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Community participation in COVID-19 prevention and control

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ABSTRACT

Community-based health protocols are essential strategies for prevention and control of COVID-19 and community participation is an essential contribution of communities during the pandemic. This study assessed community participation to COVID-19 prevention and control activities among barangays in a component city in northern Philippines. This descriptive-quantitative research was conducted in six barangays with the least and most COVID-19 cases in 2021. Barangay residents, officials and health workers were surveyed about community participation using five process indicators namely needs assessment, leadership, organization, resource mobilization and management. A high level of community participation towards COVID-19 prevention and control activities was seen in the barangays with leadership having the highest mean (4.23) and resource mobilization having the lowest mean (3.44). Leadership was significantly the same among all barangays while organization, management, needs assessment and resource mobilization significantly differed according to type of barangay, COVID-19 prevalence and population size. The researchers conclude that there is strong community participation of barangays towards COVID-19 prevention and control activities especially along leadership. However, the capacity of barangays to contribute, mobilize and distribute resources must be improved to maximize community prevention and control of COVID-19.

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1. INTRODUCTION

COVID-19 or coronavirus disease 2019 is an infectious disease caused by the SARS-CoV-2 virus. The majority of persons who are infected with the virus have mild to severe respiratory sickness and recover without the need for medical attention. In the Philippines, from January 3, 2020, to June 15, 2022, there have been a total of 3,690,00 confirmed cases of COVID-19, with approximately 60,461 deaths reported to the World Health Organization (WHO) [1]. In an update, last June 2022, the province of Cagayan alone had reported a total of 127,000 COVID-19 cases with the remaining 4 active patients [2]. Prevention and control of COVID-19 involves the use of two important strategies which include strengthening and expansion of the health system and restriction of social interaction. The latter relies primarily on the community which requires full cooperation or participation to ensure its effectiveness [3].

The community has an active role in health action [3]. The role of community interaction and mobilization has been identified as a basic component in determining successful prevention and control of infectious disease outbreaks and epidemics [3], [4]. Community participation is important in maximizing the

effectiveness of COVID-19 preparedness and response strategies and preventing transmission at the community level [4]–[10]. There is a need for community participation and community-centered approaches as the pandemic has shown it is importance as a component of health emergency response [5], [9], [10]. Moreover, community participation ensures reducing the damages already imposed by the pandemic and, ultimately, finding a timelier and sustainable solution to move forward [4]–[6], [11]. Community participation is critical for formulating a local context-specific solution to prevention and control responses, evaluating current community involvement structures, and implementing community participation initiatives to address contextually specific, suitable, and appropriate COVID-19 prevention and control measures [6], [12], [13].

Community participation is a principle of primary health care and is the process by which members of the community assume responsibility, gain self-reliance for their health and welfare, and subsequently improve their capabilities to meet the goals of the community's development [12]. The collective response of the community leaders and members can add to the effectiveness COVID-19 response by ensuring that people are operating within the correct structure [12]. Moreover, residents can best identify non-pharmacological solutions to manage the effects of the pandemic for their communities since they know what knowledge and rumors are circulating, can provide insight into the stigma and structural hurdles, and are ideally positioned to collaborate with others in their communities to design collective remedies [12], [14], [15]. Community participation is among the principles of the public health center (PHC) that is difficult to measure. To address this, five indicators of participation were developed namely needs assessment, leadership, organization, resource mobilization, and management [16]. These indicators are used to assess community participation, especially in relation to the implementation of health interventions and programs aligned with PHC [16]. Leadership refers to the inclusiveness and representativeness of all community interests and groups. Needs assessment describes the roles played by community members in identifying the health needs and in designing the program to be implemented. Organization is the extent to which programs integrate or collaborate with pre-existing community structures or networks. Management describes the community's capacity to make decisions about the program's direction, development, monitoring, and evaluation. Finally, resource mobilization refers to the community's ability to mobilize, contribute, and allocate resources toward community-based programs [16]. In the Philippines, as mentioned by the Department of Interior and Local Government (DILG), highlighted the role of barangays in preventing COVID-19, the DILG stated that barangay officials must become proactive to ensure that minimum health protocols are enforced in their respective communities. Moreover, factors that motivate community participation in the COVID-19 response in the country include a sense of duty, the presence of an enabling environment, integration of disaster response in the educational curriculum, practical and technical capability building, value for nationalism, provision of material support, accurate information and education campaigns, resource mobilization, values-orientation, availability of sophisticated disaster response equipment, and readiness for collaboration [17]. Barangays should adopt measures to promote health and safety, maintain peace and order, and preserve the comfort and convenience of barangay residents.

There is consensus on the significance of community participation in health processes but how community participation is carried out differs [18], [19]. There is a need therefore to better understand the nature by which community participation is used in the implementation of health programs and initiatives [3]. Moreover, assessing community participation may help provide insight as to the dynamics of the community in order to facilitate collaboration and involvement with sectors outside the community [12]. It is then necessary to know the status of participation of the community in COVID-19 prevention and control to provide baseline data that the governing agency may use to improve or maintain community engagement. However, minimal studies have been done with regard to assessing community participation in COVID-19 prevention and control in the country. The above information thus prompted the researchers to conduct a study to assess the level of participation of the community in COVID-19 prevention and control in barangays with the highest and lowest prevalence rates of COVID-19.

2. METHOD

This study utilized a descriptive quantitative research design. This design was used to assess the level of community participation in COVID-19 prevention and control in the barangay setting. The study was conducted in six barangays of a component city in the northern part of the Philippines. This city was identified as having the highest rate of COVID-19 cases in the province for 2021. Of the six barangays, three had the highest COVID-19 cases while the other three had the lowest cases of COVID-19 as of April 2022. Respondents consisted of 681 residents of the barangays aged 18-59 years who were residing in the barangays from 2019 to present and 45 barangay officials whose terms of office were within 2019 to present.

This study utilized a researcher-made structured questionnaire. The questionnaire was evaluated by experts in community health, research and community participation for its validity with a computed CVI of 1. Pilot testing was also done and Cronbach's alpha of 0.746 was computed, indicating an acceptable reliability level. The tool consists of two parts, the first obtained the sociodemographic profile of the residents and barangay officials. The profile of the barangays is also in the first section which is solely answered by barangay officials. The second section includes statements assessing the respondents' observation of the frequency by which community participation activities relating to COVID-19 prevention and control are implemented within the barangays. The second section of the questionnaire is further divided into five indicators which are the indicators for community participation: leadership, needs assessment, organization, management, and resource mobilization. These indicators were based on the process indicator framework for community participation [16]. The level of community participation was measured with the use of a 5-point Likert scale (always-5, often-4, sometimes-3, rarely-2, and never-1).

Socio-demographic profile of barangay was analyzed using frequency and percentage. The mean scores of the Likert-scale questions were computed and interpreted using the following range: 1.00-1.49: no participation, 1.50-2.49: low level of participation, 2.50-3.49: moderate level of participation, 3.50-4.49: high level of participation, and 4.50-5.00: very high level of participation. To determine the significant difference in the level of participation in the barangays as assessed by barangay residents and barangay officials, an independent sample t-test is used in data analysis. Moreover, to determine the significant difference in the level of community participation when group according to profile variables of the barangays, analysis of variance is used.

This study was reviewed and approved by the Institutional Review Board of Region II Trauma and Medical Center, Bayombong, Nueva Vizcaya, Philippines with protocol reference number 2023:023. This is a Philippine Health Research Ethics Board (PHREB)-accredited Level II IRB.

3. RESULTS AND DISCUSSION

3.1. Participant characteristics

The barangays selected for this study are those with the highest and lowest COVID-19 cases as of April 2022. As seen in Table 1, three barangays have a low case rate of COVID-19 and 3 have a high case rate of COVID-19. The table also shows that half of the barangays are urban and half are rural barangays. Half of the barangays are small in terms of population size while the other half are of medium to large in terms of population size. Lastly, half of the barangays have a barangay health station (BHS) within their vicinity while the other half have both a barangay health unit and a hospital.

Table 1. Profile of the barangays (n=6)

Categories		Frequency	Percentage
Type of barangay	Urban	3	50.0
	Rural	3	50.0
Population size	Small	3	50.0
	Medium	1	16.7
	Large	2	33.3
Health facilities available within the barangay	Barangay health stations	3	50.0
	Barangay health stations and hospital	3	50.0
COVID-19 cases	High	3	50.0
	Low	3	50.0

3.2. Level of community participation

Table 2 shows the level of community participation in the 6 barangays according to both the residents and barangay officials and health workers. As seen in the table, there is a high level of community participation in the barangays in terms of leadership, needs assessment, organization, and management indicators. It can also be seen that the leadership indicator has the highest mean. A moderate level of community participation is also shown for resource mobilization.

The results of the study revealed that the barangays have a high level of participation in COVID-19 prevention and control activities in terms of leadership, needs assessment, organization, and mobilization and a moderate level of community participation in resource mobilization. A high level of leadership in community participation means that barangay leaders, health workers, and residents of the community all contribute or take action in initiating and deciding about COVID-19 prevention and control activities. Population groups such as PWDs and senior citizens are also represented and consulted when there are decisions to be made about prevention and control activities. Effective COVID-19 response should involve

the inclusion of people from various sectors of the community to formulate collective and collaborative decisions and actions [3], [11], [12]. Representing these groups in the decision making process will make interventions more acceptable and can foster good compliance and implementation [8], [11]. Successful implementation of COVID-19 efforts relies greatly on an environment that will enable these efforts. This may be related to leadership as it allows for ensuring that the environment in the community have policies, institutional support, organized support groups, funding support, and safety measures, to facilitate public participation in relief response [17].

Table 2. Level of community participation of barangays in COVID-19 prevention and control (n=726)

Indicators	Mean	Qualitative Description
Leadership	4.23	High level of participation
Needs assessment	4.11	High level of participation
Organization	4.12	High level of participation
Management	4.01	High level of participation
Resource mobilization	3.44	Moderate level of participation

Community participation also relies on identifying the needs of the community people. Adequate and effective needs assessment indicate that barangay leaders and health workers are active in identifying the needs of barangays including the needs of the vulnerable groups and the residents when planning and implementing COVID-19 prevention and control activities. This result is in congruence with previous research [4], [12] wherein health committees and heads of local districts encouraged community residents to actively participate in assessing their needs and solving health problems through various community-based projects. Community members in this present study were also given opportunities to communicate their needs regarding COVID-19 prevention and control activities. Communication was found to be a key determinant in community participation especially with regard to COVID-19 prevention and control [8], [11], [12], [20], [21]. However, communication should not simply involve gathering the views or opinions of the community people rather a two-way dialogue and good feed backing should be observed [8], [11]. Effective communication can help the community identify their needs and formulate the specific action to address their needs [11], [21]. Effective communication also fosters social mobilization which can affect the community's compliance to COVID-19 prevention and control measures [11], [12], [20].

A high level of community participation in terms of organization as an indicator was also found in this study. This means that barangays integrate municipal implementation of COVID-19 prevention and control activities into the existing programs of their barangays with the active engagement of barangay groups and organizations such as youth groups or senior citizen groups in their barangays. These barangays also collaborate with non-government and government organizations outside their barangay. Although community-based approaches play an important role in COVID-19 prevention and control, these measures should be supported by national strategies and policies [9], [18]. Community-based organizations played diverse yet coordinated roles in response to COVID-19 [22]–[24]. In addition, community participation should not occur in a close circle but should be part of wider systems approaches and initiatives to address COVID-19 [6], [15]. Active participation between community leaders, residents, community groups, and other stakeholders are also important in ensuring effectiveness of COVID-19 response activities [6], [24].

High level of community participation along management indicator was also seen in the study. This implies that barangay leaders and residents including the vulnerable groups in these barangays are active in the management of the implementation of COVID-19 prevention and control activities [6]. This means that barangay leaders and health workers are responsible and work together in managing, formulating, and giving instructions, and on the decision regarding certain measures to take related to COVID-19. This is consistent with previous studies [25], [26] which showed that local COVID-19 response team should work actively in implementing public health and safety protocols. Moreover, the mobilization of different stakeholder in the community is needed to fulfil different roles in the COVID-19 response from designing and planning of activities to logistics and administration and implementation of such activities [6]. In this present study, the feedback of the residents including the vulnerable groups' and health workers' feedback about the implementation of COVID-19 prevention and control activities were also reviewed and considered by barangay leaders when deciding on the COVID-19 measures. The findings of this study also identified that barangays have moderate level of participation in mobilizing resources for COVID-19 prevention and control. This means that barangays are able to mobilize resources needed for COVID-19 prevention and control. However, barangay leaders are the only responsible for the allocation of funds and the residents are not always consulted. This is in contrast with the findings of previous studies [12], [27] which states that community approaches to COVID-19 response must include the involvement and collaboration with various

segments of the community to ensure efficient mobilization of resources within the community [17]. This present study also revealed that residents are encouraged to raise funds for COVID-19 prevention and control, however, the allocation of these funds are not always transparent to the residents. This is in contrast to the findings of a study [27] which noted that one of the community's participation in COVID-19 prevention is awareness of funds.

3.3. Differences in the level of community participation

Table 3 shows that there is a significant difference in community participation in terms of needs assessment and resource mobilization indicators when grouped according to the type of barangay. The urban barangays have a higher level of community participation in terms of needs assessment indicator than the rural barangays (mean difference of 0.114); while the rural barangays have a higher level of community participation in the resource mobilization indicator than the urban barangays (mean difference of -0.288). Table 3 further shows a significant difference in the level of community participation in terms of organization and management indicators when grouped according to the population size of the barangays. Barangays with small population size have a lower level of community participation in the organization indicator (mean of 3.93) compared to barangays with medium (mean of 4.11) and large population sizes (mean of 4.15). Moreover, the barangays with small population size also have a lower level of community participation in the management indicator (mean of 3.88) compared to barangays with medium (mean of 4.18) and large population sizes (mean of 4.00). Table 3 also shows that there is a significant difference in community participation in terms of needs assessment and resource mobilization indicators when grouped according to the health facilities present within the barangays. The barangays with BHS and hospital within their vicinity have a higher level of community participation in needs assessment indicator than the barangays with BHS only (mean difference of -0.325); while the barangays with only BHS have a higher level of community participation along resource mobilization than the barangays with both BHS and hospital within their vicinity (mean difference of 0.288). Finally, Table 3 also shows that there is a significant difference in the community participation in terms of needs assessment and resource mobilization indicators when grouped according to the number of COVID-19 cases of the barangays. The barangays with high COVID-19 cases have a high level of community participation along needs assessment indicator than the barangays with low cases (mean difference of 0.116); while the barangays with low cases have a higher level of community participation along resource mobilization indicator than the barangays with high number of cases (mean difference of -0.285).

Table 3. Difference in the level of community participation according to the profile variables of the barangays

Indicators	Leadership		Needs assessment		Organization		Management		Resource mobilization	
	t/F-value	p-value	t/F-value	p-value	t/F-value	p-value	t/F-value	p-value	t/F-value	p-value
Type	1.083	0.279	2.756	0.006*	-0.544	0.587	-1.899	0.058	-6.988	0.000*
Population size	1.755	0.174	1.130	0.323	6.901	0.001*	11.313	0.000*	2.368	0.094
Health facilities available within the barangay	-1.083	0.279	-2.756	0.006*	0.544	0.587	1.899	0.058	6.988	0.000*
COVID-19 Cases	1.149	0.251	2.808	0.005*	-0.525	0.600	-1.872	0.062	-6.908	0.000*

*Significant at 0.05 level

The result of this study shows that the level of participation of the barangays with COVID-19 prevention and control along need assessment and resource mobilization indicators significantly differ according to the type of barangay. The result revealed that urban barangays have better participation in COVID-19 prevention and control along need assessment indicator than rural barangays. This means that community members of urban barangays are more participative in identifying the needs of their barangays regarding COVID-19 prevention and control. Meanwhile, rural barangays have better participation in COVID-19 prevention and control along resource mobilization indicator than urban barangays. This means that community members in rural barangays are more participative in mobilizing their resources with regards COVID-19 prevention and control. These results are in contrast with a study [28], which indicates that persons living in lower urban centers and rural regions were less likely to participate in prevention measures than those living in regional cities. Moreover, in terms of health facilities available in the barangay, the present study shows that the level of participation of the barangays with COVID-19 prevention and control along need assessment and resource mobilization vary when grouped according to this variable. The result revealed that barangays with both barangay health centers and hospitals have higher levels of participation in COVID-19 prevention and control along need assessment than those with barangay health centers only. This implies that barangay with more health facilities are more participative in identifying the needs of their barangays regarding

COVID-19 prevention and control. Meanwhile, barangays with barangay health centers have higher levels of participation in COVID-19 prevention and control along resource mobilization than barangay health centers and hospitals. This implies that barangays with lesser health facilities are more participative in mobilizing their resources with regards COVID-19 prevention and control.

Furthermore, the level of community participation of the barangays with COVID-19 prevention and control in terms of need assessment and resource mobilization indicators significantly differ according to the COVID-19 prevalence rate of the barangays. The result revealed that barangays with high COVID-19 prevalence rate have better community participation in COVID-19 prevention and control along need assessment indicator than barangays with low COVID-19 prevalence rate. This means that barangay with higher COVID-19 prevalence rate are more participative in identifying the needs of their barangays regarding COVID-19 prevention and control. Communities who are directly affected by a problem like COVID-19 have wider perception on their needs, which makes it easier for them to comprehend their situation and can find solutions to solve them [29], [30]. Meanwhile, barangays with low COVID-19 prevalence rate have higher level of participation in COVID-19 prevention and control along resource mobilization than barangays with high COVID-19 prevalence rate. This means that barangays with lower COVID-19 prevalence rate are more participative in mobilizing their resources with regards COVID-19 prevention and control. This is in line with the study of [31] wherein they noted that low cases and transmission of COVID-19 is attributed to various interventions implemented such as large community involvement which includes widespread resource mobilization with onsite human resources and availability of materials. However, low cases of COVID-19 are not due to this response alone, there are also other responses noted including strict border control measures, expanded testing capacity and effective social measures [29], [30]. Lastly, in terms of population size, this present study revealed that the level of participation of the barangays with COVID-19 prevention and control along organization and management vary in terms of population size. The result revealed that barangays with large population size have higher levels of participation along organization than barangays with small population size. This means that barangays with higher population size are more participative in integrating activities for COVID-19 prevention and control in their barangays and collaborating organizations inside and outside their barangays. Meanwhile, barangays with medium population size have higher level of participation along management than barangays with small population size. This means that barangays with higher population size are more participative in developing, monitoring and evaluating COVID-19 prevention and control activities in their barangays. It is important to determine community participation in disaster events like the COVID-19 pandemic. Community participation plays an important role in community empowerment and community recovery during disasters. This can be helpful in identifying the community's capability in responding to disasters and their ability to recover from disaster events [32].

4. CONCLUSION

This study concludes that there was an active community participation in the implementation of COVID-19 prevention and control measures in the city especially in terms of the leadership of the barangay officials, assessment of the needs of the community members and in the organization and management of the implementation of these measures. The mobilization of resources can however be improved in order to maximize community participation. The study further concludes that rural communities with limited health facilities and lower COVID-19 cases are better able to mobilize resources for COVID-19 prevention and control; while urban communities with more health facilities accessible to the community people and higher COVID-19 cases are able to better assess the needs of their community members. Moreover, barangays with small population sizes have difficulty organizing and managing the implementation of COVID-19 prevention and control measures. These findings may provide an insight into the factors that may determine the successful implementation of COVID-19 prevention and control measures in the barangay level. These may also be used as basis in determining which types of barangays should be assisted in order to improve or maximize the implementation of COVID-19 prevention and control measures. Community participation can also be used as a measure or parameter in determining response and recovery of communities to future disaster events. The capacity for community participation of barangays should therefore be determined and necessary interventions be done to ensure good disaster response and recovery.

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