Educational Challenges and Youth Subjective Well-being during the COVID-19 Pandemic in Iloilo Province, the Philippines

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ABSTRACT. Around the world, many countries experienced lockdowns and school closures during the Covid-19 pandemic. This has led to challenges associated with providing alternative, often online schooling options. This paper investigates the impacts of the pandemic on educational challenges and youth subjective well-being in Iloilo Province, the Philippines. It offers a holistic understanding of youth well-being. Based on micro survey data (N = 212), we conducted a mixed method analysis focusing on content analysis and logistic and order-logit regression to investigate socioeconomic factors and spatial differences. Contrary to expectations, our analyses reveal no profound geographical differences. At the personal level, students struggle the most with learning. Respondents identify families' financial and work stability as the biggest concerns, adverse environmental conditions at the community level, and a lack of educational alternatives at the government level. Students' happiness is mainly determined by their parents' financial situation during the pandemic. Given these results and heightened societal and environmental uncertainty, we propose a stronger focus on educational management, such as temporary (boarding) schools and sustained, long-term poverty reduction efforts.

1.0. Introduction

With one of the longest school closures in the world, students in the Philippines had to endure learning delays, and the country was at risk of accumulating gaps in human capital formation (United Nations Educational, Scientific and Cultural Organization [UNESCO], n.d.). The central government provided multiple distance-learning modalities as alternatives to in-person education: modular, online, TV, Radio, and a combination of modalities (Agaton & Cueto, 2021; UNESCO, n.d.). Despite the multiple options, concerns about widening inequality were raised due to families' different capabilities to deal with the new, challenging learning environment (Bustillo & Aguilos, 2022). In 2019, two million Philippine households (equivalent to about 13 million people) did not have electricity at home, and even if the Internet, smartphone, or computer were available, internet speed was relatively slow (Madrona, 2020). Consequently, educators and commentators raised the alarm concerning children's and students' educational progress and well-being. Subsequently, the United Nations International Children's Emergency Fund (UNICEF) suggested guidelines for safeguarding the well-being of students (UNICEF, n.d.). Although the importance of youth well-being was recognized from the outset of the pandemic, studies about subjective well-being (SWB) have been scarce (Racine et al., 2020; Schwartz et al., 2021).

In the context of the Philippines, the negative effects of the pandemic on children's subjective well-being, SWB (Malolos et al., 2021), and college students' well-being were explored (Valladolid, 2021). Yet, more insights are needed, particularly comparing factors at different societal levels. Therefore, this paper uses a multi-level approach to investigate youth well-being with self-reported measures. This approach ranges from the core level of individual happiness, alternative schooling experiences, household situations, and community conditions to the level of government agencies. Using this approach, we aim to answer the extent to which multiple localities differ regarding youth happiness and students' perceptions of elevating their well-being during the COVID-19 pandemic in the context of Iloilo Province. In doing so, we enrich the literature on youth well-being in the Philippines and Southeast Asia during a prolonged calamity like COVID-19 by offering a holistic approach and presenting implications for theory and policy.

Empirical data were gathered through a survey

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of 212 respondents in five municipalities in the Iloilo province in 2022. We analyze the answers to open-ended questions using systematic content analysis. Another part of our inquiry is aimed at probing students' well-being by researching spatial and socioeconomic differences and alternative learning environments (Casinillo, 2022).

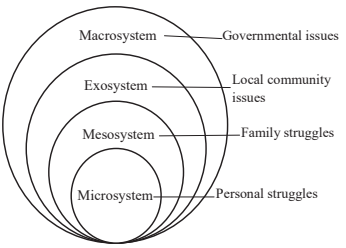
The next section discusses the theoretical background, followed by methodology and an overview of Iloilo Province. The fourth section presents the results of the content analysis and statistical analyses. The final sections offer a conclusion with the study's main findings, discuss the benefits of our multi-level approach, and put forward further research directions and policy implications for the Philippines and beyond.

2.0 Subjective Well-Being and the Multi-Level Paradigm

Although the phenomena of happiness or well-being have been discussed since ancient times (Diener, 1984), the concept of SWB was developed later. Diener (1984) wrote that earlier studies focused on a social framework in which happiness was measured by corresponding social standards. Subsequently, studies developed more on a subjective perspective, which defined it as an individual achieving their goals. This led to further SWB studies. Diener and Ryan (2009) view SWB as "an umbrella term used to describe the level of well-being people experience according to their subjective evaluation of their lives" (p. 391). In this regard, they suggest that understanding SWB is a key element that elevates an individual's living conditions and throws light on an individual's position within society. Other studies also point to the relevance of subjective and emotional well-being in analyzing youth development and the important role of age (Park, 2004; Mordeno et al., 2019; Ji et al., 2022; Cha & Yoo, 2024). Since the COVID-19 pandemic was a global phenomenon, many scholars in different disciplines have studied the relationship between the pandemic and SWB. For example, Suzuki et al. (2020) focus on the SWB of elderly groups in terms of the limitations placed on physical activities in Japan. Huang and Zhang (2022) investigated perceived social support and SWB among Chinese college students. Also, for the Philippines, various target groups have been selected (e.g., Valladolid, 2021). However, more studies on youth development during the pandemic are necessary to prepare them better for the future.

To fill this gap, this paper adopts Bronfenbrenner's (1979) multi-level paradigm outlined in *The Ecology of Human Development* to investigate youth SWB from the individual level to their broader external environment level (Figure 1). A multi-level approach is critical to investigating youth well-being since an individual's well-being is not solely about the score the person reports on the happiness scale but also about what reflects that score (Ng & Fisher, 2013). We collected schooling experiences during the pandemic as our main factors because the event of the COVID-19 pandemic amplified educational inequalities due to school closures. González and Bonal (2021) emphasize the widening of existing socioeconomic inequalities due to school closures. This is due to the parental capabilities to manage homeschooling and digital access. Scholars like Van Dijk (2020) had already pointed to the digital divide and socioeconomic inequalities before the pandemic, observing that lacking digital literacy and digital access to both the Internet and devices is the vicious cycle of loss of opportunities that fuels inequality. Therefore, we also included digital divide factors, such as access to the Internet and the quality of the Internet at home and outside. Contextual factors such as geography can also be key factors in understanding SWB because they influence the evaluation of one's well-being. Since economic, living conditions (Balisacan, 2003; Laguador, 2021), and education inequalities (Mesa, 2007) are prevalent within various provinces in the Philippines, the possible correlation between youth well-being and spatial differences will be explored in this paper, focusing on urban areas and rural, more peripheral municipalities. In other words, it investigates whether spatial inequality impacts youth well-being during the pandemic.

Figure 1
Research conceptualization adopting Bronfenbrenner's (1979) multi-level paradigm



3.0. Methodology

Research design. This paper adopts Bronfenbrenner's (1979) multi-level paradigm to investigate youth SWB from the individual level to wider levels. As outlined above, a multi-level approach is critical to investigate youth well-being. Thus, this paper encompasses multi-level factors of youth well-being, such as socioeconomic status, pandemic learning gaps, and geographical differences.

Research area. Iloilo Province was chosen for two reasons. The second author has conducted a

lot of research in this province and is familiar with the socioeconomic context. Also, existing networks facilitated a smooth process for hiring research assistants and conducting the survey. The second reason is that Iloilo Province was average in terms of poverty dynamics before the pandemic. In 2018, the poverty incidence among families was 12.1% – the same as for the Philippines on the whole and similar to the poverty rate of 11.9% in the Western Visayas (Region VI) (Philippine Statistics Authority [PSA], 2023). Iloilo Province is one of the six provinces in this region. It is situated on the eastern part of Panay Island and is inhabited by approximately 2.5 million people, according to the 2020 census (Province of Iloilo, 2022). Four hundred fifty-eight thousand people live in the capital Iloilo City. In recent decades, the province has evolved from a predominantly agricultural economy (rice, corn, fruit, livestock, poultry, fish) to a more diversified economy, including IT-Business Processing Outsourcing (call centers, etc.), English language teaching for foreigners, as well as a remittance economy, including real estate, shopping, and entertainment (e.g., before the pandemic there had been a direct flight connection to Singapore).

As was true of the Philippines in general, poverty decreased between 2015 and 2018, but the situation deteriorated afterward due to the pandemic and economic crisis. In Iloilo Province, the poverty rate rose to 12.6% in 2021, both in the rural areas (14.1% to 14.5%) and in Iloilo City (2.3 % to 3.3%; unfortunately, official estimates for 2022 are not yet available) (PSA, 2023). At the beginning of the pandemic, Iloilo City managed to weather the crisis relatively well (Talabong & Espina, 2020), but in 2021, it also experienced many infections (Marzan, 2022). The downside of the relatively early crisis management and lockdown possibly meant the quick closure of schools and subsequent surfacing of learning gaps (ABS-CBN News, 2022), as we will elaborate below. There was an increase in poverty not only in relative terms but also in absolute numbers: in rural Iloilo, poor families rose from 66,730 to 73,350, and in Iloilo City, they rose from 2,250 to 3,350 (PSA, 2023). With respect to education, the pandemic led to school closures between March/April 2020 and August 2022, which was called "one of the longest shutdowns" in the world (Lena, 2022; Al Jazeera). In our empirical analysis, we sought to connect youth well-being, rural vs. urban residence, socioeconomic status, access to the Internet, and learning challenges at different levels.

Respondents and sampling technique. Iloilo Red Cross volunteers collected the semi-structured survey data from the 1st to the 14th of February 2022, in five municipalities in Iloilo Province, including its capital, Iloilo City. The total number of participants was 212, mostly high schoolers and college students (Appendix 1). The questions were constructed to collect multi-level information that provides individual, parental, environmental (living environment), and governance conditions during the pandemic. For example, data on socioeconomic status were collected through questions about parental employment, family home -, car -, motorbike ownership, and phone plan[1]. Data on learning challenges were collected through questions about internet connection and quality. In this regard, the survey asked for binomial (Yes/No) answers and offered open-format responses. A non-probability convenience sampling technique was used to ensure a balanced geographical distribution. In terms of age, the priority was to talk to youth aged 16 to 20 in five different municipalities. This unique and rare dataset enables an investigation of youth SWB of geographical differentiation (Iloilo City vs. four peripheral municipalities) during the pandemic. All the answers are student-self-reported. As such, the outcomes in our analysis are based on perceptions and experiences.

After the fieldwork, we prepared the data in three ways in order to facilitate the statistical analyses: First, a five-digit identification number (ID) was given to each participant by city/municipality of residence (first number), school of attendance (next two numbers), and j_{th} individual in that school on the data list (last number). As Iloilo City is the capital of the province, it was categorized as 1. The other municipalities were given 2, 3, 4, and 5 in alphabet order: 2 for Barotac, 3 for Dumangas, 4 for Miagao, and 5 for Zarraga (see the appendices for more details on the statistical tests). Second, the survey answers were coded 0 or 1 for binary and orderly numbers for ordinal values. For example, an answer with Yes or No was coded directly to 1 or 0. The questions with ordinal answers such as unhappy, neutral, and happy were assigned 0, 1, and 2. Third, some of the respondents answered in Tagalog or Hiligaynon. Tagalog submissions were translated using Google Translate, and Hiligaynon was translated using Glosbe.

Data collection and analysis. The data collection aimed to obtain insights into schooling experiences during the pandemic. Multi-level factors related to youth SWB were analyzed with open-answer questions incorporating two separate analyses. First, coding processes for descriptive analysis were performed with five open-answer questions: 1."How has the COVID-19 pandemic made your schooling more difficult?"; 2. "What have you missed the most during the COVID-19 pandemic?"; 3. "How has the COVID-19 pandemic made life more difficult for your parents?"; 4. "To improve the quality of life for

children and families in your barangay (lowest level administrative unit in the Philippines), what should be improved?"; and 5. "In the future, your family will be happier, and if yes why?". Second, urban scale differences in student well-being were performed using logistic regression. Binary dependent variables (Iloilo City=1, others (Barotac Viejo, Dumangas, Miagao, and Zarraga=0) are regressed with coded responses as explanatory variables. Four logistic regression models were analyzed for each question: model (1) with the majority codes without school cluster; model (2) with the majority codes with school cluster; model (3) with adding more explanatory variables without school cluster; model (4) with adding more explanatory variables with school cluster. Performing four models enabled robustness checks since the 212 students attended 47 different schools in five study areas. As such, the clustering option on STATA (syntax code vce [cluster school]) was performed because it "relaxes the independence assumption and requires only that the observations be independent across the clusters." (StataCorp., 2021, p 50).

In addition, we also performed an ordered logistic regression analysis. An ordered logistic model is a proper regression method when the dependent variable is ordered categorical, such as quality of life questions (Grilli & Rampichini, 2014). With this model, the factors correlating with students' current happiness were investigated. The explanatory variables are mixed with binary, categorical, and ratio variables, such as gender, age, economic status, internet access and quality, school performance, etc.

Before performing the regression, the data was reconstructed due to missing values. First, the 21 observations with missing values in the dependent variable, current happiness, were excluded. As such, the ordered logistic regression was performed with 191 observations, excluding 21 from the total observation of 212. Second, the missing values in the variable of COVID parent life (3), COVID schooling (2), car ownership (1), and hopefulness (80 no response and three answers with "depends") were coded as 0. Third, Little's Missing Completely At Random (MCAR) test was performed to test if the missing values show any patterns. The results[2] revealed that the missing values occurred "missing completely at random," and no further treatments were performed. The final model includes only the variables that do not violate multicollinearity, the ordered logistic regression assumption, and the proportional odds assumption. The multicollinearity was checked with VIF, and the tolerance value (1/VIF) was greater than 0.2.

Ethical consideration. The fieldwork in this contribution forms part of a wider project on rural inequality in Southeast Asia. The institutional review board of the second author's employer approved the research proposal, fieldwork plan, and proposed measures for completing the research ethically. Throughout the project, we have sought to safeguard the privacy of respondents, who always answered voluntarily.

4.0. Results and Discussion

Multi-level effects of COVID-19 on youth well-being

Personal Level. Personal struggles during the pandemic were investigated with two survey questions: "Did COVID-19 make your schooling more difficult?" and "What have you missed the most during the COVID-19 pandemic?" With respect to the former, the majority of the answers were indications of difficulty due to learning gaps (141 students). Communication difficulties with teachers, lack of in-person interaction during class, and lab work difficulty were among the reasons for learning inefficiency. Limited internet connection was the second highest, as 29 respondents expressed this. As minor responses, distraction at home (the third highest with 11 responses) and adjusting to a new routine were mentioned. Interestingly, 13 students answered that the pandemic did not make their schooling more difficult. The most frequent reason given in the "No" response (four students) was learning efficiency, expressed as "because I find it more effective to understand lessons in online class" (ID 21301).

Logistic regression was performed to examine the statistical differences between the main urban and the periphery municipalities. Four models are applied to identify the best model to explain the investigation as mentioned in the previous section of Content Analysis: Descriptive Analysis & Logistic Regression model (1) with two main variables, model (2) with clustering by the school, the *distraction* variable added in models (3) and (4), but model (4) with the cluster function (Table 1). The models are correctly classified by 81.14%. Put differently, 81.14% of the results are correctly predicted by the models. However, the link test for examining model specification indicates a significant hat square score (*p-value* 0.046), which means that models (1) and (2) are misspecified. Therefore, the outcomes of the logistic regression are interpreted with models (3) and (4). According to the logistic regression results, geographical differences appeared regarding the *learning (in)efficiency* and *distraction* variables. These two variables have a statistically significant relationship with the dependent variable – residing in Iloilo City or not. Students in the city are more likely to express these

two variables than those living in the other peripheral municipalities by statistically significant levels with models (3) and (4). However, no differences are found in expressing internet connection. To be more precise, based on model (4), the respondents who expressed an issue with learning efficiency indicated a probability increase of 25.6 percent residing in Iloilo City, with the other two variables set at their mean values. In other words, there is a 25.6 percent higher probability of the students in the city expressing learning efficiency issues than those in the periphery municipalities.

Table 1
Logit regression results of geographical investigation regarding schooling difficulty; personal level Iloilo City vs. others

Variable	Model (1)	Model (2) with clustering	Model (3)	Model (4) with clustering
learning efficiency	.165	.165	1.73	1.73
	(0.25)	(0.24)	(1.78)*	(2.17)**
Internet connection	-.022	-.022	.878	.878
	(-0.03)	(-0.03)	(1.24)	(1.29)
distraction			2.434	2.434
			(2.25)**	(3.54)***
Constant	-1.594	-1.594	-3.245	-3.245
	(-1.94)*	(-2.31)**	(-3.26)***	(-3.75)***
Pseudo r-squared	0.001	0.001	0.032	0.032
Akaike crit. (AIC)	175.333	175.333	172.043	172.043
Bayesian crit. (BIC)	184.828	184.828	184.702	184.702

*** *p<.01,* ** *p<.05,* * *p<.1.* The z-score is in the parenthesis.

Family Level. The family struggles of respondents were investigated by asking about the impact of the pandemic on their parents' lives. One hundred two respondents (47%) indicated financial and work instability for their parents. In contrast, 14 students indicated that there had been no impact on their parents due to their parents having stable jobs. Additionally, students expressed that their parents experienced stress concerning the pandemic restrictions (16%), health concerns (8.7%), and added workloads (5.5%). Three respondents mentioned that the pandemic helped their parents financially because of the reduction in their allowance spending. On the other hand, two respondents mentioned that online learning added more financial burden on their parents (Agaton & Cueto, 2021). According to the four models, six no geographical differences emerged in relation to parental hardships during the pandemic (Table 2). That is to say, there was no difference in the experiences of parental struggles mentioned between the main urban area and the four more peripheral municipalities.

Neighborhood and Governmental Level. Moving from the individual environments to the external ones, we asked the respondents about what could be improved in their barangay and within the government. The community level was analyzed by asking, "To improve the quality of life for children and families in your barangay, what should be improved?" This question yielded a variety of responses. Also, many students (90) did not provide any answers. At the local community level, environmental issues were addressed the most (12%), such as water, sewage, and garbage disposal systems. Additionally, discipline (11%), cooperation (8.3%), and activities (5.4%) were mentioned as factors that could improve the quality of life in their community. Beyond the local environments, government-level issues were also addressed, such as improving the education and healthcare systems (8.6% each), safety (5.8%), and infrastructure (3.3%). In terms of the geographical differences, statistical analysis[7] indicates that environmental issues are more likely to be pointed out by Iloilo City respondents (90% confidence level in the model [1], 95% confidence level in the model [2]). However, models (3) and (4) indicate different results, namely that the environment variable is no longer significant, but healthcare is at a 90% confidence level with a negative sign.

To break that down, models (1) and (2) indicate that the probability of being a student from Iloilo City increases by 12.1% when such a respondent addresses environmental issues. In other words, students from the city consider environmental issues more than respondents from other periphery municipalities. Models (3) and (4) show that a student from Iloilo is less likely to express concerns about healthcare issues than the other four municipalities. Respondents who expressed concerns about healthcare issues indicated that the probability decreased by 16.7 for residents of Iloilo. Although there is no significant difference between the nested (models [1] and [2]) and full (models [3] and [4]) models by log-likelihood test, models (1) and (2) are more suitable for providing statistical interpretation. This is because models (1) and (2) are considered to perform better when compared to the Akaike Information Criterion (AIC) and Bayesian information criterion (BIC). Comparing values of AIC and BIC among models can identify a better-fitted model. (Table 3). As another well-being indicator, students were asked about their hopefulness in the future. The logistic regressions[8] show no

Table 2
Logit regression results of geographical investigation regarding family struggles – family level

Iloilo City vs. others	Model (1)	Model (2)	Model (3)	Model (4)
Financial work stability	.486	.486	1.351	1.351
	(0.76)	(0.79)	(1.44)	(1.18)
Covid restrictions	-.028	-.028	.518	.518
	(-0.04)	(-0.04)	(0.68)	(0.73)
Health concerns			1.176	1.176
			(1.22)	(1.02)
Constant	-1.828	-1.828	-2.739	-2.739
	(-2.96)***	(-3.11)***	(-2.87)***	(-2.45)**
Pseudo r-squared	0.007	0.007	0.016	0.016
Akaike crit. (AIC)	159.327	159.327	159.905	159.905
Bayesian crit. (BIC)	168.552	168.552	172.206	172.206

*** *p<.01,* ** *p<.05,* * *p<.1.* The z-score is in the parenthesis.

Table 3
Logit regression results of geographical investigation regarding environments – local community and government level

Iloilo City vs. others	Model (1)	Model (2) w/clustering	Model (3)	Model (4) w/clustering
Environment	.933	.933	.474	.474
	(1.71)*	(1.98)**	(0.77)	(0.93)
Discipline	-.074	-.074	-.652	-.652
	(-0.11)	(-0.11)	(-0.81)	(-0.97)
Education	-.071	-.071	-.465	-.465
	(-0.10)	(-0.07)	(-0.58)	(-0.50)
Healthcare	-.937	-.937	-1.384	-1.384
	(-1.15)	(-1.17)	(-1.59)	(-1.78)*
Cooperation	-.17	-.17	-.666	-.666
	(-0.24)	(-0.25)	(-0.80)	(-0.78)
Job Opportunity			-.192	-.192
			(-0.25)	(-0.39)
None			-1.752	-1.752
			(-1.38)	(-1.42)
Safety			.076	.076
			(0.09)	(0.11)
Activities			-1.14	-1.14
			(-1.02)	(-0.94)
Governance			-1.252	-1.252
			(-1.07)	(-1.08)
Constant	-1.699	-1.699	-.813	-.813
	(-3.76)***	(-3.94)***	(-1.11)	(-1.21)
Pseudo r-squared	0.046	0.046	0.087	0.087
Akaike crit. (AIC)	110.024	110.024	115.842	115.842
Bayesian crit. (BIC)	126.441	126.441	145.940	145.940

*** *p<.01,* ** *p<.05,* * *p<.1.* The z-score is in the parenthesis.

Table 4
Logit regression results of the geographical investigation regarding hopefulness

Iloilo City vs. others	Model (1)	Model (2) w/clustering	Model (3)	Model (4) w/clustering
Family	.307	.307	.929	.929
	(0.42)	(0.57)	(0.57)	(0.55)
PandemicOver	1.059	1.059	1.669	1.669
	(1.45)	(1.43)	(1.03)	(0.91)
LiftingFamilyBurden	-.182	-.182	.5	.5
	(-0.20)	(-0.20)	(0.28)	(0.24)
Persistence			-.125	-.125
			(-0.06)	(-0.06)
Undefined Positivity			1.215	1.215
			(0.82)	(0.85)
Constant	-1.833	-1.833	-2.514	-2.514
	(-3.40)***	(-2.79)***	(-1.55)	(-1.27)
Pseudo r-squared	0.033	0.033	0.056	0.056
Akaike crit. (AIC)	93.559	93.559	95.545	95.545
Bayesian crit. (BIC)	103.690	103.690	110.740	110.740

*** *p<.01,* ** *p<.05,* * *p<.1.* The z-score is in the parenthesis.

geographical differences among these responses (Table 4).

These outcomes provide interesting discussion points. First, based on earlier studies, we expected that the students from the more peripheral areas would complain more frequently about the quality of the Internet, lack of finance, and environmental conditions. One possible reason is the nature of individual perceptions. Subjective reporting might reflect differences individuals perceive vis-a-vis their peers in the neighborhood, not between municipalities. Also, it could be related to socioeconomic improvements and reduced poverty levels between 2015 and 2018, as pointed out earlier. Overall living standards during the pandemic were perhaps higher than in 2015, but further research is necessary because rural poverty levels were well above the level in Iloilo by 2021 (14.5% versus 3.3%). Second, the results regarding current happiness indicate different outcomes compared to previous empirical studies. Our study did not find a positive relationship between the number of family members and well-being, as Diener and Biswas-Diener (2011) found. The results might have been caused by the special, unprecedented circumstances of the prolonged lockdown affecting all individuals (Lee et al., 2020).

Economic Status and Current Happiness. Current happiness as the dependent variable indicates significant relationships with two explanatory variables: home and motorbike ownership (Table 5). These two factors suggest that the family's economic status correlates with the current happiness status during the pandemic. Specifically, the category *unhappy* shows a predicted probability of 0.13 without home ownership and a probability 0.05 with home ownership. Put differently, the probability of being in the unhappy category is higher when the respondent's family does not have home ownership. The category of *neutral,* unsurprisingly, shows similar probabilities between with (0.53) and without (0.65) home ownership. This means that the probability of being in the neutral category is similar to having a home ownership or not. The category of *happy* indicates that the predicted probability of not having home ownership is 0.22, and 0.42 for having home ownership. To elaborate, the respondents' families who have home ownership show a higher probability of being in a *happy* category compared to those who do not (Table 6). These results clearly show that current happiness correlates positively with home ownership.

Table 5
Ordered logistic regression results of current happiness and the significant predictors

Current Happiness	Outcomes
homeownership	.9533647
	(2.43)**
motorbike ownership	-.7135255
	(-2.14)**
_cut1	-.95183 1.772812
_cut2	2.224551 1.779244
Prob > chi2	0.0517
Pseudo r-squared	0.0753
Log likelihood	-160.78585

*** *p<.01,* ** *p<.05,* * *p<.1.* The z-score is in the parenthesis.

Table 6
Results of ordered logistic regression at margins for the explanatory variable home ownership (Delta method)

Current happiness	Outcome (1): unhappy	Outcome (2): neutral	Outcome (3): happy
1 (no home ownership)	0.1305	0.6519	0.2176
	(3.05)	(14.4)	(3.59)
2 (home ownership)	0.0547	0.5262	0.4191
	(3.46)	(13.05)	(9.87)

The z-score is in the parenthesis.

5.0. Conclusion

We investigated youth well-being during the COVID-19 pandemic in Iloilo Province using a two-pronged multi-level approach. First, we analyzed youth experiences regarding geographical differences between Iloilo City and more peripheral municipalities. Second, youth happiness was investigated using multi-level factors. At the personal level, students struggled the most with sup-optimal learning experiences and the lack of social connections. At the family level, financial and work stability were the biggest concerns. At the community level, environmental conditions in their village (barangay) appeared to be a big part of respondents' concerns about well-being. And finally, at the government level, students mentioned a lack of educational alternatives. In terms of the statistical analysis, there are generally no geographical differences regarding parental struggles. Interestingly, however, the students from Iloilo City more often addressed learning inefficiency, distractions at home, and environmental conditions according to the logistic regression results.

6.0. Limitations of the Findings

We could not further investigate the reasons behind significant learning inefficiency, distraction at home, and environmental conditions in Iloilo City. As such, we cannot precisely clarify whether these outcomes arose due to objective differences in learning circumstances and environmental conditions or rather reflect perceptions. Another limitation is that this study is restricted to one province. Despite these limitations, we have been able to contribute to the literature on youth SWB and educational challenges.

7.0. Practical Value of the Paper

Our findings suggest a clear need for government agencies and civil society to improve educational management and financial relief in the face of prolonged calamities. One option is to consider establishing temporary (boarding) schools during a prolonged calamity for students who lack access to conventional schooling, electricity, and/or proper internet access (International Relief Teams, 2016; Their World, 2019). Government agencies or NGOs could consider establishing such schools for six months or one year to ensure educational continuity for children who otherwise cannot enjoy regular education. Another option is to experiment more with flexible, hybrid (offline and online) models of education including printed modular distance learning (Talimodao & Madrigal, 2021; Ecang & Petalla, 2022). The pandemic and increasing climate change impacts, like typhoons and floods, will require us to think through flexible solutions to ensure that disadvantaged Southeast Asian groups do not fall behind.

8.0. Directions for Future Research

Further research could delve more precisely into the nature of perceptions. How do respondents form perceptions of learning circumstances, and how do these perceptions compare to available statistical indicators of the quality of education and youth happiness? Also, since the Philippines is known to contain substantial socioeconomic differences between provinces (Balisacan et al., 2009; Tuaño & Cruz, 2019), it would be worthwhile to expand our methodology to other provinces. This will also provide more insights into spatial and urban-rural differences pertaining to perceived parental struggles (Serra-Labrador, 2022), distractions at home, and associated learning inefficiencies.

9.0. Declaration of Conflict of Interest

The authors declare no conflict of interest.

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Notes:

1. The phone plan and car ownership variables are not included in the final analysis due to large missing values and a model specification issue. Therefore, other socioeconomic indicators such as home ownership, motorcycle ownership, and parents' employment status were only used to investigate current happiness with the ordered logistic regression.
2. The result shows insignificant Prob > chi-square (.1566) with 134.5263 Chi-square distance and 119 degrees of freedom.
3. Approximate likelihood-ratio test of proportionality of odds across response categories: chi2(16) = 14.2, Prob > chi2 = 0.5824.
4. The link test results indicate that the model is a good model by significant hat value (p-value =0.027) and correctly specified by insignificant hat square value (0.465).
5. The models are correctly specified with the insignificant hat square (p-value 0.87 for models [1] and [2]; 0.22 for models [3] and [4]). The models correctly predict 82. 44%. There are no multicollinearity issues with VIF and tolerance value check.
6. The models are correctly specified with the insignificant hat square (p-value 0.29 for models [1] and [2]; 0.34 for models [3] and [4]). The models correctly predict 81. 25%. There are no multicollinearity issues with VIF and tolerance value check.
7. The models are correctly specified with insignificant hat square value (p-value 0.81 for models [1] and [2]; p-value 0.08 for models [3] and [4]). The models correctly predict 83.33%. No multicollinearity is detected.
8. The models are correctly specified with insignificant hat square value (p-value 1.00 for models [1] and [2]; p-value 0.71 for models [3] and [4]). The models correctly predict 81.72% for models (1) and (2) and 82.80% for models (3) and (4). No multicollinearity is detected.

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