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Factors that determine the success of self-isolation: A Qualitative Approach

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ABSTRACT

The global challenges during the pandemic have created an urgent need for effective self-isolation programs to control the virus's spread. This study aims to identify the determinant factors of an Effective Self Isolation Program through a qualitative approach. The research is crucial as it provides insights into developing effective isolation strategies to handle the pandemic. Through qualitative data analysis, patterns were identified and it was found that factors such as public understanding of the importance of isolation, easy access to isolation facilities, and social support have a significant impact on the effectiveness of the Self Isolation Program. The research methodology involved in-depth interviews and qualitative data analysis. The findings of this research provide a deep understanding of the key success factors of the Effective Self Isolation Program. These findings are expected to guide policymakers in developing effective self-isolation programs and help suppress virus spread more effectively. The research results have demonstrated several determinant factors of an Effective Self Isolation Program as well as their important strategies and for minimizing the impact of a pandemic on the community. Patient understanding of self-isolation is still inadequate because patients tend to be more comfortable with self-isolation at home. Patient perception is also still lacking in realizing their health condition. Some patients feel dissatisfied with the attention and care provided by health workers so it is hoped that there will be increased communication and support from health workers that are more intense. Effective communication and caring family behavior are also needed to support the success of self-isolation.

Keywords: Effective strategies, Self isolation, Determinant factors, Pandemic, Qualitative approach.

INTRODUCTION

The lesson learned from the global pandemic in 2019 has brought unprecedented challenges for healthcare systems worldwide, necessitating the implementation of effective self-isolation programs in the near future (Kucharski *et al.*, 2020). However, the effectiveness of self isolation programs is challenged by a multitude of many factors (Lakhal *et al.*, 2023). Several facts show that people still tend to be less understanding in carrying out self-isolation procedures properly. Many asymptomatic patients choose to leave the house early, because they feel healthy or feel bored to do self-isolation at home. In addition, the lack of public literacy about personal health, social and economic factors also affect the implementation of self-isolation.

In our qualitative approach, we considered a range of factors that play a crucial role in the effectiveness of self isolation programs. These determinant factors include knowledge about the virus and preventive measures (Kretzschmar, Rozhnova and van Boven, 2020), attitudes towards isolation and public health guidelines (Leung, 2021), actions taken by individuals to adhere to isolation

protocols (Chen *et al.*, 2020), and perceptions of the risks associated with illness (Han, 2021). Moreover, we also delved into the role of families in supporting and enforcing isolation measures (Yang *et al.*, 2023), the impact of health workers in educating and guiding the public (Cardwell *et al.*, 2022), collective family behaviour in following isolation guidelines (Voo, Senguttuvan and Tam, 2020), and the prevention of new clusters through effective isolation practices (Stevenson *et al.*, 2021). The community's ability to effectively carry out self-isolation was hindered by widespread panic and anxiety due to the severe impact of pandemic, which led to many deaths (Tayo *et al.*, 2022). This rising concern resulted in a rigid and pressured approach to self-isolation, deviating from the intended flexible and supportive program (Misriandi *et al.*, 2020). Overwhelmed hospitals necessitated self-isolation as the primary alternative, emphasizing the critical role of families in its success due to the proximity of isolation sites to family residences. Despite a turbulent start, the self-isolation practices at the family level eventually stabilized and yielded positive outcomes (Gervais *et al.*, 2023).

In the previous studies, community stigma hinders the sustainability of self-isolation, contributing to increased stress and impeding recovery (Pepurah and Gyasi, 2021). This psychological burden can weaken the immune system, further complicating the healing process (Javed *et al.*, 2020). Additionally, low public awareness about the importance of self-isolation is influenced by various determinant factors, including insufficient knowledge, attitudes, actions, perceptions, the role of family and health workers, and collective family behavior. These factors collectively contribute to the ongoing vulnerability within family clusters (Diao *et al.*, 2021).

This research aims to explore the experiences during self-isolation, focusing on determinant factors influencing behavior. By using in-depth interviews, we examined themes derived from theory, literature reviews, and observations. We distinguished between respondent characteristics (age, gender, ethnicity, education, occupation, income, family size, and number of self-isolating family members) and determinants of successful self-isolation. The study identified eight key factors based on the PRECEDE model (Predisposing, Enabling, Reinforcing Causes in Educational Diagnosis, and Evaluation) (Grima *et al.*, 2020).

The PRECEDE model is a framework for planning health actions that aims to understand and address factors that impact health behavior during self-isolation. These factors will be explained in producing effective policies and strategies to support COVID-19 self-isolation (Porter, 2016). PRECEDE model consist of 1) Predisposing factors (knowledge, attitudes, actions, perceptions) reflecting patients' low ability to self-isolate; 2) Reinforcing factors (family role) indicating weak family monitoring; and 3) Enabling factors (role of health personnel, collective behavior, increasing family clusters) highlighting weak monitoring by health center personnel and the rise in family clusters. These factors were determined through pre-research and documentation. We strongly sure that the study will provides valuable insights into the key determinants of successful Self Isolation Programs, which are essential for informing public health policies and interventions aimed at controlling the pandemic in the future context (Dickens *et al.*, 2020; Wilder-Smith, Cook and Dickens, 2020; Alafif *et al.*, 2022).

RESEARCH METHODS

Participant characteristics and research design

This exploratory qualitative study aims to identify factors influencing the success or failure of self-isolation in Deli Serdang Regency, focusing on obstacles that lead to intra-family transmission. The construction stage allows researchers to pinpoint key decisions for subsequent research phases. Eligibility and exclusion criteria are based on major demographic and topic-specific characteristics, such as achievement levels in educational intervention studies, or genus and species in animal research (John W. Creswell, 2009).

Sampling procedures

The research was conducted in sub-districts of Lubuk Pakam. These locations were selected due to high prevalence managed through independent isolation, ensuring a diverse range of cases to study the effectiveness of self-isolation. The study was conducted from March to April 2022. Informants were chosen based on the principles of appropriateness and adequacy: they were selected for their relevant knowledge of the research topic, and the data they provided needed to comprehensively describe activities related to self-isolation practices (Webster *et al.*, 2020).

Sample size, power, and precision

This study examine ten asymptomatic patients from Lubuk Pakam Sub-district, Deli Serdang Regency, who have undergone self-isolation in the past six months. Individual interviews will be conducted to prevent mutual influence or dominance among informants. The selection of a sample of 10 people was determined using the purposive sampling method, where the sample was selected based on certain criteria such as the duration of self-isolation that the patient had undergone. These interviews will be recorded and transcribed for analysis. Researchers will coordinate with the Task Force team in Lubuk Pakam to identify cases. Using a qualitative approach, the study employs in-depth interviews and direct observation to explore factors and variables affecting the implementation of self-isolation. Data source triangulation will be used to validate the qualitative results, enhancing the credibility and reliability of the findings (Carter *et al.*, 2014).

Measures and covariates

This qualitative research involves in-depth interviews and focus group discussions to gather detailed information. The interviews will be conducted without providing alternative answer choices, allowing for thorough exploration of each topic. The researcher will prepare a set of interview guide questions based on a combination of theoretical frameworks, literature reviews, and observations. These questions are organized by theme to ensure discussions are specific and well-conceptualized. While sticking to the main themes, the researcher may also ask additional relevant questions. The research tools include stationery, tape recorders, and digital cameras (android smartphones). The informants consist of asymptomatic patients who underwent self-isolation and members of the Task Force response team at the Puskesmas (Yang, Gui and Xiong, 2020).

Data analysis

Data analysis begins with the preparation and processing of qualitative data, following these steps:

1. Transcription and Triangulation: Interviews are recorded and transcribed (Barrett and Twycross, 2018). To ensure data validity, triangulation is performed through:

- a) Source Triangulation: Utilizing multiple data sources, including written documents, archives, reports, official records, personal notes, and photographs, to provide diverse perspectives on the phenomenon under study.

b) Method Triangulation: Comparing information obtained through different methods, such as interviews and observations, and using various informants to verify the data. This approach aims to produce results that are closer to the truth by considering multiple viewpoints.

2. Thematic Analysis: This process involves understanding the data holistically. It includes sorting and organizing data into patterns, categories, and descriptive units. Data reduction is crucial, followed by reading the entire dataset and coding it to describe the people, categories, and themes for analysis. Theme analysis is conducted to describe the identified themes. The final step is data interpretation, which involves assigning meaning and significance to the analysis, explaining descriptive patterns, and examining relationships among descriptive dimensions (Watkins, 2017). The results of patient interviews will be compared to factors that influence the implementation of self-isolation. The most dominant factors in the implementation of self-isolation will be compared to related references to increase data reliability.

RESULTS

A series of in-depth interviews was conducted to elucidate the determinant factors affecting the success of monitored self-isolation. Factors including knowledge, attitudes, actions, perceptions, family dynamics, healthcare provider involvement, collective family behavior, and prevention of new clusters were thoroughly discussed with the informants.

Knowledges

The knowledge of patients regarding monitored self-isolation at home in this study encompasses four key aspects: reasons for choosing home self-isolation, duration of self-isolation, activities undertaken during isolation, and symptoms experienced (Choe *et al.*, 2020).

Question: Do you know the benefits of implementing self-isolation at home?

Answer: *"The benefits of self-isolation at home are that it is easier to monitor food, activities and other needs during isolation. The important thing is that I still try to comply with the protocol"* (Interview with informant 1 H).

There are several reasons why informants choose to self-isolate compared to isolation in hospitals or integrated isolation (shelters). This is in accordance with the results of interviews with the following informants:

Question: What are your reasons for self-isolation at home?

Answer: *"My reasons are because of the recommendation of health workers, beside that isolation at home is more comfortable and easier to apply, because my food needs and other needs can be met immediately. It's different when I'm in the hospital, it's hard to see my husband nad family"* (Interview with informant 2 E).

The interview results indicate that patients prefer self-isolation at home due to the comfort and convenience of communicating with family members. This suggests that patients' understanding of the broader importance of self-isolation remains inadequate (Abad,

Fearday and Safdar, 2010; Purssell, Gould and Chudleigh, 2020).

Attitudes

Informants, who are sufferers, exhibited both positive and negative attitudes towards adhering to health protocols during home self-isolation (L. E. Smith *et al.*, 2020).

Question: What is your attitude towards the implementation of health protocols during self-isolation at home?

Answer: *"I still try to comply with the health protocols set by the puskesmas, moreover, health workers are still available if there is a need ... so, I'm positive, I don't consider it too heavy"* (Interview with informant 3 R)

It was different with other informants when asked about their attitude towards the implementation of health protocols during self-isolation.

Question: During self-isolation, what is your attitude towards having to implement health protocols.

Answer: *"in my opinion, it is too much, so we are a little afraid of doing it. I wish it didn't have to be so strict, so that patients like me wouldn't be more afraid of facing this disease"* (Interview with informant 4 J).

The interview results indicate that attitudes towards adhering to health protocols during self-isolation at home vary among patients (Shaban *et al.*, 2020).

Actions

The diverse actions of informants, who are sufferers, in meeting domestic needs during home isolation are evident from the following interview results:

Question: What are your actions in meeting domestic needs while undergoing self-isolation at home?

Answer: *"I try to fulfill my needs during self-isolation from my own family. So I don't want to trouble other people, except my own family, so I decided to self-isolation at home"* (Interview with informant 5 F).

It was different with other informants about their actions in fulfilling their needs while undergoing self-isolation at home.

Question: How do you fulfill your needs for food, medicine and others while undergoing self-isolation at home?

Answer: *"I really can't do anything, so I just accept what food, medicine and other needs are provided by family members or health workers"* (Interview with informant 6 M).

The interviews highlighted a range of attitudes and actions regarding adherence to health protocols during home self-isolation among patients (Romay-Barja *et al.*, 2021). The perceptions and dynamics within the family unit have a significant impact on the success of home self-isolation for patients. It is important to consider the individual attitudes and actions of patients in meeting their domestic needs and adhering to health protocols (Gervais *et al.*, 2023).

Perceptions

The informants, who are sufferers, have differing perceptions of their clinical conditions during home

isolation (Shaban *et al.*, 2020). This is evident from the following interview results:

Question: How do you perceive the clinical conditions experienced during self-isolation?

Answer: *"In my opinion, some sufferers' conditions are quite severe, but some are normal, like they are not infected, maybe I don't understand the symptoms"* (Interview with informant 7 RS).

The same thing was also stated by other sufferers when asked about their perceptions of the patient's clinical condition during self-isolation at home.

Question: How do you assess the clinical conditions experienced during self-isolation?

Answer: *"Yes, when I see it, many sufferers look uncharacteristic, pale, tense, their enthusiasm for life has decreased a lot, sometimes it looks like stress and their lives are restless"* (Interview with informant 8 RR).

The interviews revealed varying perceptions among patients regarding their clinical conditions during home self-isolation (Shaban *et al.*, 2020). Some patients perceived their conditions as severe, while others considered themselves to be normal or did not fully understand the symptoms (Liu *et al.*, 2020).

Role of Family

The patients expressed varying opinions about their family's role during monitored self-isolation (Maaskant *et al.*, 2021). This is evident from the following interview results:

Question: What is the role of your family in accompanying you while you are undergoing independent isolation?

Answer: *"yes, the family is very understanding of my condition during self-isolation, but sometimes they don't seem to encourage it. so I think the role of the family so far is still lacking"* (Interview with informant 11 S).

The same thing was also shown by other sufferers when asked about the role of family

Question: During self-isolation, what role of health workers do you feel the most?

Answer: *"those of us who participate in self-isolation need attention and care, so if possible, yes the family is more understanding of our situation. No need to be asked first, then given."* (Interview with informant 12 R).

The patients interviewed had varying perceptions of their clinical conditions during self-isolation at home (Ammar *et al.*, 2020). Some patients described feeling severe symptoms and a decrease in enthusiasm for life, while others felt normal or had a limited understanding of their symptoms (Liu *et al.*, 2020).

Role of Health Workers

The informants expressed differing views on the role of health workers during monitored self-isolation (Bielicki *et al.*, 2020). The following interview results illustrate these perspectives:

Question: What do you think about the role of health workers during your self-isolation?

Answer: *"I realize that is very troublesome for health workers. Maybe our requests are too excessive, so sometimes we are annoyed by the slow work of health*

workers. So, the role of health workers is still not satisfactory" (Interview with informant 11 NA).

Other informants also expressed similar sentiments when asked about the role of health workers.

Question: What role of health workers can you feel helps you while undergoing self-isolation?

Answer: *"Yes, I understand that they have a lot of other work, not just taking care of us... so even if their work is not satisfactory, I can also understand"* (Interview with informant 12 N).

The in-depth interview revealed that the perceptions of patients regarding the role of health workers during self-isolation vary, with some expressing dissatisfaction with the level of attention and care (Ramaci *et al.*, 2020). This suggests that there may be a need for improved communication and support from health workers during the self-isolation period (Bhaumik *et al.*, 2020). Health workers can play a role in increasing patient compliance in implementing self-isolation by communicating well with patients, providing psychosocial support, and taking a persuasive approach to increasing patient compliance.

Collective Family Behaviors

The patients shared diverse opinions on the psychological support provided by their family's collective behavior during home isolation (Chilon-Huaman *et al.*, 2023). These perspectives are illustrated in the following interview results:

Question: What are the collective behaviors of your family that provide you with psychological support during your home isolation?

Answer: *"I really need psychological support, especially during this monitored self-isolation. But sometimes I am disappointed, there are some family members who do not show good psychological behavior"* (Interview with informant 13 M).

Another informant who is also a sufferer undergoing self-isolation expressed a similar opinion.

Question: How does the collective behavior of your family impact your psychological well-being during home isolation?

Answer: *"Yes, I would like my family to show a caring attitude and provide good psychological support. I really hope that there is a family who remains faithful to accompany, provide psychological support, not like so far, family support is very lacking"* (Interview with informant 14 B).

The findings from the interviews suggest that patients have varying experiences with the collective family behaviors during self-isolation (Betan *et al.*, 2021). These experiences highlight the importance of effective communication and the need for supportive and caring family behavior during self-isolation. (Maaskant *et al.*, 2021).

Prevention of New Clusters

The patients in self-isolation expressed significant concern about potentially creating a new cluster within their family (Little *et al.*, 2020). This aligns with the purpose of health protocols, which aim to prevent new clusters during self-isolation.

Question: Are there any specific measures you are taking to prevent the spread of the virus within your family during your self-isolation?

Answer: *"I really hope that there will not be a new cluster in the family, it is very dangerous, I myself am very nervous if that happens..that's why I really ask that the family and health workers try to prevent the occurrence of the new cluster."* (Interview with informant 15 AR).

The same thing was also stated by other informants while undergoing monitored self-isolation.

Question: What measures are you taking to ensure that your family does not become a new cluster during your self-isolation?

Answer: *"The health workers must fast response to prevent a new cluster"* (Interview with informant 16 YN).

The interviews with patients undergoing self-isolation revealed significant concern about the potential of creating new clusters within their families (Song *et al.*, 2020). This underscores the critical role of healthcare workers and families in ensuring the strict adherence to preventive protocols and the provision of support during self-isolation (Stevenson *et al.*, 2021).

DISCUSSIONS

Based on the interview results, informants revealed that the primary obstacles identified were stress and community stigma (Peprah and Gyasi, 2021). Informants detailed their initial symptoms and confirmed diagnosis through antigen and PCR tests. Many experienced mild symptoms, which influenced their decision to choose self-isolation over hospitalization. The primary reason for this choice was the belief that recovery would be more manageable in a familiar and comfortable home environment. Previous studies have also highlighted the importance of understanding the main reasons for self-isolation (Fraser *et al.*, 2004). Additionally, exploring the duration of self-isolation and the activities during this period in comparison to previous studies can shed light on the evolving trends and challenges in successful self-isolation practices (Webster *et al.*, 2020). Understanding how individuals navigate relationships with other family members during self-isolation and the impact of community stigma on their experience is crucial for developing targeted interventions to support and improve the self-isolation process (Stevenson *et al.*, 2021). By comparing these findings with previous studies, we can identify similarities and differences, leading to a comprehensive understanding of the determinants of successful self-isolation (Dickens *et al.*, 2011).

Self-isolation is an important strategy in suppressing the spread of the virus with varying effectiveness depending on factors. The success of self-isolation during COVID-19 is highly dependent on various factors such as individual, social, and government policies. Patients must be in a state of health that allows them to undergo isolation, have adequate facilities at home, and be in a sufficient social and economic situation. The government must be active in creating regulations and monitoring

systems to ensure the sustainability of self-isolation (Atchison *et al.*, 2021).

The primary activities undertaken by informants during self-isolation were identified through interviews, totaling 11 activities. Among these, eating was the most frequently mentioned, reported by 8 informants, followed by sunbathing and resting, mentioned by 5 and 4 informants respectively. Additionally, exercise and cooking activities were reported by 4 and 3 informants respectively. The primary activities reported by informants during self-isolation provide valuable insights into the daily experiences of individuals at home (Cardwell *et al.*, 2022). Eating emerged as a prevalent activity, indicating the ongoing need for nourishment and sustenance during this period (Huancahuire-Vega *et al.*, 2021). The frequent mention of sunbathing and resting suggests a focus on relaxation and exposure to natural light, which may have potential implications for mental well-being and immune system support (Andersen, Corazon and Stigsdotter, 2021). Furthermore, the engagement in exercise and cooking activities during self-isolation highlights the importance of maintaining physical activity and a sense of normalcy within the confines of home quarantine (Jakobsson *et al.*, 2020).

The duration of self-isolation among informants ranged from 1 to 4 weeks, varying according to individual endurance levels. Factors such as the strength of the immune system played a significant role in determining the length of self-isolation. Individuals with stronger immune systems typically experienced shorter durations of self-isolation and faster recovery compared to those with weaker immune systems (Andersen, Corazon and Stigsdotter, 2021). Understanding the main activities during self-isolation and the duration of self-isolation is crucial for developing effective self-isolation programs. By identifying the primary activities undertaken by individuals during self-isolation, we can design interventions and support systems that cater to their specific needs, such as promoting healthy eating habits, providing opportunities for relaxation and exposure to natural light, facilitating physical activity at home, and ensuring appropriate durations of self-isolation based on individual factors (Abbas and Kamel, 2020).

The interviews in this study have discussed the implementation of health protocols during self-isolation which are using disinfectant, changing towel, avoid interaction, separated bathroom, mask waste, hand washing, keeping distance, PCR test, room usage, mask usage, and spraying. The analysis demonstrates that the highest compliance among informants regarding health protocols is observed in the use of masks. Wearing masks is essential within the health protocol framework during self-isolation to prevent the spread of virus-laden droplets to others (Leung *et al.*, 2020). Another contributing factor is the utilization of medications and vitamins, which can significantly impact the pace of the healing process. The availability and types of drugs or vitamins play a crucial role in supporting the patient's recovery. However, during self-isolation, the accessibility of these resources tends to vary in practice. This may be due to factors such as

limited access to medical supplies or differences in beliefs regarding the effectiveness of certain medications and vitamins (Mushtaq *et al.*, 2021).

The health sector assumes a crucial role in monitoring patients undergoing self-isolation, ensuring they receive accurate and pertinent information directly from healthcare authorities. Health workers play a significant role in providing guidance, support, and monitoring during self-isolation (Bhaumik *et al.*, 2020; Vizheh *et al.*, 2020). Family members play an active role in providing both emotional support and encouragement to individuals undergoing self-isolation, potentially contributing to a faster healing process. Research has shown that the presence and involvement of family members during self-isolation positively impact individuals' mental and emotional well-being (Cardwell *et al.*, 2022; Gantari and Purworini, 2022).

The research findings, obtained through field observations and interviews, highlight two primary impediments to the implementation of self-isolation: stress and negative community stigma (Louise E. Smith *et al.*, 2020). Community stigma poses a significant obstacle to sustaining self-isolation efforts, yet it can paradoxically motivate individuals to continue isolating rapidly. Fear of community stigma and judgment can significantly impact patients' mental well-being, contributing to heightened stress levels (Fiorillo and Gorwood, 2020). This psychological burden, in turn, hampers the healing process during self-isolation, potentially compromising immune system function (Ali, N.A. *et al.*, 2021).

Critical reflection that can emerge in this study, respondents may forget some factors that are felt when doing self-isolation. In addition, the limited number of informants of 10 people may actually be less representative of the actual population conditions in a wider number. Predisposing factors such as low knowledge, attitudes, perceptions, and socio-cultural values can interfere with the implementation of self-isolation so that patients find it difficult to recover and tend to form new clusters. Enabling factors such as poor health services can also affect the speed or slowness of the recovery process carried out by patients when carrying out self-isolation. Reinforcing factors such as the role of maximum health workers and family support will also help the mental and physical health felt by patients (Bodas and Peleg, 2020).

CONCLUSION

This study highlights significant variations in perceptions and experiences among patients undergoing self-isolation in Deli Serdang Regency, emphasizing the importance of targeted interventions to address challenges and improve the efficacy of monitored self-isolation. The findings underscore the need for holistic support, encompassing both physical and psychological aspects of illness, as well as enhanced communication and assistance from health workers. Patient understanding and perception need to be improved so that self-isolation can run well. Health workers need to improve their attention and care for

patients so that they will get good support and communication. Effective communication and family concern also support the success of self-isolation.

SUGGESTIONS

Addressing issues surrounding family behavior and household transmission of the virus is critical to effective public health interventions. Future research should focus on expanding sample sizes and evaluating the impact of specific interventions to refine self-isolation programs and better support for families. It is hoped that the government through health services and related parties can produce policies that are right on target for the health needs required by the community. Health workers should also always provide excellent service in caring for patients. Families are also always active in providing mental and moral support in achieving health.

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