this stage—potentially influencing their health-related quality of life (HRQoL).

The predominance of middle adolescents also aligns with the school-based setting of the study, as this age group represents the majority of senior high school learners. In contrast, late adolescents, who are often engaged in employment or higher education, may have been less accessible for participation during the data collection period. This pattern reinforces the importance of focusing health promotion efforts within secondary schools, where structured interventions can be implemented to address adolescents' evolving physical, emotional, and psychosocial needs (World Health Organization [WHO], 2021).

From a psychosocial perspective, middle adolescents experience intensified emotional reactivity and a growing need for social validation. During the pandemic, the absence of in-person interaction, coupled with academic uncertainties, may have contributed to increased stress and anxiety among this age group (Singh et al., 2020; Li et al., 2021). However, the presence of familial support and access to digital platforms for education and communication could have served as protective factors, mitigating the adverse effects on HRQoL (Bermejo-Martins et al., 2021). These dynamics underscore the multifaceted nature of adolescent adaptation during crises.

Meanwhile, late adolescents, though fewer in number, represent individuals transitioning toward adulthood, where independence, goal orientation, and responsibility become more pronounced (Sawyer et al., 2018). This developmental stage involves consolidation of identity, preparation for higher education or work, and establishment of intimate relationships. Late adolescents generally possess more mature coping mechanisms and cognitive skills, which may buffer the negative psychosocial effects of the pandemic (Panchal et al., 2021). However, the uncertainty surrounding career prospects and educational continuity during lockdowns may have also challenged their perceived quality of life, particularly in the domains of anxiety, depression, and usual activities.

The predominance of middle-stage adolescents in this study provides a relevant lens for interpreting the overall HRQoL findings. Given their developmental vulnerability and strong reliance on social interaction, disruptions caused by the pandemic likely influenced their well-being more significantly than among late adolescents. This finding aligns with earlier research suggesting that middle adolescents experienced greater emotional distress during COVID-19 due to social isolation, fear of infection, and academic disruption (Orgilés et al., 2020; Nobari et al., 2021).

From a nursing and public health perspective, these results emphasize the need for age-sensitive health promotion programs that account for the differing developmental tasks of each adolescent stage. For middle adolescents, interventions should prioritize emotional regulation, peer support, and self-efficacy in coping with uncertainty. For late adolescents, programs focusing on career readiness, mental wellness, and adaptive stress management are crucial. School nurses and health educators play a vital role in developing such initiatives, ensuring that interventions are responsive to the unique challenges faced by adolescents at varying developmental stages.

In summary, the findings reveal that the majority of respondents were in the middle stage of adolescence, a developmental period marked by heightened psychosocial sensitivity and dependence on social interaction. This demographic pattern provides a significant context for interpreting the subsequent analysis of HRQoL dimensions, as it highlights the developmental vulnerabilities and adaptive capacities of Filipino adolescents during the COVID-19 pandemic.

Table 2. Stage of Adolescence of Respondents

Stage	Frequency	Percent	Valid Percent	Cumulative Percent
Middle Adolescent	160	70.175	70.175	70.175
Late Adolescent	68	29.825	29.825	100.000
Missing	0	0.000		
Total	228	100.000		

Table 3 presents the measures of central tendency for the five dimensions of health-related quality of life (HRQoL) among adolescents in Makilala, North Cotabato. The results show that all HRQoL dimensions—mobility, self-care, usual activities, pain or discomfort, and anxiety or depression—have a mode of one, corresponding to the response “no problems.” This finding indicates that most respondents perceived themselves as healthy and capable across all dimensions. The low standard deviation values, ranging from 0.55 to 0.78, further suggest minimal variability in responses, highlighting the homogeneity of perceived well-being among participants. Collectively, these results demonstrate that the adolescents maintained a generally high HRQoL during the COVID-19 pandemic, despite the limitations imposed by community restrictions.

The high ratings for mobility, self-care, and usual activities imply that the adolescents experienced minimal disruption in their physical functioning and daily routines. This may be attributed to their youthful resilience and adaptability, as well as to the gradual easing of quarantine measures that allowed partial school reopening and community mobility. Previous research supports that adolescents tend to recover quickly from environmental stressors when provided with social and family support, digital engagement, and structured activities (Bermejo-Martins et al., 2021; Li et al., 2021). Furthermore, the

absence of reported problems in pain or discomfort suggests that the majority were physically healthy, reflecting the low prevalence of chronic conditions and strong immunity typical among this age group. These findings highlight that physical dimensions of HRQoL remained largely preserved among Filipino adolescents during the pandemic period.

Interestingly, while the anxiety or depression dimension also registered a mode of one, its standard deviation (0.780) was among the highest across the five domains, indicating slight variations in emotional responses. Although most respondents reported no emotional distress, a subset likely experienced mild to moderate anxiety or depressive symptoms associated with isolation, uncertainty, or academic pressures. Similar findings were observed in global studies where adolescents exhibited resilience overall but with notable emotional fluctuations during pandemic lockdowns (Panchal et al., 2021; Nobari et al., 2021). These results underscore the importance of continuous mental health monitoring and psychosocial interventions in schools. Nursing professionals play a vital role in this regard—promoting mental wellness, facilitating counseling, and creating supportive learning environments that enhance emotional regulation and social connectedness.

In summary, the findings indicate that adolescents in Makilala demonstrated high health-related quality of life across all domains, maintaining physical and emotional well-being despite pandemic-related challenges. The uniform mode of one across all dimensions underscores their adaptability and the potential positive impact of community, family, and school support systems. However, the variability in the psychological domain suggests the need for sustained mental health initiatives. Targeted nursing interventions focusing on resilience-building, emotional literacy, and social support can further strengthen adolescent well-being and prepare them to cope effectively with future public health crises.

Table 3. Measures of Central Tendency for Health-Related Quality of Life Dimensions

	Mobility	Self-Care	Usual Activities	Pain / Discomfort	Anxiety / Depression
Valid	228	228	228	228	228
Missing	0	0	0	0	0
Mode	1.000	1.000	1.000	1.000	1.000
Std. Deviation	0.551	0.559	0.777	0.685	0.780
Minimum	1.000	1.000	1.000	1.000	1.000
Maximum	5.000	5.000	5.000	4.000	5.000

Conclusion

The findings of this study reveal that the majority of respondents were female and in the middle stage of adolescence, reflecting a group that is developmentally dynamic, socially engaged, and emotionally perceptive. These demographic characteristics shaped how participants perceived their health and quality of life during the COVID-19 pandemic. The predominance of female respondents suggests a population that is more responsive to psychosocial and health-related assessments, while the concentration of middle adolescents indicates a developmental stage where identity formation, social belonging, and emotional regulation are critical to well-being.

Across all dimensions of the EuroQol Five-Dimension, Five-Level (EQ-5D-5L) instrument—mobility, self-care, usual activities, pain or discomfort, and anxiety or depression—the mode value of one indicates that most adolescents reported no problems, suggesting a generally high level of health-related quality of life (HRQoL) during the pandemic period. Despite the restrictions and uncertainties brought about by quarantine measures, adolescents in Makilala demonstrated adaptability, physical vitality, and stable emotional functioning. These outcomes may be attributed to the gradual resumption of school activities, strong family ties, and community support that helped sustain a sense of normalcy.

However, the slightly higher variation observed in the domain of anxiety or depression indicates that a subset of adolescents experienced mild emotional challenges. This highlights the continuing need for mental health promotion and psychosocial interventions in schools. Nursing professionals play a pivotal role in this effort by implementing resilience-building programs, fostering emotional awareness, and ensuring access to support services that safeguard adolescent well-being. Overall, the results underscore that while the adolescents' HRQoL remained favorable during the pandemic, sustained health education, emotional support, and school-based wellness initiatives are essential to maintain and further enhance their holistic health in post-pandemic recovery contexts.

Recommendations

Based on the findings of this study, several recommendations are proposed to enhance the health-related quality of life (HRQoL) of adolescents, particularly in post-pandemic recovery settings. Given that most respondents were middle-stage adolescents and predominantly female, age- and gender-responsive interventions should be prioritized in schools and community programs. Health promotion initiatives must be tailored to address the specific developmental and psychosocial needs of adolescents by fostering self-awareness, emotional resilience, and adaptive coping skills. School nurses,

guidance counselors, and educators should collaborate in integrating mental health education, stress management, and social support activities within the existing curriculum to sustain adolescents' overall well-being.

The study also recommends the institutionalization of school-based mental health and wellness programs under the framework of the Department of Education's Oplan Kalusugan sa DepEd (OKD) and Healthy Learning Institutions (HLI) initiatives. Such programs should include routine psychosocial screening, peer counseling, and early intervention mechanisms to identify and support students experiencing anxiety, depression, or psychosocial distress. Nurses can lead multidisciplinary teams in monitoring HRQoL indicators using standardized tools such as the EQ-5D-5L, thereby facilitating evidence-based interventions. Strengthening partnerships among schools, families, and local health units is essential to ensure continuity of care and effective referral pathways for adolescents requiring specialized support.

Finally, it is recommended that future research explore longitudinal and qualitative approaches to deepen the understanding of adolescent well-being and its determinants beyond the pandemic context. Studies examining the influence of socioeconomic status, family dynamics, and digital engagement on HRQoL could provide more comprehensive insights for policy and program development. By advancing adolescent-centered health research and practice, the nursing profession can play a critical role in building resilient, health-promoting school environments that safeguard and enhance the quality of life of Filipino adolescents.

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