

Leadership Behavior of Local Leaders in Cavite's COVID-19 Vaccination Program

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Abstract. In response to the COVID-19 immunization campaign on-site, this research investigated the leadership behaviors of health officials from Bacoar, Dasmariñas, and Tagaytay. From September 2021 to February 2022, seven health officials were interviewed using a qualitative descriptive case study methodology. Their task-, relations-, and change-oriented behaviors were examined using the Hierarchical Taxonomy of Leadership Behavior paradigm. In-depth interviews were used to gather data, transcribed, and subjected to axial, in-vivo, and open coding methods for analysis. The findings showed that schedule preparation, rule clarification, subordinate supervision, and proactive issue-solving were all significant examples of task-oriented activities. Although a lack of appreciation for coworkers' efforts was seen, relations-oriented actions included resolving disputes, fostering subordinates' problem-solving skills, and consulting colleagues. Coordination with other local government units (LGUs), creative problem-solving, and motivating subordinates to learn from setbacks were all examples of change-oriented practices. Electronic communication technologies were often used to carry out leadership behaviors, exhibiting flexibility in problem-solving. After difficulties were resolved, health officers reported feeling relieved and having a greater awareness of their strengths and shortcomings. Vaccinees' unfavorable attitudes, however, were shown to have an impact on how they solved problems, highlighting the need for open communication and strict adherence to health center policies. The research emphasizes the need for local health offices to establish recognition programs to recognize the accomplishments of health officers and strengthen their interpersonal ties. Additionally, vaccine orientation before site visits may help improve the overall effectiveness of vaccination programs by minimizing misunderstandings and unfavorable attitudes. This study advances our knowledge of leadership dynamics in health emergencies and emphasizes the vital role that good leadership behaviors play in overcoming public health crises.

Keywords: City health offices; COVID-19 vaccination program response; Health officers; Hierarchical taxonomy of leadership behavior; Leadership behavior; Qualitative case study; Vaccinees' behavior.

1.0 Introduction

Transparency is paramount for leaders during crises. It involves openness and honesty, keeping teams engaged, freely sharing knowledge, and fostering open communication within organizations (Edmondson, 2020). Recognized as one of the most powerful leadership qualities, transparency is crucial in building trust and guiding effective decision-making. This study investigates leadership behaviors during the COVID-19 vaccination program, emphasizing transparency as a key dimension. The dengue vaccine controversy in the Philippines in 2016 underscores the consequences of a lack of transparency, providing valuable lessons for addressing the

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COVID-19 pandemic (Lasco & Yu, 2021). This controversy, marked by negative media coverage and public distrust in vaccine safety, eroded confidence in immunizations and caused delays in children's vaccinations (Fatima & Syed, 2018). Similar challenges arose during the COVID-19 vaccination campaign, where House Bill 9252, the 'Mandatory COVID-19 Immunization Act of 2021,' raised public concerns about compulsory vaccination and government readiness to mitigate uncertainties (Cardenas, 2021). These events highlight the critical role of transparent leadership in navigating public health crises.

During the COVID-19 pandemic, research documented various leadership styles that emerged across sectors. For instance, virtual leadership in businesses (Thambusamy & Bekiroğulları, 2020), strategic planning in universities (Francisco & Nuqui, 2020), and risk-taking approaches in religious institutions (Covarrubias et al., 2021) showcased adaptive responses to unprecedented challenges. Urgent-driven protocols and restorative practices in healthcare led to successful crisis management (Zorn et al., 2020; Vrontis et al., 2021). Gender studies indicated that women leaders were more effective in crisis settings (Coscieme et al., 2020), while decision-making and adaptive leadership were key to overcoming challenges (Sriharan et al., 2022). Furthermore, public trust was identified as a critical factor in promoting vaccine acceptance (Volpp et al., 2020), with government policies playing a pivotal role in shaping public cooperation (Piraveenan et al., 2021).

Despite these insights, limited research exists on leadership behavior, specifically during on-site COVID-19 vaccination programs. While studies have examined leadership strategies in hospitals, clinics, and public health systems, a notable gap exists in understanding how leaders navigated operational and trust-building challenges at vaccination sites. Few studies have reflected on the external factors influencing leaders' behavior in these contexts or explored the nuanced demands of vaccination program leadership during its early stages. This study addresses these gaps by analyzing the behavior of leaders at COVID-19 vaccination sites, focusing on how they embodied transparency, navigated operational challenges, and built trust among stakeholders. This research aims to contribute to the growing literature on leadership during public health crises by examining leadership approaches and factors influencing decision-making. It provides insights into how transparent leadership can address emerging challenges in vaccination campaigns, fostering trust and collaboration in future health emergencies.

2.0 Methodology

2.1 Research Design

This study utilized the qualitative descriptive case study design, which allows for an in-depth exploration of an individual or a small group of participants. The conclusions drawn from this study are specific to that particular person or group and the unique environment in which they are situated. In the context of this research, the focus is on a small group of participants, namely the health officers and health worker staff within each city of Cavite, as part of the City Health Office. Specifically, the study emphasizes the individual accounts of the health officers. The philosophical underpinning of interpretivism is adopted to guide this research approach, aligning with the qualitative descriptive case study methodology.

2.2 Research Participants

The study, conducted from November 2022 to February 2023 involved interviews with participants from three COVID-19 vaccination sites in Cavite: SM Dasmariñas (2nd level, Cinema Lobby, 4114 Governor's Dr, Brgy. Dasmariñas, Cavite), Bacoar City Health Office (Bacoar Boulevard, Brgy. Bayanan, 4102 Bacoar, Cavite), and Tagaytay International Convention Center (3WWQ+J58, Kaybagal South, Tagaytay, Cavite). These sites represented diverse topographies: Bacoar (lowlands), Dasmariñas (highlands), and Tagaytay (upland). Participants included two groups: health officers (City Health Officers and team leaders) and health worker staff. Bacoar and Dasmariñas had two health officer participants, while Tagaytay had three. Two health worker staff members were also interviewed to validate the responses of the health officers. All participants must have worked at the vaccination site for at least four months, ensuring they had ample experience observing leadership behavior.

2.3 Research Instruments

The study utilized a structured interview guide as the primary research instrument, developed based on Gary Yukl's Hierarchical Taxonomy of Leadership Behaviors (2012). As illustrated in Figure 1, this framework provided the foundation for analyzing and classifying the leadership behaviors of health officers during the COVID-19

vaccination program. The interview guide focused on three key categories of leadership behaviors – task-oriented, relations-oriented, and change-oriented – and their impact on team performance and problem-solving. This instrument was designed to capture the factors influencing leadership behaviors and the rationale behind the officers’ actions, ensuring alignment with the theoretical frameworks.

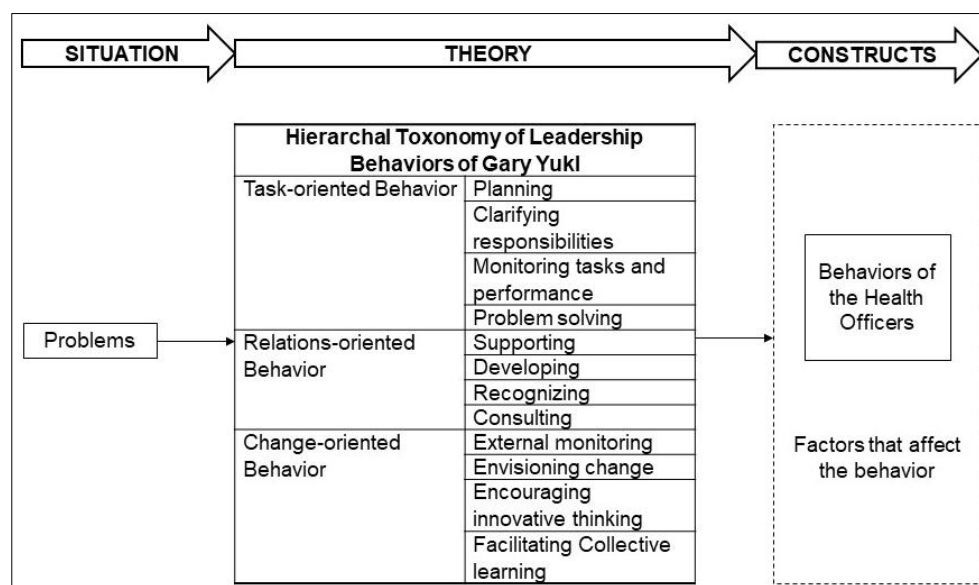


Figure 1. Theoretical framework of the study

2.4 Data Gathering Procedure

An in-depth interview was conducted using a structured guide and follow-up questions. Separate structured guide interviews were used for health officers and health worker staff. The interviews were conducted face-to-face, and audio recordings were made to ensure accurate documentation.

2.5 Data Analysis

To ensure a structured presentation of the participants' demographic profiles, an **attribute coding** technique was employed. This technique helped categorize and organize the descriptive data related to the participants' backgrounds (Patel, 2014). A clean, verbatim transcription of the recorded audio interviews was used to analyze the data. The transcription was slightly modified to ensure readability. In the first analysis phase, **open coding** was applied to break down the transcripts into codes, categorizing leadership behaviors and other constructs (Mills, 2010). Afterward, two primary coding methods were used to analyze the interview data: **descriptive coding** and **in-vivo coding**. Descriptive coding summarizes the passage's topic in a word or noun based on the researcher's interpretation and language. At the same time, in-vivo coding uses a short phrase or word from the actual language found in the passage (Patel, 2014).

After unfolding the constructs, the second phase employed **axial coding**. This coding draws connections between the codes from the open coding, where the data is broken into discrete parts (Mills, 2010). Thus, axial coding helped generate data themes representing significant patterns related to the research questions. Afterward, thematic data analysis was used to identify recurring patterns and themes to determine the leadership behavior of the health officers, using the Hierarchical Taxonomy of Leadership Behavior.

2.6 Ethical Considerations

The study involved human participants, making obtaining ethical approval in line with human research guidelines essential. Permission to conduct the study was secured from the thesis coordinator before data collection began. Participants, including leaders and health workers, provided informed consent before their interviews. Several key principles were followed to ensure ethical compliance with the UNESCO Code of Conduct and Ethical Guidelines. Participants' rights to self-determination, anonymity, confidentiality, and informed consent were fully respected. They were informed of their right to freely agree, decline, or withdraw from the

study at any time without any repercussions. Care was taken to avoid discriminatory, offensive, or inappropriate language in the questionnaires and interview questions.

Throughout the study, participants' anonymity and confidentiality were strictly maintained. The researcher upheld scientific integrity by accurately recording participants' responses and avoiding data manipulation. Objectivity was maintained during data analysis to prevent bias. To enhance the generalizability of the study's findings, the research included a detailed description of the health workers' leadership behavior, providing a comprehensive account of their field experiences.

3.0 Results and Discussion

3.1 Demographic Profile of Health Officers

The study included health officers and health worker staff from three selected cities in Cavite. Table 1 summarizes the demographic profile of the health officers.

Table 1. *Summary of the demographic profile of health officers*

Health Officer							
Case Study	1-Tagaytay City			2-Dasmariñas City		3-Bacoor City	
Reference ID	T-HO1	T-HO2	T-HO3	D-HO1	D-HO2	B-HO1	B-HO2
Age	37 y/o	32 y/o	31 y/o	33 y/o	33 y/o	50 y/o	N/A
Sex	M	M	F	F	F	F	F
Marital status	S	S	M	M	S	M	S
Highest education attainment	BA	BA	PGDip	M.D.	BA	BA	BA
Length of service	1 yr. and 8 mos.	1 yr. and 8 mos.	1 yr. and 8 mos.	1 yr. and 2 mos.	1 yr. and 5 mos.	2 yrs.	2 yrs.
Job title/position	Nurse III/ Supp.	Nurse II/ Team Leader	Nurse II/ Team Leader	Medical Officer III/ M.D. in Charge	COVAX Supp.	Nurse 3/ Team Leader	Nurse 1/ Team Leader
Employment Status	REG.	CONTR.	CONTR.	JO	CONTR.	PERM.	PERM.
*M- Male	*BA- Bachelor's Degree		*REG.- Regular		*PGDip- Postgraduate Diploma		
*F- Female	*M.D.- Doctor of Medicine		*CONTR.- Contractual		*PERM.-Permanent		

In terms of age, the majority of health officers were in their 30s. In Case 1, their ages ranged from 31 to 37 years old, while in Case 2, all health officers were 33 years old. In Case 3, one health officer was 50 years old. Regarding gender, the majority were female. Case 1 included two males and one female, whereas in Cases 2 and 3, all health officers were female. Marital status varied, with a mix of married and single individuals. In Case 1, one officer was married, while two were single. In Case 2, one officer was married and the other was single. Similarly, in Case 3, one health officer was married and the other was single.

In terms of educational attainment, most health officers held a bachelor's degree. In Case 1, two officers had bachelor's degrees, while one had a postgraduate qualification. In Case 2, one officer held a Doctor of Medicine degree, while the other had a bachelor's degree. In Case 3, both officers were bachelor's degree holders. Job positions were primarily leadership roles, with most serving as team leaders or supervisors. In Case 1, two officers were team leaders, while one held the position of Nurse III and acted as a supervisor. In Case 2, one officer, a Medical Officer III, was the doctor in charge, while the other was the COVAX Supervisor. In Case 3, both officers held team leader roles, with one also managing logistics. The length of service for health officers ranged from 1 year and 2 months to 2 years. All three officers in Case 1 had 1 year and 8 months of experience. In Case 2, both had over a year of service, while in Case 3, both officers had served for 2 years.

In terms of specific roles, Case 1 (Tagaytay) included three health officers: T-HO1, T-HO2, and T-HO3. T-HO1, a Nurse III, acted as the supervisor for the team leaders, while T-HO2 and T-HO3 were team leaders responsible for leading 20 vaccination teams. Case 2 (Dasmariñas) had two health officers: D-HO1, a Medical Officer III and the doctor in charge, and D-HO2, the site supervisor overseeing all vaccination teams. Case 3 (Bacoor) also involved two health officers: B-HO1 and B-HO2, both of whom were team leaders. Additionally, B-HO1 managed logistics for the vaccination program. Overall, the majority of health officers in this study held leadership roles as team leaders and supervisors, playing crucial roles in managing teams and ensuring the smooth implementation of the vaccination program at their respective sites.

3.2 Themes

Theme 1: Similarities Among the Behavior of Health Officers Under Task-Oriented Behavior

Table 2 presents significant statements on health officers' leadership behavior under the task-oriented behavior theme.

Table 2. Similar open codes with significant statements for leadership behavior of health officers under task-oriented behavior

Sub-Category	Case	Similar Codes	ID	Significant Statements
Planning	1	Scheduling activities	T-HO1	"Suppose we already placed 10 vaccinations, 10 screeners, and 15 vaccinators in the vaccination area. If there is a long queue in the screening area, we reduce the number of vaccinators and transfer 5 of them to the screening area to alleviate the queue."
	2	Assigning Schedule	D-HO2	"In the division of tasks, there are instances where we encounter shortages in vaccinators due to emergencies, illnesses, or quarantine situations. However, we have contingency plans to address these situations by having replacements available."
	3	Scheduling	B-HO2	"We have a scheduling system in place where we are informed about our assigned locations for a particular day."
Clarifying responsibilities	1	Equipping the colleagues of guidelines under the Department of Health (DOH)	T-HO3	"Aside from lecturing them, we also equip ourselves with the guidelines issued by the DOH."
	2	Explaining relevant rules to subordinates	D-HO1	"By engaging in regular communication with our marshals, we have devised such a method. Their job has become easier because we have established rules and strategies to follow."
	3	Explaining any relevant rules, policies, and standard procedures	B-HO1	"I relay all the necessary information to them, starting from the screener up to the post-monitoring team..., so they know what needs to be done."
Monitoring tasks and performance	1	Directly observing activities	T-HO2	"The first few weeks/months of vaccination are crucial because that is where you test the waters, meaning that is where you see the approach of your strategy. COVID vaccination requires new things to be done, and in that team, there are augmented members... However, because they are new, you need to orient them. Sometimes, they do not know or get confused, so you need to supervise them. However, eventually, after some time, they become familiar, and things become okay."
	2	Directly observing activities	D-HO1	"Initially, they had their strategy, and I observed it for the past few weeks. However, whenever I noticed something problematic in their marshaling approach, I would suggest, 'It might be better if we add a security guard to ensure a more organized queue and help people know where to line up.'"
	3	Observing activities of subordinates on opening vials	B-HO1	"Make sure they understand that the vaccines should not be wasted. The allocations should align with the number of vaccine recipients to ensure no discrepancy."
Problem-solving	1	Solving problems with their solutions	T-HO1	"If there are complaints, first and foremost, we investigate the complaints, the root causes, who the individuals involved are, and why they are complaining about a specific aspect. Is it about scheduling, registration, counseling?... Then, we will try to resolve them as much as possible within our current capabilities."
	2	Take immediate solution	D-HO1	"As much as possible, we try to address and solve issues at our level. However, suppose the problem falls under the local government unit's (LGU) responsibility or is related to the overall COVID response, such as concerns about the type of vaccine or other similar matters. In that case, I immediately bring it up to the higher authorities."
	3	Remaining calm to avoid adverse effects	B-HO2	"Through my response, I remain calm and refrain from engaging with them... Instead, I focus more on providing solutions to the situation."

Planning. Assigning schedules, especially for double-taskers, was implemented to facilitate a faster vaccination flow. Health officers addressed the issue of staff shortages by assigning personnel to perform dual roles. For example, if there were a lengthy queue in the screening area but a shorter one in the vaccination area, health officers would temporarily transfer staff from the vaccination area to assist in the screening area, reducing the queue of vaccines. The staff would return to the vaccination area once the screening area had fewer people waiting.

Clarifying responsibilities. Ensuring clear communication, health officers took the time to explain relevant rules and guidelines to their subordinates. This practice was particularly evident in participants' statements in cases 1 and 2. By providing their colleagues with guidance based on the Department of Health (DOH) protocols, health officers effectively equipped their subordinates to handle conflicts between them and vaccinees. Additionally, health officers consistently updated their subordinates about changes in rules, policies, and standard procedures, offering explanations to ensure everyone was well-informed.

Monitoring tasks and performance. Health officers actively observed their subordinates' activities to assess their strategies' effectiveness and determine if adjustments were necessary. This monitoring allowed them to identify areas that required improvement or modifications to their approach. Health officers could make informed decisions to optimize the overall workflow by closely monitoring performance.

Problem solving. Health officers have developed a common approach. When faced with an issue, they prioritize resolving it themselves before escalating it to a supervisor if needed. This proactive approach is evident among health officers, who take ownership of the problem and aim to find a solution promptly. They demonstrate their commitment to addressing challenges efficiently and effectively by taking immediate action. The leadership behaviors exhibited by the health officers during the pandemic reflect a clear alignment with task-oriented leadership strategies, which prioritize efficient planning, clear communication, active monitoring, and proactive problem-solving, illustrating their leadership approach in response to the operational challenges posed by COVID-19. These strategies were crucial in addressing staff shortages and optimizing workflow, particularly by assigning double roles and reallocating personnel based on immediate needs. This task-oriented leadership aligns with existing literature on pandemic leadership, reinforcing the importance of adaptability and effective planning in managing healthcare crises.

The leadership behaviors identified in this study resonate with established theories and findings in leadership literature, particularly those observed in high-stakes environments like healthcare during crises. The extracted codes from all sub-categories of task-oriented behavior indicate that the behavior of health officers during the pandemic was predominantly task-oriented. This finding aligns with a study by Sriharan et al. (2022), highlighting the prevalence of task-oriented leadership, particularly in preparation and planning during the pandemic. The proactive planning and real-time reassignment of staff to tackle specific bottlenecks in the workflow showcase similar strategic responses. Additionally, the assignment of double tasks to subordinates by health officers as a response to staff shortages reflects the challenges identified in the research of Stefan and Nazarov (2020), which emphasized the difficulties in implementing new work schedules due to the impact of COVID-19. Both studies highlight how adaptive scheduling became essential for optimizing limited resources and maintaining operational continuity. The planning behavior exhibited by health officers is also consistent with the findings of Francisco and Nuqui (2020), who identified competent planning as an essential characteristic of adaptive leadership in the new normal brought about by the pandemic. Like Francisco and Nuqui's findings, the health officers in this study demonstrated a similar capacity for strategic foresight, balancing immediate needs with longer-term objectives. This parallel reinforces the notion that worldwide healthcare leaders adopted comparable approaches to managing the unprecedented pressures during the COVID-19 crisis.

Theme 2: Similarities Among the Behavior of Health Officers Under the Relations-Oriented Behavior

Table 3. Similar open codes with significant statements for leadership behavior of health officers under relations-oriented behavior

Sub-Category	Case	Similar Codes	Ref. Id	Significant Statements
Supporting	1	Leaders deal with complaints about vaccines by helping staff explain via phone calls.	T-HWS1	"When the vaccines get mad, they will look for your head... They are reachable to talk, and we call them to help explain. Moreover, show them the guidelines... that is always our forefront in dealing with them."
	2	Mediating conflicts between subordinates and vaccines	D-HO1	"The usual problem in that situation is when the person receiving the vaccine has an issue and may misinterpret the staff's response. We immediately provide backup support to address the concern."
	3	Mediating conflicts between subordinates and vaccines	B-HO2	"When there are complaints... as the team leader, I take the initiative to communicate with the complaining patients and address their concerns."
Developing	1	Equipping subordinates with knowledge of their strategy for problem-solving.	T-HO3	"They, the doctors, explain to us the processes and the rationale behind the plans... so that as subordinates, we can understand or be equipped with the knowledge of the process. That is for the superiors."
	2	Encouraging subordinates to good behavior	D-HO1	"I assist them by guiding them on the appropriate terms to use, what they should avoid mentioning, their demeanor, voice, tone, and any necessary changes they need to make."
	3	Providing developmental coaching when it is needed.	B-HO1	"Before we even go to the vaccination site, we meet to discuss the best practices and strategies to ensure an organized and smooth process [in the vaccination site]."
Recognizing	1	Showing appreciation for the important contribution	T-HO3	"When our superiors visit municipalities or other municipalities, we boast about the support of our leaders... that is one of our starting points to show the importance of our health officers."
		Recognizing and giving praises for subordinates' efforts	T-HO3	"To subordinates, to make our work more enjoyable, we compete to see who vaccinated the most people, just to have some fun while working. We also praise the person who has vaccinated the highest number. Although it is done lightheartedly, it serves as a way to recognize the double effort put in by someone during the vaccination process."
Consulting	1	Asking peers' opinions and considering them when making a decision	T-HO1	"There are times, especially when I am not sure, that is when I seek opinions from my peers. Sometimes, instructions are given directly, while other times, I need to ask for opinions first. Then, we combine them to determine the best possible output."
	2	Raise subordinate's problems to supervisors	D-HWS2	"They collect opinions about the issues encountered within the day. Since we have different staff members each day, they ask each supervisor of the respective groups about the problems they encountered. When there are issues, they seek input on the best ideas to prevent similar problems from arising."
	3	Empower subordinates by giving them more autonomy and influence over decisions.	B-HO1	"I called the higher-level staff...to address those disruptions or chaos."

Supporting. Mediating conflicts between subordinates and vaccinees emerges as a common practice across all cases. Health officers serve as backup for their subordinates during disputes, intervening to address conflicts. The statements from cases 1 and 2 highlight how health officers argue with vaccinees based on adherence to guidelines. This supportive behavior creates a conducive environment for problem resolution.

Developing. The development of subordinates' problem-solving abilities is evident in all three cases. Health officers focus on different aspects of development for their subordinates. In case 1, Tagaytay health officers equip subordinates with knowledge of problem-solving strategies, emphasizing the importance of a well-defined

approach. Case 2 demonstrates behavior-focused development, with Dasmariñas health officers providing guidance on improving behavior when dealing with irate vaccinees, including advice on appropriate terms and adopting a moderate tone. In case 3, Bacoar health officers conduct meetings to coach subordinates, enhancing their response to problems through active training.

Recognizing. Recognizing the efforts of subordinates is evident in case 1, where Tagaytay health officers praise and appreciate both the important contributions of their superiors and the efforts of their subordinates. A competition-like approach is implemented, where the vaccinator who vaccinates the most individuals receives recognition. However, cases 2 and 3 lack recognition behaviors. This underscores the importance of acknowledging and appreciating subordinates' efforts, as recognized by Tagaytay health officers.

Consulting. Consultation with colleagues is a consistent practice observed in all cases. Health officers consult with their superiors and subordinates to gather ideas, concerns, and perspectives for problem-solving. In case 1, Tagaytay health officers seek peers' opinions when in doubt, ensuring a collaborative decision-making process. Case 2 demonstrates the importance of collecting ideas and opinions from staff assigned on different days at the vaccination site, as shown by Dasmariñas health officers. In case 3, Bacoar health officers consult supervisors for guidance, aiming to make informed judgments and resolutions. These consultation practices promote inclusivity and consider multiple perspectives in problem-solving.

The health officers exhibit various relations-oriented behaviors that highlight their role in supporting their teams and maintaining a collaborative environment. However, the results suggest a notable gap in recognizing subordinates' efforts, especially in cases 2 and 3, where such behaviors are absent. This deficiency could potentially affect the motivation and morale of the healthcare workers. Despite this, health officers excel in mediating conflicts and providing ongoing development and consultation, fostering a collaborative and supportive work culture.

Despite the health officers being task-oriented, there appears to be a deficiency in their relations-oriented behavior, specifically in recognizing the efforts of subordinates at the vaccination sites. This deficiency is evident in cases 2 and 3, aligning with the findings of Nyashanu et al. (2020), who noted that the lack of recognition negatively impacts healthcare workers' mental health. The absence of recognition can hinder long-term motivation and performance, especially in high-pressure environments such as pandemic healthcare settings. On a positive note, the health officers demonstrate supportive behavior by mediating conflicts between vaccinees and subordinates, as observed in the study by Stefan and Nazarov (2020). This aligns with the notion that leaders in organizations should exhibit a protective and positive attitude towards their teams, which enhances teamwork and conflict resolution skills among healthcare staff. Furthermore, the health officers' practice of consulting with colleagues for decision-making aligns with the findings of Beilstein et al. (2021), which emphasize the importance of ensuring the right decisions by seeking input from colleagues and ensuring their constituents favor the chosen course of action. This consultation-based approach reflects an understanding that inclusive decision-making processes lead to more informed and collaborative outcomes. Similarly, the health officers' consultation approach resonates with the study by Vrontis et al. (2021), which emphasizes the empowerment of subordinates to contribute their ideas and suggestions for improving healthcare services. This collaborative environment enhances problem-solving efficiency and increases job satisfaction and team cohesion.

Theme 3: Similarities Among the Behavior of Health Officers Under Change-Oriented Behavior

External monitoring. The health officers actively engage in external coordination. They collaborate with other LGUs to address various needs, such as ensuring sufficient staff at vaccination sites, securing necessary supplies, and coordinating hospital referrals.

Envisioning change. The health officers demonstrate their ability to generate ideas and drive change when faced with challenges. They propose new strategies and solutions, as seen in case 3, where a significant statement highlights their commitment to developing innovative approaches. In case 1, Tagaytay health officers actively foster a sense of commitment to adopting new strategies by continuously evaluating and refining them. In case 2, Dasmariñas health officers encourage their peers to share information and ideas for improving the vaccination site.

Table 4. Similar open codes with significant statements for leadership behavior of health officers under change-oriented behavior

Sub-Category	Case	Similar Codes	ID	Significant Statements
External monitoring	1	External coordination	T-HO1	"If the officers cannot handle it, we refer it to our local vaccination operation center, which serves as the main inter-local agency of Tagaytay City, in case there are any changes or adjustments needed."
	2	External coordination	D-HO2	"Even the BFP, Police, and their respective department's nurses send their personnel here for augmentation as vaccine administrators."
	3	External coordination	B-HO2	"Coordinate with the DOH and regional office regarding supplies."
Envisioning change	1	Proposing a strategic plan for resolving a conflict	T-HO1	"We adopted various changes and iterations until we achieved the smoothest and easiest flow, and that is what we utilized."
	2	Quickly propose a strategy for responding to a problem	D-HO1	"We immediately count the vaccines to determine if we have enough or if there is a shortage. Our CoVax head emphasized the importance of promptly checking the inventory to ensure an adequate supply, as vaccines are generally available."
	3	Increasing their awareness of problems without creating an excessive level of distress	B-HO2	"Usually, before or after each session, we have discussions about the encounters we had and identify areas that need improvement."
Encouraging innovative thinking	1	Putting the subordinates in the shoes of others	T-HO1,	"There are times when the vaccination program itself becomes extremely exhausting. The complaints, especially from the vaccines, add to your exhaustion and weariness, as dealing with problems can contribute to burnout. When you are working on solving those problems, it feels like you are being constantly hit with additional stress and burden because you want to ensure a resolution. However, once the problem is resolved, it feels relieving because you have been relieved of that burden. When you successfully find a solution for the second time, there is a sense of relief because the problem has been resolved."
	2	Putting the subordinates in the shoes of others in solving problems	D-HO1	"You put them in the situation of the problem. It is like saying, 'put yourself in the shoes of others...' With the staff, you make them feel, 'if you were in that situation, what would you want to happen?'"
Facilitating Collective learning	1	Encouraging subordinates to resolve problems by themselves to exercise their decision	T-HO3	"When let us say we have irate clients, we let the subordinate deal with it first. We allow the person and our manpower to deal with the concerns or issues so they can practice what needs to be done and decide on the actions they should take for the future."
	2	Facilitate subordinates to recognize causes better and identify remedies	D-HO1	"[I] talk to them as an adult about the cause of the problem. Knowing their side and then the situation. Then, both of [us] will talk about the best thing to do, [the solution is] not just from me."
	3	Leader support activities to acquire new knowledge from external sources.	B-HO1	"Because, just like in COVID, there is a designated person in charge who attends orientations and then relays the information to the other nurses."

Encouraging innovative thinking. It is evident among the given significant statements of the participants in cases 1 and 2 that the health officers encouraged innovative thinking. However, there is no extract code in case 3. Significantly, in case 1, subordinates were encouraged to think through brainstorming with colleagues for the best options, opinions, and suggestions for strategies for solving problems. In case 2, the health officers facilitate the subordinate to put himself in the situation of the complaining vaccinee to come up with a solution to the problem.

Facilitating collective learning. The health officers actively facilitate collective learning. In cases 1 and 2, they encourage subordinates to think independently, allowing them to recognize solutions and learn from their experiences. In case 3, a significant statement indicates that the health officer supports the designated person in attending seminars on vaccination, ensuring they stay updated and become a reliable point of contact for any inquiries.

The health officers' change-oriented behaviors reflect their proactive stance in addressing external challenges and fostering innovation within their teams. By actively engaging in external monitoring, they collaborate with other LGUs to secure essential resources and support for their vaccination programs. Their strategic initiatives and encouragement of peer-driven problem-solving demonstrate their capacity to envision change. However, a gap is evident in case 3, where encouraging innovative thinking is absent, raising questions about whether specific situational factors might inhibit this behavior. Facilitating collective learning remains a strong practice across all cases, as health officers continuously promote independent thinking and professional development within their teams.

The cases demonstrate the health officers' engagement in external monitoring, wherein they establish coordination with other Local Government Units (LGUs) to fulfill their needs. This finding aligns with the research conducted by Sriharan *et al.* (2022), which highlights that leaders during a pandemic often engage in collaborative efforts to support decision-making processes. These efforts ensure that resources are pooled effectively, allowing vaccination sites to function smoothly despite logistical challenges. The coordination also reinforces the importance of collective problem-solving among various government entities during a crisis, a crucial aspect of maintaining public health operations. However, it is important to note that there is a notable gap in encouraging innovative thinking among subordinates, as evidenced by the absence of relevant codes in case 3. This absence may suggest a lack of opportunity or structural challenges that limit the encouragement of innovation in that particular setting. Further investigation is required to understand the underlying reasons for this absence and determine if specific challenges necessitate the utilization of this behavior in that particular case. The absence of innovative thinking may also reflect the varying degrees of leadership flexibility and autonomy in different LGUs, as some settings may emphasize strict adherence to protocols over creative solutions. Within the category of envisioning change, the health officers' emphasis on developing new strategies to address problems and drive change resonates with the findings of Vrontis *et al.* (2021), who suggest that effective leadership responses to the COVID-19 pandemic involve creating a sense of urgency and adaptability. This adaptability is crucial in pandemic settings, where rapidly changing circumstances require leaders to envision new approaches and inspire their teams to embrace these changes. The proactive behavior seen in cases 1 and 2, where health officers encourage brainstorming and independent problem-solving, mirrors this urgency in implementing effective solutions. Additionally, the health officers' approach to facilitating collective learning demonstrates their commitment to continuous improvement. By encouraging subordinates to reflect on their experiences and providing access to training and seminars, as seen in case 3, the health officers align with leadership strategies that prioritize the professional growth of their teams. This practice is consistent with the findings of Sriharan *et al.* (2022), which highlight that leadership during the pandemic often involves creating learning opportunities to enhance the workforce's adaptability and knowledge base.

Theme 4: Behavior Where They Conduct Their Leadership Function via Electronic Communication System

These electronic communication systems were online or on mobile phones between the leaders and subordinates. There are four categories where this emerged: First is in clarifying responsibilities; second is monitoring tasks and performance; third is in supporting; and fourth is in consulting. It is evident in cases 1 and 3 that the health officers were able to communicate with their subordinates via phone through calling or texting, where in case 1, it is evident in the category of support, and in case 3, it is evident in the category of monitoring tasks and performance. On the other hand, health officers could also communicate with their subordinates online via group chat or Zoom meetings. It is evident in case 1 in the category of supporting and consulting and in case 2 in clarifying responsibilities and supporting.

Electronic communication systems are a vital part of the health officers' leadership behavior, enabling them to maintain seamless communication with their subordinates. Integrating mobile phones and online platforms, such as group chats and Zoom meetings, facilitates key leadership functions like clarifying responsibilities, monitoring tasks, providing support, and consulting. In cases 1 and 3, phone calls and text messaging allowed health officers to monitor and support their teams, online communication in group chats and virtual meetings in cases 1 and 2 played an essential role in clarifying responsibilities and consulting with subordinates. This adaptability in communication underscores health officers' flexibility in responding to real-time challenges, particularly in high-pressure situations such as vaccination site management during a pandemic.

Thus, they exhibit their leadership behavior through face-to-face and electronic communication systems when responding to problems on-site at the vaccination sites. This leadership practice is similar to the study of Thambusamy and Bekiroğulları (2020), where virtual leadership evolved during the pandemic as leaders adapted to social distancing and remote work constraints. Health officers in Cavite similarly adopted electronic communication tools to bridge the gap between physical and remote work settings, ensuring their leadership remained effective despite limited face-to-face communication. Moreover, this behavior mirrors the findings of Covarrubias, Dunaetz, and Dykes McGehee (2021), which highlighted how technology became an essential tool for maintaining connections and relationships during the pandemic. In the case of the health officers, virtual communication platforms were crucial not only for task-oriented activities like clarifying responsibilities and monitoring performance but also for relational aspects of leadership, such as providing support and consulting with subordinates. The ability to maintain strong connections through technology demonstrates the health officers' adaptability in managing operational and interpersonal dynamics during the vaccination process. Similarly, the study by Beilstein et al. (2020) shows that leaders used electronic communication tools to provide feedback, handle concerns, and present future plans. The health officers' use of phone calls, text messages, and online meetings reflects this trend, particularly in how they facilitated distant communication while ensuring that their teams remained informed and engaged. Video conferencing and group chats allowed for real-time collaboration and problem-solving, proving that technological tools were instrumental in supporting leadership functions across different categories of behavior, from task-oriented to relations-oriented and change-oriented leadership.

Apart from the behavior of health officers as demonstrated by the hierarchical taxonomy of leadership behavior, there is an emerging category of behavior coded on responding to problems in the vaccination site among the 3 cases. It is the emotion of the health officers.

Theme 5: Feeling of Relief and Recognition of Strengths and Weaknesses After Solving the Problem

In the first case, "feeling relief when the problem is solved and being acknowledged by vaccines"; in the second case, "feeling glad of recognizing own strength and weakness"; in the third case, "feeling relieved of being able to solve issues." In the first and third cases, the health officers felt relieved after solving the problems. The health officers felt relieved by the leader's emotion after providing a solution to the problem. The health officers' experiences of emotional relief and self-awareness after problem-solving highlight the internal reflection that accompanies leadership during challenging times. In all three cases, the health officers expressed relief after resolving issues, with case 1 noting a sense of acknowledgment from vaccines and case 3 simply emphasizing the relief of having solved problems. Case 2 stands out, where the health officers felt a deeper self-awareness, recognizing their strengths and weaknesses. This reflective process provides emotional relief and helps leaders grow by understanding their abilities more clearly.

The second case stands out among the three cases due to the health officers' "feeling glad of recognizing own strength and weakness." This emotional response conforms to one of the five key elements of emotional intelligence in leadership, as outlined by Goleman (2004), which is self-awareness. In this instance, the health officers reflected on their communication skills, recognizing their strengths and weaknesses as leaders. This process of self-reflection is crucial for personal development. It is a cornerstone of effective leadership, as self-aware leaders are better equipped to manage their teams and respond to crises with a balanced perspective. This finding aligns with Beilstein et al. (2020), which suggests that the COVID-19 pandemic exposed many leaders' weaknesses and provided them with opportunities to learn from their mistakes. Similarly, the health officers' experiences during the pandemic tested their problem-solving skills and revealed their limitations, giving them valuable insight into areas for improvement. The health officers' ability to identify these areas shows emotional intelligence, demonstrating the capacity for self-awareness and self-regulation—key components of Goleman's emotional intelligence framework. The health officers' feelings of relief after solving problems are also significant in the first and third cases. This emotional relief reflects a natural response to the stress and pressure of leading during a crisis. The sense of acknowledgment by vaccinees in case 1 underscores the importance of recognition and feedback in leadership. Acknowledged for their efforts not only alleviates stress but also reinforces their sense of accomplishment and effectiveness. This echoes findings from studies on emotional resilience in leadership, where leaders who receive positive reinforcement from their teams or constituents often report higher levels of

job satisfaction and emotional well-being. Furthermore, the emotional relief the health officers feel after resolving issues highlights a common aspect of leadership under pressure—solving problems provides a sense of closure and emotional release. As seen in the literature, such feelings are part of the emotional cycle of leadership, especially during crises like the pandemic, where leaders must navigate complex challenges while managing their emotional responses.

3.3 Factors that Affect the Behavior of the Health Officers from the Selected Cities of Cavite in Solving the Problems in the Vaccination Program On-Site

The health officers were asked about the factors that affect their behavior in solving the problems at the vaccination sites. Only one theme emerged as a factor: the negative attitude of vaccines toward the staff.

In **Case 1**, Tagaytay City, the irate vaccines were the factor that affected the behavior of the health officers. Specifically, these were: First, the bad attitudes of vaccines. Significantly, the bad mood of the vaccines influenced the health officer to feel bad at work. On the other hand, it motivated them if the vaccines were in a good mood. Second, the close-minded vaccinees. Significantly, they refused to accept the health officers' explanation. Third, there are complaints about vaccinees. Significantly, there were complaints from senior citizen vaccinees due to the post-COVID reactions. They blamed the health officers, and the vaccinees became enraged and violent with them. Fourth, the threat of vaccinees to the health officers. Significantly, some vaccinees blame the health officers for the negative reaction in the body of the vaccinee.

In **Case 2**, Dasmariñas City, health officers' behavior was also affected by the irate vaccinees. Specifically, these were: first, misbehaved vaccinees. Significantly, the stubborn ones insisting their beliefs as if they were experts in the field; Second, the highly opinionated vaccinees. Significantly, some vaccinees act as though they know better than the health officers and dismiss their suggestions; Third, the complaints of vaccinees. Significantly, some vaccinees insisted on their desire. Fourth, there was a threat by vaccinees to the health officers. Significantly, some vaccinees threatened to report the health officers to the higher government officials because they could not meet their demand field.

Lastly, in **Case 3**, Bacoor City, health officers' behavior is affected by the negative attitude toward the vaccinees. Specifically, the disorganized queue of vaccinees. Significantly, there were times when the queue of vaccinees got messy, and take her to correct it immediately.

The negative attitude of vaccinees emerged as a dominant factor influencing the behavior of health officers across all three cities: Tagaytay, Dasmariñas, and Bacoor. Common behaviors included feeling demotivated by irate or close-minded vaccinees, handling complaints and threats, and managing chaotic queues. Despite these challenges, health officers demonstrated resilience, managing to enforce rules, make sound decisions, and maintain organization. The officers' interactions with vaccinees impacted their behavior and shaped their leadership qualities, helping them grow in their ability to manage conflict and uphold regulations in stressful environments. These findings underscore the influence of external stressors, such as the public's negative attitudes toward vaccination, on leadership behavior, which echoes broader research on crisis management and leadership growth during pandemics.

In short, the factor that affects the behavior of the health officers in the cities of Tagaytay, Dasmariñas, and Bacoor is the negative attitude toward vaccinees. This negative attitude is consistent with the study of Paul et al. (2020), highlighting that vaccine hesitancy and resistance are major public health concerns. The behavior of vaccinees who exhibited distrust, complaints, and threats toward health officers parallels the broader societal challenge of vaccine acceptance, as seen in Paul et al.'s research. The attitudes of the vaccinees in this study reflect how misinformation or misunderstandings can lead to heightened tensions at vaccination sites. Furthermore, the lack of policy information, contributing to vaccinees' negative attitudes, aligns with Zorn et al. (2020), who pointed out that gaps in communication about health policies can fuel public distrust. Like doctors in Zorn et al.'s study, health officers must act as key communicators to disseminate accurate, clear information to ease vaccine concerns. Zorn et al. found that doctors who effectively communicated policies could manage patient anxieties better, just as health officers in this study could manage their leadership roles by adhering to guidelines and providing factual

information. Although negative vaccine behavior posed challenges, it also led to positive outcomes in terms of leadership development.

For instance, in Case 1, the health officers of Tagaytay City enforced vaccination rules with greater firmness and confidence, knowing their decisions were aligned with protocols. This scenario aligns with the findings of Beilstein et al. (2020), where leaders faced with external pressure during the pandemic were forced to become more decisive and adaptive. The confidence the Tagaytay officers gained through confrontation with irate vaccinees reflects this adaptive behavior, suggesting that crises can sharpen leadership skills.

In Case 2, Dasmariñas City health officers demonstrated similar resilience. Despite vaccinees attempting to influence their decisions, the health officers remained steadfast, using established guidelines to justify their actions. This ability to stand firm against external pressure while maintaining clear communication mirrors findings from leadership studies on crisis management, where adhering to a set framework helps leaders maintain control in chaotic environments.

Finally, in Case 3, Bacoor City health officers focused on maintaining order despite the vaccinees' disorganized behavior. The emphasis on organization, especially when the queue became unruly, allowed the health officers to exercise their leadership by enforcing structure. This behavior reinforces the importance of discipline and order in crisis management, which parallels leadership theories that emphasize the role of structure and organization in maintaining control during high-stress situations.

In summary, the negative attitudes toward vaccines catalyzed the health officers' leadership growth. The officers became more confident, disciplined, and effective leaders by handling complaints, managing threats, and enforcing rules. These findings resonate with Beilstein et al. (2020), who argue that crises often give leaders opportunities to grow by confronting their weaknesses and adapting to new challenges. Similarly, the health officers in this study were able to reflect on their experiences and enhance their leadership abilities in response to the unique challenges presented by the vaccination program.

The study results align with Gary Yukl's Hierarchical Taxonomy of Leadership Behaviors, as the health officers demonstrated task-oriented, relations-oriented, and change-oriented behaviors in managing the COVID-19 vaccination program. Task-oriented behaviors, such as planning and clarifying responsibilities, were evident in their roles as team leaders and supervisors. Relations-oriented behaviors, including recognizing and supporting their teams, were reflected in their ability to foster collaboration and maintain morale during challenging situations. Change-oriented behaviors, such as adapting to logistical challenges and encouraging innovative solutions, highlighted their capacity to navigate uncertainties during the vaccination rollout. These findings underscore the relevance of Yukl's framework in understanding the leadership behaviors essential for effectively managing public health crises, particularly in high-pressure environments like vaccination sites.

4.0 Conclusion

The health officers were dominantly female, aged 30, and attained bachelors in the study. They were composed of both single and married. Their experience in the vaccination site was: In the first case study, they were composed of a supervisor and team leaders assigned to the vaccination area for 1 year and 8 months. The second case comprised Medical Health Officer III and the supervisor assigned to the vaccination area for over a year. The third case comprised team leaders in the vaccination area for almost 2 years. Thus, most health officers were composed of team leaders and supervisors who had held their current positions for more than 1 year when the COVID-19 vaccinations began in early 2021.

There are three concepts for understanding the leadership behavior of the health officers in responding to the problems in the vaccination site: First, using the Hierarchical Taxonomy of Leadership Behavior revealed that the health officers were task-oriented. Some aspects of their relations-oriented and change-oriented behavior were well executed, but others were not. In their task-oriented behavior, it was common for them to plan schedules, explain relevant rules to subordinates, observe the activities of subordinates, and solve problems themselves first. In their relations-oriented behavior, it was usual for them to mediate conflicts between subordinates and vaccinees, develop subordinates' ability to solve problems, and consult with colleagues. However, there was a

lack of recognition in the subordinates' work. In their change-oriented behavior, it was common among them to coordinate with other LGUs, provide ideas to colleagues to bring about a change in solving the problem and let their subordinates recognize the solution themselves and learn from it. Second, they could also conduct their leadership function via electronic communication systems through their communications with their colleagues online and via cellular networks. Thus, their communications were conducted both via electronic communication system and face-to-face to solve problems on-site. Third, they feel relief and recognize their strengths and weaknesses after solving the problem.

The negative attitude of vaccinees towards the staff was identified as the major factor affecting the leadership behavior of the health officers in solving the problems in the vaccination program on-site. These behaviors give them more conviction to stand firmer and impose the guidelines and appropriate decisions.

Based on the findings of the result, the following are highly recommended:

First, to address the feeling of health workers that the city health officers do not recognize them, the vaccination center may provide programs or activities that will recognize health workers' efforts in the COVID-19 vaccination site. In that way, they will feel the appreciation that will motivate them to perform better in their jobs. They may try to improve their relationships with their colleagues by recognizing the latter's efforts, such as providing affirmation, tapping at the back, and placing a list of top-performing health workers on a bulletin board. Further, the vaccination site may provide quarters so health workers can rest or nap during their break time. The health officers may propose a carpooling scheme for workers residing in the same or nearby areas to save gas, time, effort, and money and to make life easier for the health workers. They may try to put some fun activities in the vaccination, just like what Tagaytay health officers did, to recognize the efforts of their colleagues at work, such as having a competition-like activity in which whoever has the greatest number of vaccinated will be given words of affirmation; top-performing health workers may give a token of appreciation such as new uniform, clipboard, sanitation and hygienic supplies, and Personal Protective Equipment (PPE). Also, they may organize a quarterly social event to acknowledge birthday celebrators. These simple gestures promote camaraderie and teamwork in the workplace.

Second, the city health offices may strengthen the dissemination of information at the barangay level by orienting the vaccinees before going to the vaccination site to settle unclear instructions and processes in the vaccination area. This will reduce confusion and trigger conflict between the health workers and the vaccinees. The orientation may discuss the requirements that must be complied with before going to the vaccination site and the dos and don'ts in the vaccination area.

Third, scholars may use Gary Yukl's Hierarchical Taxonomy of Leadership Behaviors among leaders online or via electronic communication systems to handle their teams for further reference.

5.0 Contributions of Authors

Completing this research was collaborative, with all authors contributing equally to its various aspects. Responsibilities included editing, writing, data gathering, encoding, analysis, and supervision. Specific contributions included technical critique, ensuring the research's methodological soundness, and overseeing the entire process. All authors actively participated in the preparation and review of the manuscript, approving the final version and collectively ensuring the accuracy and integrity of the work.

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