

## Prioritization of Problems in Public Health Programme Planning Using The Difficulty Usefulness Method: Scoping Review

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### ABSTRACT

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The difficulty-usefulness method is not widely known as a prioritization method. Some researchers have used this method in prioritization, but no researcher has reviewed the difficulty-usefulness method, the elements used, or the development of this method. This scoping review examines the difficulty-usefulness method in priority setting, the elements used, and the development of this method. This scoping review follows the five-stage framework of Arksey and O'Malley. A database search used keywords for literature published between January 2014 and June 2024. Data were organized, summarized, and presented in tables based on various themes. Eight studies were reviewed that utilized the difficulty-usefulness method in improving e-learning activities, preventing pesticide usage risks, selecting contraceptive methods, determining healthy family indicators, and determining community-based disaster preparedness parameters. The elements used in priority setting were aligned with the activities or issues to be improved or enhanced. These elements were determined through focus group discussions (FGD) and previous research results. The development of the difficulty-usefulness method has been carried out by several researchers, including the arrangement of elements in a pyramid structure, weighting attributes, and grouping elements into quadrants. The effectiveness of the difficulty-usefulness method has not yet been assessed, and there is still significant potential for further development.

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## INTRODUCTION

Community Health Center services as regulated in the Regulation of the Minister of Health of the Republic of Indonesia Number 43 of 2019 concerning Community Health Centers, are efforts provided by Community Health Centers to the community, including planning, implementation, evaluation, recording, and reporting outlined in a system. In implementing first-level SMEs in their work areas, the Community Health Center is authorized to prepare activity plans based on the analysis of public health problems and the need for the necessary services (Ministry of Health Republic Indonesia, 2019).

Preparing program planning at the Ministry of Health involves a scientific (technocratic), political, participatory, top-down, and bottom-up approach (Ministry of Health Republic Indonesia, 2022). Implementing activities and planning at the health center level

can be one element of the process of preparing national health program planning.

For the Community Health Center to manage all work programs and health efforts effectively and sustainably, health development policies and evidence must be the basis for planning Community Health Center activities (Al Hikami et al., 2022). Community Health Center planning is prepared through the proper identification of problems based on accurate data and obtained in the right way and at the right time; it will be able to direct the health efforts carried out by the Community Health Center in achieving its goals and objectives. The stages of Community Health Center planning include several stages, namely preparation, data collection and analysis of Community Health Center performance, formulating problems, determining priority problems, determining how to solve problems, and preparing documents (Bakri, 2018). Problem prioritization needs to be done to follow up on limited resources in solving

all problems experienced by Community Health Centers.

The mapping of criteria to determine priorities in decision-making includes thirty-one criteria. The criteria are distributed into five categories that reflect health system objectives (i.e., to improve health levels, equitable health distribution, responsiveness, protection, and efficiency of social and financial risks) and leadership/governance. One category reflects feasibility based on the foundation of the health system (i.e., service delivery, health workers, information, medical products, vaccines, technology, financing, and leadership) (Kaur et al., 2019; Angelis et al., 2017).

Analysis that involves multiple criteria in prioritizing interventions in the health sector is critical. The MCDA (multi-criteria decision analysis) method is an important tool for a more rational priority-setting process. The REVISE (Rethinking the Value of Interventions to Improve Priority Setting) project is implemented to develop evidence-based decision-making methods (Baltussen et al., 2016).

Community Health Centers have been planning using several methods, but there is still little variety. The most common methods used by Community Health Centers in Jombang Regency are ultrasound, FGD, and SWOT methods. The commonly used methods in the planning process are 5W1H to identify problems, ultrasound methods to prioritize problems, fishbone methods to identify root causes, and brainstorming methods to determine the follow-up plan (Bakri, 2018).

The Community Health Center's planning process in determining the priority of problems so far uses manual methods, considered less effective because they take a relatively long time. Several researchers have used the Quadrant of Difficulty-Usefulness (QoDU) method, which has proven more effective and efficient in prioritizing problems in the planning process. This QoDU method has been used in e-learning learning planning in health worker education institutions (Nugroho et al., 2020) and is used to select the priority of disaster preparedness parameter elements in community-based disaster programs (Sunarto et al., 2024). However, the Quadrant of Difficulty-Usefulness (QoDU) method has not been used in program planning in Community Health Centers.

The Quadrant of Difficulty-Usefulness (QoDU) is developed from the difficulty-usefulness method. This method uses the attributes of difficulty and usefulness in determining the priority of the elements of the

problem to be solved, which are then grouped into quadrants (Nugroho et al., 2020). The difficulty-usefulness method is not widely known as a prioritization method. Some researchers have used this method in prioritization, but no researcher has reviewed the use of the difficulty-usefulness method, the elements used, or the development of this method. This scoping review aims to review the difficulty-usefulness method in prioritization, the elements used, and the development of its use.

## METHOD

The method used in the scoping review is the concept of five stages of Arksey and O'Malley in synthesizing and analyzing various literature (Dudley et al., 2022). Arksey and O'Malley (2005 in Westphal et al., 2021) suggest five stages to conducting a scoping review; that is: 1) identify research questions; 2) identify relevant studies; 3) conduct study selection; 4) conduct data mapping; and 5) compile, summarize, and report the results (Dudley et al., 2022). This research, supported by a framework, is reported in a PRISMA report. Steps one to five of this five-step framework are described below:

### Identify research questions

The research questions in this review are:

1. How do we use the difficulty-usefulness method in prioritization?
2. What elements are used in the difficulty-usefulness method?
3. Is there an improvement in the difficulty-usefulness method?

### Identify relevant studies

The relevant studies were identified by systematic searches on electronic databases, including Proquest, PubMed, and the National Library (Indonesian Publication Database), with publications from January 2014 to June 2024. Various combinations of medical subject titles (MeSH) with Boolean AND and OR operators are used: "priority" AND "difficulty usefulness" OR "difficultness-usefulness." A second search is also done by reviewing relevant studies' bibliographic references.

### Study selection

A total of 68 references were obtained for literature in English, minus 25 articles that were duplicates. A total of 43 articles were reviewed on the suitability of titles and abstracts and the

type of complete text. After obtaining 12 articles, they were filtered based on inclusion and exclusion criteria. The inclusion criteria for articles are: 1) only studies of original articles and 2) research design in quantitative, qualitative, or mixed methods studies. Studies were excluded if 1) they used methods other than difficulty usefulness in prioritization and 2) they did not use the same indicators of difficulty and usefulness. After going through the inclusion and exclusion criteria, 8 articles were included in the final coverage review. The search and selection process of studies is shown with the PRISMA flow in Fig.1

**Data mapping**

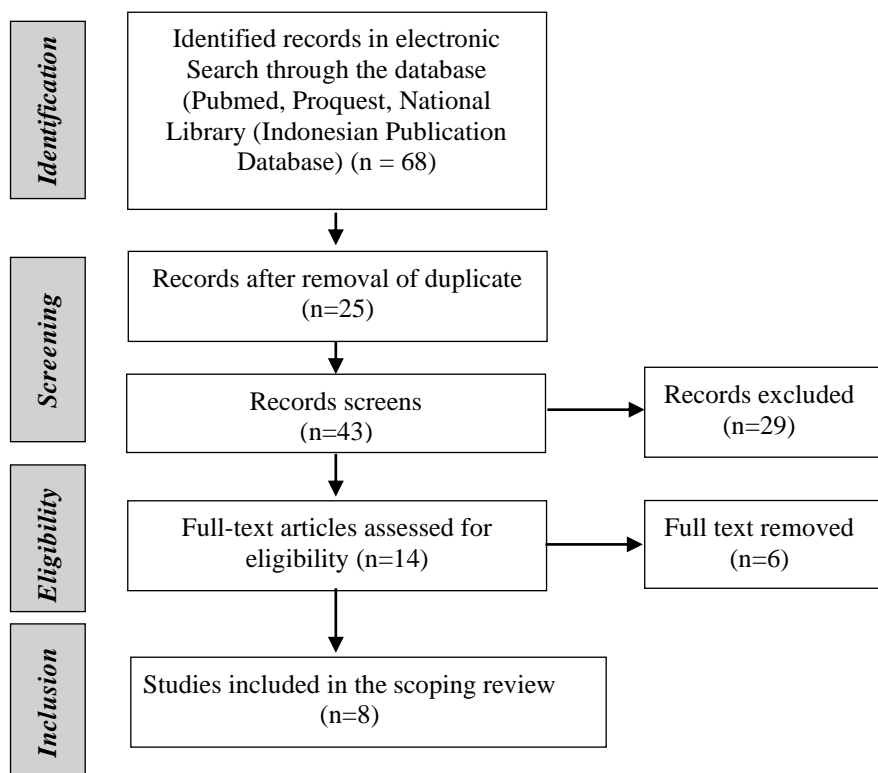
The characteristics of the reviewed studies are listed in Table 1, including article title, author, year, study design, research objectives, number of participants, and study location. Following the inductive nature of scoping reviews (Dudley et al., 2022), no studies were excluded based on quality. Table 2 reviews specific data on the prioritization stages, prioritized elements, development of difficulty-usefulness methods, and assessment of

effectiveness perception. All data mapping was done independently by the first reviewer. The second and third reviewers refined the review.

**Compile, summarize, and report results**

Following the guidance (Pollock et al., 2021), we performed a descriptive summary to compile and summarize the results. The guideline for content analysis through three phases (Munn et al., 2018), (Pollock et al., 2021) presented narrative description analysis and synthesis from the literature. In the preparation stage, the reviewer selected the unit of analysis and coded it using three research questions as a guiding framework. Then, a charting table was developed as an analysis matrix. Furthermore, the data is grouped into a charting table to form categories according to the three research questions. Reviewers then review the content grouped into charting tables. Finally, the narrative synthesis concerning the charting table is reviewed (Westphaln et al., 2021).

This study received approval from the Unipdu ethics committee Number: 004-KEP-Unipdu/11/2024.



**Figure 1. PRISMA Flow Chart**

**RESULTS**

The eight studies reviewed used descriptive quantitative methods to carry out the

research. All the studies reviewed aim to determine priority elements in the improvement efforts. The population and research sample are academics and the general public, with various

criteria. The population and sample of the reviewed studies are as follows: students of the College of Health Sciences (3 studies), people who know about pesticides (2 studies), women of childbearing age (1 study), families who have access to the internet (1 study) and community leaders in disaster-prone areas (1 study). All studies were carried out their research in Indonesia, 3 studies were carried out in Surabaya, 3 studies were conducted in Magetan, and 2 studies were carried out online using WhatsApp as a medium.

We discussed the main themes, which consist of the prioritization stages, prioritized elements, the development of the difficulty-usefulness method, and the assessment of the perception of the prioritization method's effectiveness.

### Stages of prioritization

The prioritization stages were not described in the 3 studies reviewed. In 5 studies, the stages vary. In general, the prioritization stages are as follows: 1) determination of elements to be prioritized; 2) determination of

attributes to be used to determine priority; 3) measurement of the level of difficulty and usefulness of each element; and 4) data collection and analysis process.

### Priority elements

All the reviewed studies used diverse elements according to the problem to be corrected. The FGD determines this element (focus group discussion) method directly and virtually based on the literature and previous research results.

### Development of difficulty-usefulness methods

Prioritization using the difficulty-usefulness method is new, so several studies have developed it. Development involves arranging elements in the pyramid, weighting attributes, and grouping elements in quadrants.

### Assessment of Perception of Effectiveness

All eight reviewed studies did not assess the effectiveness of this difficulty-usefulness method in prioritizing.

**Table 1. General characteristics of literature studies**

No	Article Title	Author and Year	Research design	Research objectives	Samples and quantities	Research location
1	Difficulty-Usefulness Pyramid (DUP) as New Methode to Select Elements Prioritized in Management of e-Learning of Health	Nugroho, Handoyo, Suparji, Sunarto, Subagyo, Bahtiar; Year 2018	Descriptive Quantitative	Created a new method of selecting prioritized elements for repair	Students and Lecturers of the Health Polytechnic of the Ministry of Health Surabaya	Surabaya; Indonesia
2	Sort Elements Based on Priority in order to Improve the Quality of E-Learning in Health Using (DUP-We)	Nugroho, Handoyo, Prayitno, Budiono; Year 2019	Descriptive Quantitative	Selecting prioritized elements for the Difficulty-Usefulness Pyramid with Weighting (DUP-We)	Students of the Surabaya School of Environmental Health; 200 people	Surabaya; Indonesia
3	Quadrant of Difficulty-Usefulness (QoDU) as New Method in Preparing for Improvement of Elearning in Health College.	Nugroho, Sunarto, Handoyo, Yessimbekov, Nurfardiansyah Burhanuddin & Pius; Year 2020	Descriptive Quantitative	Selecting e-learning elements in Health that are prioritized for improvement and improvement by grouping elements into four quadrants based on their level of difficulty and usefulness	Students of the Magetan School of Environmental Health; 150 people	Magetan; Indonesia
4	Determination of Priority Elements of Vigilance in	Ibrahim I, I Ketut Sudiana, H. J. Mukono,	Descriptive	Identify and provide an overview of the	the general public who knows about	Through Social Media

No	Article Title	Author and Year	Research design	Research objectives	Samples and quantities	Research location
	the Use of Pesticides Based on Difficulty and Usefulness (A Supporting Study for Law and Policy in Health).(Ibrahim et al., 2020b)	Suhartono, Heru Santoso Wahito Nugroho; Year 2022		selection of elements of farmers' behavior that are at high risk of being affected by pesticide exposure to prioritize which elements need to be handled quickly and correctly	the use of chemical pesticides in Indonesia; 100 people	
5	Awareness Program of Pesticides Used among Farmers using the Difficulty-Usefulness Pyramid (A Suggestion for Health Laws and Policies Regarding the Use of Pesticides).	Ibrahim, Sudiana, Mukono, Suhartono, Nugroho; Year 2022	Descriptive	To propose a method for selecting elements to be prioritized using DUP	the general public who know about the use of chemical pesticides in Indonesia; 100 people	Through Social Media
6	Difficulty-Usefulness Pyramid (DUP) is a Method of Selecting Priority Elements in the Use of Long-Term Contraceptive Methods.	Sunarto, Puspitasari, Mercado, Nugroho, Suparji, Ngestiningrum; Year 2022	Descriptive	to select the prioritized elements in the use of long-term contraceptive methods using the Difficulty-Usefulness Pyramid (DUP) method	Women of childbearing age couples who do not use long-term contraceptives; 64 people	Magetan; Indonesia
7	Selection of Prioritized Healthy Family Indicators, Using the Difficulty-Usefulness Pyramid (DUP).	Hardjito, Rahmaningtyas, Wahito Nugroho; Year 2023	Descriptive	To select Healthy Family indicators to prioritize using the Difficulty-Usefulness Pyramid (DUP) method	Families in Indonesia who can access the internet: 300 families	Surabaya; Indonesia
8	Quadrant of difficulty and usefulness for prioritizing community-based disaster preparedness parameter elements	Sunarto, Nugroho, Suparji, Santosa; Year 2024	Descriptive	Prioritizing building elements for community-based disaster preparedness parameters	Managers of disaster awareness forums and community leaders in disaster-prone areas; 345 people	Magetan; Indonesia

**Table 2. Study-specific data**

No	Article Title	Stages of Prioritization	Prioritized Elements	Development of Difficulty-Usefulness Methods	Assessment of Perception of Effectiveness
1	Difficulty-Usefulness Pyramid (DUP) as New Methode to Select Elements Prioritized in Management of e-Learning of Health (Nugroho et al., 2018)	1) Selection of e-learning elements to be prioritized; 2) Selection of attributes used as the basis for setting priorities; 3) Determination of element selection methods with high "ease of use" and "usability"; 4) Trial through field research; 5) Submission of conclusions and recommendations	1) learning design; 2) leaflets; 3) books; 4) links to resources; 5) discussion forum; 6) discussion; 7) assignment; 8) feedback; 9) quizzes and; 10) surveys.	Prioritize elements at the pyramid level	No research was conducted
2	Sort Elements Based on Priority in order to Improve the Quality of E-Learning in Health Using the Difficulty Usefulness Pyramid with Weighting (DUP-We) (Nugroho et al., 2019)	1) Determination of elements; 2) Determination of attributes; 3) Attribute weighting; 4) Data collection and analysis	1) learning design; 2) leaflets; 3) books; 4) links to resources; 5) discussion forum; 6) discussion; 7) assignment; 8) feedback; 9) quizzes and; 10) surveys.	Weighting on the attributes of difficulty and usefulness is by the respondent's perception	No research was conducted
3	Quadrant of Difficulty-Usefulness (QoDU) as New Method in Preparing for Improvement of Elearning in Health College (Nugroho et al., 2020)	1) Determination of e-learning elements to be sorted based on priority; 2) Determination of attributes used as the basis for determining priorities; 3) Measuring the difficulty and usability of each element; 4) Data collection process; 5) Select elements based on priority order	1) learning design; 2) leaflets; 3) books; 4) links to resources; 5) discussion forum; 6) discussion; 7) assignment; 8) feedback; 9) quizzes and; 10) surveys.	Use grouping of prioritized elements in quadrants	No research was conducted
4	Determination of Priority Elements of Vigilance in the Use of Pesticides based on Difficulty and Usefulness (A Supporting Study for Law and Policy in Health) (Ibrahim et al., 2020b)	Unexplained	The 8 elements of risk behavior consist of; 1) personal protective equipment (PPE); 2) pesticide storage; 3) procedures for using pesticides; 4) use of pesticide doses; 5) duration and frequency of pesticide	Not doing development	No research was conducted

No	Article Title	Stages of Prioritization	Prioritized Elements	Development of Difficulty-Usefulness Methods	Assessment of Perception of Effectiveness
			spraying; 6) maintaining the cleanliness of equipment; 7) spraying pesticides in the direction of the wind; 8) pesticide spraying time		
5	Awareness Program of Pesticides Used among Farmers Using Difficulty-Usefulness Pyramid (A Suggestion for Health Laws and Policies Regarding the Use of Pesticides) (Ibrahim et al., 2020a)	1) Determination of elements; 2) Determination of attributes; 3) Data collection; 4) Date Analysis	1) Personal protective equipment (PPE); 2) pesticide storage; 3) pesticide use procedures; 4) pesticide dosage use; 5) duration and frequency of pesticide spraying; 6) equipment cleaning; 7) pesticide spraying based on wind direction; 8) pesticide spraying time	Prioritize elements at the pyramid level	No research was conducted
6	Difficulty-Usefulness Pyramid (DUP) as a Method of Selecting Priority Elements in the Use of Long-Term Contraceptive Methods (Ika et al., 2022)	1) Determination of elements prioritized by FGD; 2) Analysis of prioritized elements using DUP; 3) High element analysis; 4) Low element analysis;	1) knowledge of couples of childbearing age about MKJP; 2) communication, information, and education on family planning; 3) cost of family planning services; 4) availability of tools in family planning services and; 5) husband support	Prioritize elements at the pyramid level	No research was conducted
7	Selection of Prioritized Healthy Family Indicators, Using the Difficulty-Usefulness Pyramid (DUP) (Hardjito et al., 2023)	Unexplained	1) families participating in the Family Planning program; 2) mothers giving birth at health care facilities; 3) babies receiving complete basic immunizations; 4) babies	Prioritize elements at the pyramid level	No research was conducted

No	Article Title	Stages of Prioritization	Prioritized Elements	Development of Difficulty-Usefulness Methods	Assessment of Perception of Effectiveness
			receiving exclusive breastfeeding; 5) toddlers receiving growth monitoring; 6) Pulmonary tuberculosis patients receive treatment according to standards; 7) hypertensive patients undergo routine treatment; 8) patients with mental disorders receive treatment and are not abandoned; 9) family members do not smoke; 10) families are members of the National Health Insurance; 11) families have access to clean water and; 12) families have access to or use healthy latrines		
8	Quadrant of difficulty and usefulness for prioritizing community-based disaster preparedness parameter elements (Sunarto et al., 2024)	Unexplained	1) knowledge and attitudes; 2) policies; 3) early warning systems; 4) emergency response plans, and; 5) resource mobilization	Use grouping of prioritized elements in quadrants	No research was conducted

## DISCUSSION

The first review was a scoping review of several kinds of literature on the difficulty-usefulness method in prioritization. This method is new in determining priorities, and it is also one of the reasons why all studies use the Descriptive method in their research and aim to introduce this new method.

The difficulty-usefulness method is implemented in several stages. Most studies describe the stages of implementation of the

difficulty-usefulness method in detail, but 3 studies do not explain the stages (Ibrahim et al., 2020b; Hardjito et al., 2023; Sunarto et al., 2024). The first stage is the selection of elements or elements that will be prioritized in all studies. The selection of elements was carried out in various ways, including using the results of literature review as the basis for selection (Nugroho et al., 2018; Ibrahim et al., 2020a) based on the results of previous research, (Nugroho et al., 2019; Nugroho et al., 2020) and through FGD (Ika et al., 2022). The next stage is



to select and determine the attributes that will be used to determine priorities. The difficulty attribute and the usefulness attribute are the main attributes used. Selection and determination of attributes based on literature review and previous research results (Nugroho et al., 2018; 2019; 2020). The difficulty attribute received a negative score of 0 to -10, while the usefulness attribute received a positive score of 0 to 10. The attributes of difficulty and usefulness were developed by giving weights to each attribute, Nugroho et al., (2019), where this was not done in other studies. Each element is measured based on the attributes of difficulty and usefulness. The data from the measurement results carried out by the study respondents were collected and analyzed to obtain an average number pair of difficulty and usefulness values in each element. The next step is to arrange pairs of numbers on each element in the pyramid arrangement. The pyramid arrangement is based on the range of numbers obtained from the attributes of difficulty and usefulness, where the lowest arrangement is the element with the widest range and the element occupying the highest arrangement with the narrowest range. This pyramid arrangement was not carried out in the 3 studies reviewed (Nugroho et al., 2020; Ibrahim et al., 2020b; Sunarto et al., 2024). The average value of the difficulty attribute becomes the X axis, and the average value of the usefulness attribute becomes the Y axis (Nugroho et al., 2020).

Prioritization in studies using pyramid arrangements is based on the elements at the bottom of the order (Nugroho et al., 2018; Ibrahim et al., 2020a; Nugroho et al., 2019). In another study, priority determination was based on the position of the quadrant point of each element (Nugroho et al., 2020; Sunarto et al., 2024). The priority is for elements in quadrant I, the second priority is in quadrant IV, the third priority is in quadrant II, and the fourth priority is in quadrant III.

Determining elements to be prioritized uses the literature review and focus group discussion (FGD) method. These elements are selected and determined based on the activities or problems to improve. In the e-learning activity, there are 10 elements selected, namely 1) learning design; 2) leaflets; 3) books; 4) links to resources; 5) discussion forum; 6) discussion; 7) assignment; 8) feedback; 9) quizzes and; 10) Surveys (Nugroho et al., 2018; 2019; 2020). In the risk prevention activities of pesticide use, there are several elements selected, namely 1) Personal protective equipment (PPE), 2) pesticide storage, 3) procedures for using

pesticides, 4) use of pesticide doses, 5) duration and frequency of pesticide spraying, 6) cleaning equipment, 7) spraying pesticides based on wind direction, 8) pesticide spraying time (Ibrahim et al., 2020a; Ibrahim et al., 2020b). In the study of long-term contraceptive use, the selected elements were 1) knowledge of couples of childbearing age about MKJP, 2) communication, information, and education of family planning, 3) cost of family planning services, 4) availability of tools in family planning services and 5) husband support (Ika et al., 2022). The Healthy Family Indicator is used as an element in prioritizing problems to be solved in families in Indonesia. The Healthy Family Indicator consists of 1) families participating in the Family Planning program, 2) mothers giving birth in health care facilities, 3) babies receiving complete basic immunizations, 4) babies receiving exclusive breastfeeding, 5) toddlers receiving growth monitoring, 6) pulmonary tuberculosis patients receiving treatment according to standards, 7) hypertensive patients undergoing routine treatment, 8) patients with mental disorders receiving treatment and not being abandoned, 9) family members do not smoke, 10) families are members of the National Health Insurance, 11) families have access to clean water and 12) families have access to or use healthy latrines (Hardjito et al., 2023). Community-based disaster preparedness parameters are determined by several 25 elements grouped into 5 groups of elements. The group of elements is 1) knowledge and attitude, 2) policy, 3) early warning system, 4) emergency response plan, and 5) resource mobilization. (Sunarto et al., 2024) All elements that have been selected and determined will be prioritized to improve or improve an activity or problem.

The difficulty-usefulness method is new in prioritization, but some researchers have used and even developed it. The development that has been carried out includes using the pyramid method and quadrants. Of the 8 studies reviewed, 5 studies used pyramid arrangement as a development step (Hardjito et al., 2023; Nugroho et al., 2018; Ibrahim et al., 2020a; Nugroho et al., 2019; Ika et al., 2022). Weighting attributes by multiplying each element by the difficulty and usefulness scores (Nugroho et al., 2019). The grouping of elements valued into 4 quadrants was carried out in 2 studies: Nugroho et al. (2020) and Sunarto et al. (2024). However, there was 1 study that did not develop (Ibrahim et al., 2020b). The development of the difficulty-usefulness method is still very possible in prioritization.

The 8 studies reviewed used the difficulty-usefulness method to improve the quality of activities or problems. However, its effectiveness has not been assessed in the improvement planning process. This opens up opportunities for other researchers to assess the effectiveness of using this method.

Hopefully, this method can be adopted as one of the methods used in program planning at Community Health Centers. By paying attention to the safety of patients and the community, the Community Health Center can create an effective, efficient, and accountable community health center in implementing quality and sustainable first-level health services.

## CONCLUSION

The difficulty-usefulness method, a new prioritization method, has been used in several studies. This method is used to improve quality and improve activities or problems. The difficulty-usefulness method has been used in improving e-learning activities, preventing the risk of pesticide use, selecting contraceptive

methods, determining indicators of healthy families, and determining community-based disaster preparedness parameters. The elements used in determining priorities according to the activities or problems to be improved or improved. These elements were determined by FGD and using the results of previous research. The development of this difficulty-usefulness method has been carried out by several researchers, namely the arrangement of elements in the pyramid arrangement, the weighting of attributes, and the grouping of elements in quadrants. The development of this method is still possible, and research needs to be conducted to assess the effectiveness of this difficulty-usefulness method in determining priorities.

## CREDIT AUTHOR STATEMENT

**BS:** Writing original draft, Conceptualization; **AZ:** Supporting original draft, review; **AAS:** Supporting original draft, review; **HM:** Supporting original draft, editing, corresponding author.

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