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# Transition to Limited Face-to-Face Classes during the COVID-19 Pandemic: Challenges Met and Lessons Learned towards Implementing Continuous Quality Improvement

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## ABSTRACT

This exploratory sequential mixed methods research sought to determine how the school administrators, teachers, staff, and students of Iligan Medical Center College (IMCC) continuously implement quality improvement practices despite the challenges attributed to the transition to limited face-to-face classes during the COVID-19 pandemic. In the qualitative phase of the study, a total of 16 participants were selected through purposive sampling (four school administrators, four faculty members, four staff, and four students), reflective of a diversity of academic disciplines and departments. Themes generated in the qualitative phase were used as input for the creation of a quantitative instrument to explore the research problem further. In the quantitative phase, an online survey was conducted among 22 school administrators, 87 teachers, 24 staff members, and 458 students from September to October 2022 using the Google Form platform. Results indicate that IMCC continues to implement quality improvement practices during the transition to limited face-to-face classes, although quality planning involvement among teachers, staff, and students should be strengthened. The respondents faced challenges and gained lessons in the transition to limited face-to-face classes, primarily on management and oversight, institutional policies and protocols, and engineering controls. Regression analysis revealed that poor maintenance, cleaning, sanitation, and disinfection, inadequate supply of sanitation products, and poor screening or triage system have a negative effect on the overall quality improvement implementation among school administrators, faculty members, staff, and students. Recommendations highlighted the importance of these critical factors to implement quality standards despite the COVID-19 pandemic continuously.

**KEYWORDS:** challenges; face-to-face classes; quality improvement; transition

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## 1. Introduction

In response to the COVID-19 pandemic, higher education institutions (HEIs) worldwide had to abruptly close in late March 2020 to prevent its spread [1,2]. This

closure led to a shift in the learning approach to a more flexible mode, instructional delivery changes, and school leadership modifications [3,4]. Although flexible learning is considered the safest and most suitable method during this time, specific courses may still require face-to-face interaction [5]. To address this, the Commission on Higher Education (CHED) and the Department of Health (DOH) in the Philippines jointly issued a memorandum allowing limited face-to-face classes in HEIs [6]. This type of class involves restricting the number of students attending in-campus face-to-face sessions based on the guidelines set by CHED and DOH. The transition to limited face-to-face classes presented significant challenges for HEIs as they strived to maintain their operations while adhering to government health protocols [6]. As a result, these institutions faced considerable difficulties in ensuring educational quality amid these times of transformation.

Iligan Medical Center College (IMCC) is one of the HEIs in the Philippines that were allowed by CHED to safely reopen for the conduct of limited face-to-face classes last January 2022. Before the approval, IMCC was already given the authority to conduct limited face-to-face classes and internships for all undergraduate medical programs, namely, Nursing, Medical Technology, Midwifery, and Radiologic Technology. For the past nine months, the implementation of limited face-to-face classes across all programs of the said institution was challenged due to the stringent health protocols that need to be followed by the teachers, staff, and students. It was observed that teachers found difficulty in delivering face-to-face classes due to plastic barriers and limitations on the learning activities, assessments, and strategies that require group collaboration.

While challenges arise due to the implementation of limited face-to-face classes, the school strives to implement continuous quality improvement, specifically on improving leadership practices, quality planning involvement of teachers, staff, and students, and satisfaction of the customers such as students [7,8]. A previous study conducted by the researchers found that quality improvement implementation in IMCC during the COVID-19 pandemic can be predicted by organizational, teacher, and administrative factors based on the students' perception [9]. The same study concluded that developing a consistent and stringent curriculum and using increased collaborative time to discuss curriculum among the school community members would improve the implementation of continuous quality practices. In addition, teachers can play a significant factor in improving the quality improvement implementation culture of the school by assessing students' data continuously to monitor progress. Finally, the study believed that school leaders could aid in developing quality improvement implementation by allowing teachers to participate in INSET seminars and training involving the effective utilization of flexible learning technology.

Grounded in the previous study, the present study sought to determine how the school administrators, faculty members, staff, and students of IMCC continuously implement quality improvement practices despite the challenges attributed to the transition to limited face-to-face classes during the COVID-19 pandemic. In addition, it sought to explore the challenges and lessons the school administrators, faculty members, staff, and students face and learn, respectively, in the implementation of continuous quality improvement practices. Finally, it aims to determine how these

challenges influence the implementation of continuous quality improvement among school administrators, faculty members, staff, and students.

## **2. Methodology**

### *2.1 Study Design*

This study utilized an exploratory sequential mixed methods research (MMR) design to broadly explore and understand the challenges met and lessons learned towards implementing continuous quality improvement during the COVID-19 pandemic, specifically in the transition to limited face-to-face classes, among school administrators, faculty members, staff and students in Iligan Medical Center College, a CHED-recognized private institution in Iligan City, Philippines. The said institution has nine colleges, namely, College of Arts and Sciences, College of Business Administration, College of Computer Studies, College of Criminology, College of Education, College of Hospitality and Tourism Management, College of Medical Technology, College of Nursing and Midwifery and College of Radiologic Technology.

In the exploratory design used, qualitative data were first collected and analyzed, and themes were used as input for the creation of a quantitative instrument to further explore the research problem. Using the design, three stages of analyses were conducted: after the primary qualitative phase, after the secondary quantitative phase, and at the integration phase that connects the two strands of data and extends the initial qualitative exploratory findings. This paper reports on the final integration phase of the research.

### *2.2 Participants*

In the qualitative phase of the study, a total of 16 participants were selected through purposive sampling (four school administrators, four faculty members, four staff, and four students), reflective of a diversity of academic disciplines and departments. In the quantitative phase, an online survey was conducted from September to October 2022 using the Google Form platform. The online survey form link was shared using the institutional email of the school administrators, faculty members, staff, and students. The respondents of the online survey were selected if they fulfill the following inclusion criteria: (1) they should have at least one semester of experience in attending limited face-to-face classes during the COVID-19 pandemic in the HEI under study, and (2) they should agree to participate in the study by electronically signing the informed consent. Of the 2,690 total population, only 1,342 met the criteria. Following convenient sampling, the questionnaires were sent through the institutional emails of the eligible respondents. A sample of 591 usable responses was obtained, resulting in an overall response rate of 44%. The sample consisted of 22 school administrators (3.72%), 87 teachers (14.72%), 24 staff members (4.06%), and 458 students (77.50%). The respondents were from various undergraduate programs and non-teaching departments. An ethics review approval from IMCC institutional ethics review board was sought before conducting the study on human participants.

### *2.3 Research Instrument and Data Collection*

In the qualitative phase of the study, a semi-structured in-depth interview was conducted among the participants. An interview protocol was used to guide the semi-structured interviews, using the total quality management theory of Hackman and Wageman [10]. The focus of the interviews was on continuous quality improvement implementation in the aspects of leadership, quality planning involvement, and satisfaction in the areas of faculty, instruction, laboratories, research, library, student services, social orientation and community involvement, physical plant, and facilities, and the organization and administration, as well as the challenges met and lessons learned in the implementation of continuous quality improvement during the COVID-19 pandemic specifically in the transition to limited face-to-face classes.

Data from the qualitative phase were used to develop a survey instrument for the quantitative phase of the study. The survey measured the following dimensions: continuous quality improvement implementation in the aspects of leadership, quality planning involvement, and satisfaction in areas mentioned above and the extent of challenges met and lessons learned. Questions were built from the salient themes that emerged from the qualitative data analysis, and used the total quality management theory of Hackman and Wageman [10] as a conceptual underpinning to evaluate the continuous quality improvement implementation practices of the respondents. The 45-item questionnaire was rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To establish the content validity of the survey questionnaires, an expert review panel, consisting of five academicians, reviewed the items described in the tool.

On the other hand, all of the 16 participants in the qualitative phase were asked about the clarity and readability of the items in the questionnaire. Afterwards, they were asked to comment on the flaws observed in the tool. A total of 5 school administrators, 20 teachers, five non-teaching staff, and 30 students participated in the pilot survey to establish the face validity and logical ordering of the questions stated in the tool. This process allowed the researchers to examine items that might be omitted or overrepresented in the data collection process. The survey tool was modified according to the expert panel review and pilot survey findings.

The pilot test revealed the instrument reliability score of the survey questionnaire as described by the computed Cronbach alpha coefficient. To be considered reliable, the tool should obtain at least 0.7 Cronbach alpha score. Based on the results of the pilot test conducted, a Cronbach alpha of 0.92 was calculated; therefore, the instrument was considered reliable.

### *2.4 Data Analysis*

Data analyses in the qualitative and quantitative phases were separately conducted. In the qualitative phase, the analysis of qualitative data was executed in the following order using the NVivo software: transcription of recorded interviews, exploration of the transcribed data, data reduction, and construction of themes. For easier presentation, the thematic statements with their respective themes were tabulated. Specifically, the gathered data from interviews and discussions were transcribed from audio recording

to encoded text. To ensure the accuracy of transcription, the transcribed data was proofread by a professional transcriptionist. Since the interviews used the preferred language of the participant, the researchers translated the transcribed text into English. During the exploration of transcribed data and data reduction, the similarities, differences, and patterns that emerged from the experiences of the participants were grouped. Other emerging themes not included in the formulated cluster of thematic statements were also noted. The analyzed data and constructed themes were reviewed by other researchers, the research director, and the participants themselves to strengthen the reliability.

The collected quantitative data were analyzed using SPSS version 21 software. Descriptive and inferential statistical tools were used to analyze the variables. Descriptive statistical tools used include frequency, percentage, mean (M) and standard deviation (SD). Descriptive statistical tools were utilized to describe the continuous quality improvement implementation in the aspects of leadership, quality planning involvement, and satisfaction and extent of challenges met and lessons learned. Pearson-r correlation and multiple linear regression were used as inferential statistical tools. Multiple linear regression was used to determine the influence of the challenges met by the school administrators, faculty members, staff, and students on their implementation of continuous quality improvement during the COVID-19 pandemic, specifically in the transition to limited face-to-face classes. A p-value of less than 0.05 was considered significant.

### **3. Results and Discussion**

In order to fully address the research objectives, interpretation-level integration occurred, connecting the qualitative data from phase one of the study with the quantitative data from phase two of the study using a joint display (Tables 1-2). A joint display allows data to be visually brought together to “draw out new insights beyond the information gained from the separate quantitative and qualitative results”. As seen in Table 1, sample quotes from the qualitative interviews were compared and contrasted to results from the statistical analyses of the survey data. Points of contention and areas of convergence between the qualitative and quantitative phases were dissected in the final analysis phase in order to form meta-interferences, or an overall understanding developed through integration of data strands. The connected data were interpreted within the scope of the study’s research questions (RQs).

Evidence from both the qualitative and quantitative strands confirms good leadership practices employed by the school leaders during the COVID-19 pandemic, specifically in the transition to limited face-to-face classes (Table 1). Independently, both strands of data indicate that the respondents are highly satisfied with the faculty, instruction, laboratories, research, library, student services, social orientation and community involvement, physical plant and facilities, and the organization and administration offered by the school. Meanwhile, a poor involvement among teachers, staff, and students in the quality planning programs of the school was noted in both strands of data.

The quantitative research respondents were directly asked to rate their level of difficulty with specific activities during the COVID-19 pandemic, specifically in the

**Table 1.** Joint display comparison of data from qualitative and quantitative strands for research question (RQ) 1.

Theme	In-Person Interviews	Survey
RQ1a: Continuous Quality Improvement Practices: Leadership	<p>“During the implementation of limited face-to-face classes in light of COVID-19 pandemic? The school administrators provide highly visible leadership in maintaining an environment that supports quality improvement. They allocated adequate organizational resources (e.g., salary, additional manpower, and equipment) to improve quality.”</p> <p>“The deans and department heads are the primary driving force behind quality improvement efforts.”</p>	<p>84.94% of the survey respondents (N=502) strongly agreed that the school leaders have articulated a clear vision for improving the quality of education and have demonstrated an ability to manage the changes (e.g., organizational, technological) needed to improve the quality of education in the transition to limited face-to-face classes during the COVID-19 pandemic.</p> <p>84.43% of the survey respondents (N=499) strongly agreed that school leaders have a thorough understanding of how to improve the quality of care and services.</p>
RQ1b: Continuous Quality Improvement Practices: Quality Planning Involvement	<p>“I think what was lacking was that employees were not given adequate education and training in how to identify and act on quality improvement opportunities since we were busy and excited in the transition to and implementation of CHED standards during the limited face-to-face classes.”</p> <p>“Job skills and performance were not assessed because I think heads are afraid of visiting the classrooms due to the risk of getting COVID-19.”</p> <p>“I felt a lack of support when I took necessary risks to improve quality.”</p>	<p>86.46% of the survey respondents (N=511) strongly disagreed that inter-departmental cooperation to improve the quality of services is supported and encouraged.</p> <p>87.99% of the survey respondents (N=520) strongly disagreed that the school has an effective system for employees, students, and other stakeholders to make suggestions to management on how to improve quality.</p>
RQ1c: Continuous Quality Improvement Practices: Satisfaction on faculty, instruction, laboratories, research, library, student services, social orientation and community involvement, physical plant and facilities, and the organization and administration	<p>“In all fairness to IMCC, the school did a good job of assessing current student needs and expectations. We’re not expecting to be given the chance to experience the limited face-to-face classes but the school is fast in applying to CHED.”</p> <p>“The transition to face-to-face classes was bombarded with a lot of problems in different facilities; however, the school employees promptly resolved the complaints and adjusted the facilities. Complaints were studied to identify patterns and prevent the same problems from recurring.”</p>	<p>In general, the satisfaction rating of the survey respondents on faculty, instruction, laboratories, research, library, student services, social orientation and community involvement, physical plant and facilities, and the organization and administration was 4.51, which means ‘Very high satisfaction’</p>

**Table 2.** Joint display comparison of data from qualitative and quantitative strands for research question (RQ) 2.

Theme	In-Person Interviews	Survey
RQ2a: Challenges Met and Lessons Learned: Management and Oversight	<p>“It was very difficult to manage the students, especially with the use of face masks. They are too many to manage. The guards could no longer check the students if they comply with the health protocols.”</p> <p>“In the classroom during vacant hours, students are not wearing their face masks. They cannot be managed anymore. They missed each other so much that they chit-chat without social distancing.”</p>	<p>84.77% of the survey respondents (N=501) strongly disagreed that there is an adequate manpower to oversee the implementation of and monitoring and evaluation of compliance with the minimum health standards mandated by CHED and DOH on the conduct of limited face-to-face classes</p>
RQ2b: Challenges Met and Lessons Learned: Institutional Policies and Protocols	<p>“One time, my friend got sick. He was still able to enter the school. The guard sometimes does not check the students. We were afraid of getting COVID-19. I suggest contact tracing should be strengthened.”</p> <p>“A lot of health protocols were posted on the walls; however, the majority of the students do not follow them. Students were very confident in not wearing face masks during breaks.”</p> <p>“One time, during the first week of class, we were arranged elbow-to-elbow in the class. It was too risky to get COVID-19.”</p> <p>“Most of the day, alcohol stands have no alcohol.”</p>	<p>79.02% of the survey respondents (N=467) strongly disagreed that screening and detection, containment, physical distancing, and lockdown protocols of the school are implemented</p> <p>83.25% of the survey respondents (N=492) strongly disagreed that predetermined seat plan, maximum venue capacity, and staggered break time are effectively implemented</p>
RQ2c: Challenges Met and Lessons Learned: Engineering Controls	<p>“The plastic barrier is not convenient for the teachers. It makes their way of teaching very difficult.”</p> <p>“The marks printed on the floor can be removed in a span of two to three weeks. After that, the students would no longer follow them.”</p> <p>“The school entrance personnel are not that strict in checking the compliance of students and employees to health protocols and in screening them.”</p> <p>“The supplies in the comfort rooms such as hand soaps and disinfectants are limited. There should be employees who will continuously check these important supplies for handwashing of the students.”</p>	<p>92.21% of the survey respondents (N=545) strongly disagreed that the foot traffic system is followed</p> <p>94.25% of the survey respondents (N=557) strongly disagreed that engineering controls to ensure physical distancing, adequate ventilation, physical hygiene, and environmental hygiene are observed</p>



transition to limited face-to-face classes, while qualitative participants were prompted to indirectly discuss challenges they have faced with managing the operations (instruction, services, etc.) more generally.

Both strands of data indicate difficulty in the management and oversight of the implementation of and monitoring and evaluation of compliance with the minimum health standards mandated by CHED and DOH on the conduct of limited face-to-face classes, due to a high volume of students not following the minimum health protocols and inadequate manpower to control them. Meanwhile, it was evident in both strands of data that the implementation of institutional policies and protocols to minimize the risk of COVID-19 was not effectively put in place. One lesson learned was to strengthen the protocols for contact tracing, screening and detection, containment, lockdown, physical distancing, maintenance, cleaning, sanitation, and disinfection to ensure safety among the whole IMCC community. Finally, the results in both qualitative and quantitative phases highly indicate that several engineering controls to contain COVID-19 such as plastic barriers became a hindrance to teaching and learning process.

Multiple linear regression was used to determine the influence of the challenges met by the school administrators, faculty members, staff and students on their implementation of continuous quality improvement during the COVID-19 pandemic, specifically in the transition to limited face-to-face classes. Four separate analyses were conducted. The first analysis determined the influence of the challenges met on the leadership component of continuous quality improvement variable (Table 3), while the second and third analyses determined the influence of the challenges met on the quality planning involvement and satisfaction components, respectively (Tables 4-5). Finally, the effect of the challenges on the implementation of continuous quality improvement among school administrators, faculty members, staff and students was determined (Table 6).

As shown in Table 3, when all of the challenges were taken into consideration in the multiple linear regression analysis, only inadequate consultative meetings conducted, poor contract tracing, poor screening and detection, poor containment and lockdown, poor maintenance, cleaning, sanitation, and disinfection, inappropriate venue capacity, poor screening or triage system, significantly influenced the leadership component of quality improvement implementation among school administrators, faculty members, staff and students. For every one-unit increase in inadequate consultative meetings conducted, poor contract tracing, poor screening and detection, poor containment and lockdown, poor maintenance, cleaning, sanitation, and disinfection, inappropriate venue capacity, poor screening or triage system, the leadership component of quality improvement implementation decreases by 0.44, 0.40, 0.44, 0.49, 0.58, 0.29, and 0.38, respectively. The results indicate that inadequate consultative meetings conducted, poor contract tracing, poor screening and detection, poor containment and lockdown, poor maintenance, cleaning, sanitation, and disinfection, inappropriate venue capacity, poor screening or triage system have negatively affected the leadership practices of the school. Based on their coefficients, the factor which contributed the greatest impact on the leadership component of quality improvement implementation was poor maintenance, cleaning, sanitation, and disinfection, followed by poor containment and lockdown.

As shown in Table 4, when all of the challenges were taken into consideration in the multiple linear regression analysis, only inadequate information, education and communication, poor containment and lockdown, poor maintenance, cleaning,

**Table 3.** Descriptive statistics of challenges met, correlation, and multiple linear regression with leadership component of quality improvement implementation.

<b>Variables/Items</b>	<b>M</b>	<b>SD</b>	<b>r</b>	<b>β</b>
1. Leadership	3.98	0.13	-	-
2. Inadequate oversight manpower	4.80	0.53	-0.04	0.00
3. Inadequate consultative meetings conducted	4.10	0.91	-0.66**	-0.44*
4. Inadequate information, education and communication	4.83	0.58	-0.14	-0.02
5. Poor verification system on vaccination status	4.69	0.81	-0.43*	-0.18
6. Poor contract tracing	3.53	0.63	-0.63**	-0.40*
7. Poor screening and detection	4.30	0.13	-0.66**	-0.44*
8. Poor containment and lockdown	4.83	0.71	-0.70**	-0.49*
9. Poor physical distancing	4.86	0.38	-0.25	-0.06
10. Poor maintenance, cleaning, sanitation, and disinfection	4.45	0.50	-0.76**	-0.58**
11. Inappropriate venue capacity	3.91	0.53	-0.54*	-0.29*
12. Inappropriate seat plan	4.23	0.61	-0.32*	-0.10
13. Vague break policy	3.78	0.71	-0.07	0.00
14. Inadequate ventilation and environmental hygiene	4.53	0.57	-0.52*	-0.27
15. Inadequate supply of sanitation products	4.15	0.40	-0.42*	-0.18
16. Poor foot traffic system	3.66	0.29	-0.38*	-0.14
17. Poor screening or triage system	4.26	0.47	-0.62**	-0.38*

Note: \*p < 0.05; \*\*p < 0.01

**Table 4.** Descriptive statistics of challenges met, correlation, and multiple linear regression with quality planning involvement component of quality improvement implementation.

Variables/Items	M	SD	r	β
1. Quality Planning Involvement	2.44	0.11	-	-
2. Inadequate oversight manpower	4.80	0.53	-0.18	-0.03
3. Inadequate consultative meetings conducted	4.10	0.91	-0.22	-0.05
4. Inadequate information, education and communication	4.83	0.58	-0.59**	-0.35*
5. Poor verification system on vaccination status	4.69	0.81	-0.23	-0.05
6. Poor contract tracing	3.53	0.63	-0.02	0.00
7. Poor screening and detection	4.30	0.13	-0.11	-0.01
8. Poor containment and lockdown	4.83	0.71	-0.67**	-0.45*
9. Poor physical distancing	4.86	0.38	-0.42*	-0.18
10. Poor maintenance, cleaning, sanitation, and disinfection	4.45	0.50	-0.65**	-0.42*
11. Inappropriate venue capacity	3.91	0.53	-0.58**	-0.34*
12. Inappropriate seat plan	4.23	0.61	-0.41*	-0.17
13. Vague break policy	3.78	0.71	-0.16	-0.03
14. Inadequate ventilation and environmental hygiene	4.53	0.57	-0.63**	-0.40*
15. Inadequate supply of sanitation products	4.15	0.40	-0.69**	-0.48*
16. Poor foot traffic system	3.66	0.29	-0.53*	-0.28*
17. Poor screening or triage system	4.26	0.47	-0.30*	-0.09

Note: \*p < 0.05; \*\*p < 0.01

sanitation, and disinfection, inappropriate venue capacity, inadequate ventilation and environmental hygiene, inadequate supply of sanitation products, and poor foot traffic system, significantly influenced the quality planning involvement component of quality improvement implementation among school administrators, faculty members, staff and students. For every one-unit increase in inadequate information, education and communication, poor containment and lockdown, poor maintenance, cleaning, sanitation, and disinfection, inappropriate venue capacity, inadequate ventilation and environmental hygiene, inadequate supply of sanitation products, and poor foot traffic system, the quality planning involvement component of quality improvement implementation decreases by 0.35, 0.45, 0.42, 0.34, 0.40, 0.48, and 0.28, respectively. The results indicate that inadequate information, education and communication, poor containment and lockdown, poor maintenance, cleaning, sanitation, and disinfection, inappropriate venue capacity, inadequate ventilation and environmental hygiene, inadequate supply of sanitation products, and poor foot traffic system have negatively affected the involvement of the teachers, staff and students in quality planning of the school. Based on their coefficients, the factor which contributed the greatest impact on the quality planning involvement component of quality improvement implementation was inadequate supply of sanitation products, followed by poor containment and lockdown.

As shown in Table 5, when all of the challenges were taken into consideration in the multiple linear regression analysis, only inadequate oversight manpower, inadequate information, education and communication, poor contract tracing, poor physical distancing, inappropriate venue capacity, vague break policy, poor foot traffic system, and poor screening or triage system, significantly influenced the satisfaction component of quality improvement implementation among school administrators, faculty members, staff and students. For every one-unit increase in inadequate oversight manpower, inadequate information, education and communication, poor contract tracing, poor physical distancing, inappropriate venue capacity, vague break policy, poor foot traffic system, and poor screening or triage system, the satisfaction component of quality improvement implementation decreases by 0.38, 0.38, 0.42, 0.50, 0.32, 0.32, 0.40, and 0.29, respectively. The results indicate that inadequate oversight manpower, inadequate information, education and communication, poor contract tracing, poor physical distancing, inappropriate venue capacity, vague break policy, poor foot traffic system, and poor screening or triage system have negatively affected the satisfaction of the teachers, staff and students in the areas of faculty, instruction, laboratories, research, library, student services, social orientation and community involvement, physical plant and facilities, and the organization and administration. Based on their coefficients, the factor which contributed the greatest impact on the satisfaction component of quality improvement implementation was poor physical distancing, followed by poor contract tracing.

As shown in Table 6, when all of the challenges were taken into consideration in the multiple linear regression analysis, only poor maintenance, cleaning, sanitation, and disinfection, inadequate supply of sanitation products, and poor screening or triage system, significantly influenced the overall quality improvement implementation among school administrators, faculty members, staff and students. For every one-unit increase in poor maintenance, cleaning, sanitation, and disinfection, inadequate supply of sanitation products, and poor screening or triage system, the overall quality improvement implementation decreases by 0.31, 0.55, and 0.38, respectively. The

**Table 5.** Descriptive statistics of challenges met, correlation, and multiple linear regression with satisfaction component of quality improvement implementation.

Variables/Items	M	SD	r	β
1. Satisfaction	4.51	0.22	-	-
2. Inadequate oversight manpower	4.80	0.53	-0.62**	-0.38*
3. Inadequate consultative meetings conducted	4.10	0.91	-0.34**	-0.12
4. Inadequate information, education and communication	4.83	0.58	-0.62**	-0.38*
5. Poor verification system on vaccination status	4.69	0.81	-0.36*	-0.13
6. Poor contract tracing	3.53	0.63	-0.65**	-0.42*
7. Poor screening and detection	4.30	0.13	-0.43*	-0.18
8. Poor containment and lockdown	4.83	0.71	-0.45*	-0.20
9. Poor physical distancing	4.86	0.38	-0.71**	-0.50*
10. Poor maintenance, cleaning, sanitation, and disinfection	4.45	0.50	-0.03	0.00
11. Inappropriate venue capacity	3.91	0.53	-0.57**	-0.32*
12. Inappropriate seat plan	4.23	0.61	-0.11	-0.01
13. Vague break policy	3.78	0.71	-0.57**	-0.32*
14. Inadequate ventilation and environmental hygiene	4.53	0.57	-0.26	-0.07
15. Inadequate supply of sanitation products	4.15	0.40	-0.49*	-0.24
16. Poor foot traffic system	3.66	0.29	-0.63**	-0.40*
17. Poor screening or triage system	4.26	0.47	-0.54**	-0.29*

Note: \*p < 0.05; \*\*p < 0.01

**Table 6.** Descriptive statistics of challenges met, correlation, and multiple linear regression with overall quality improvement implementation.

<b>Variables/Items</b>	<b>M</b>	<b>SD</b>	<b>r</b>	<b>β</b>
1. Overall Quality Improvement Implementation	3.65	0.15	-	-
2. Inadequate oversight manpower	4.80	0.53	-0.36*	-0.13
3. Inadequate consultative meetings conducted	4.10	0.91	-0.30*	-0.09
4. Inadequate information, education and communication	4.83	0.58	-0.21	-0.04
5. Poor verification system on vaccination status	4.69	0.81	-0.22	-0.04
6. Poor contract tracing	3.53	0.63	-0.13	-0.02
7. Poor screening and detection	4.30	0.13	-0.38*	-0.14
8. Poor containment and lockdown	4.83	0.71	-0.11	-0.01
9. Poor physical distancing	4.86	0.38	-0.24	-0.06
10. Poor maintenance, cleaning, sanitation, and disinfection	4.45	0.50	-0.56**	-0.31*
11. Inappropriate venue capacity	3.91	0.53	-0.05	0.00
12. Inappropriate seat plan	4.23	0.61	-0.34*	-0.12
13. Vague break policy	3.78	0.71	-0.24	-0.06
14. Inadequate ventilation and environmental hygiene	4.53	0.57	-0.42*	-0.18
15. Inadequate supply of sanitation products	4.15	0.40	-0.74**	-0.55**
16. Poor foot traffic system	3.66	0.29	-0.21	-0.04
17. Poor screening or triage system	4.26	0.47	-0.62**	-0.38*

Note: \*p < 0.05; \*\*p < 0.01

results indicate that poor maintenance, cleaning, sanitation, and disinfection, inadequate supply of sanitation products, and poor screening or triage system have negatively affected the overall quality improvement implementation among school administrators, faculty members, staff and students. Based on their coefficients, the factor which contributed the greatest impact on the overall quality improvement implementation was inadequate supply of sanitation products, followed by poor screening or triage system.

#### **4. Conclusion**

The present study concludes that during the COVID-19 pandemic, specifically in the transition to limited face-to-face classes, the HEI under study continues to implement quality improvement practices, although quality planning involvement among teachers, staff and students should be strengthened. The respondents faced challenges and gained lessons in the transition to limited face-to-face classes especially on the aspect of management and oversight, institutional policies and protocols, and engineering controls. Based on the regression analysis, it can be concluded that poor maintenance, cleaning, sanitation, and disinfection, inadequate supply of sanitation products, and poor screening or triage system have a negative effect on the overall quality improvement implementation among school administrators, faculty members, staff and students.

#### **5. Recommendations**

To foster quality improvement implementation, the following recommendations are created:

- Teachers, staff members and students should always be involved in the quality planning programs of the school administrators. Their presence in strategic planning programs would positively affect the attainment of quality outcomes of the institution.
- Inter-departmental cooperation to improve the quality of services should be supported and encouraged.
- Employees should be given continuous education and training on how to identify and act on quality improvement opportunities and to improve their job skills and performance. They should be rewarded and recognized (e.g., financially and/or otherwise) for improving quality.
- The school should implement an effective system for employees and students to make suggestions to management on how to improve quality.
- The school should conduct a periodic monitoring and evaluation of compliance with the minimum health standards mandated by CHED and DOH on the conduct of limited face-to-face classes. Additional manpower to oversee this activity should be considered. The role of the department heads and teachers should be strengthened to achieve full compliance of the students with the minimum health standards.
- For institutional policies and protocols and engineering controls set during the limited face-to-face classes, the school should ensure proper maintenance, cleaning, sanitation, and disinfection of the facilities, adequate supply of sanitation products, and efficient screening or triage system to continuously implement quality improvement practices.

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## Conflict of Interest Statement

The authors declare no conflict of interest.

**Author Contributions:** Both authors have contributed equally. They have approved the final version of this manuscript.

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