

Relationship Between the Health Belief Model and Dietary Patterns Among Fishermen in PangandaranKenita Amelia Fernanda¹, Sheizi Pristasari¹, Siti Ulfah Rifa'atul Fitri¹¹Faculty of Nursing, Universitas Padjadjaran, Indonesia**ABSTRACT**

Fishermen are a group of workers with long working hours and irregular working conditions, which can potentially affect their health behaviors, particularly their dietary patterns. The dietary patterns of fishermen in the Pangandaran coastal area tend to be irregular due to heavy workloads, time constraints, and limited access to nutritious food while at sea. The Health Belief Model (HBM) explains that health behavior is influenced by individuals' perceptions of susceptibility, severity, benefits, and barriers. This study aimed to examine the relationship between Health Belief Model beliefs and the dietary patterns of fishermen in the Pangandaran coastal area. This study employed a quantitative descriptive design with a cross-sectional approach. The study population consisted of fishermen at Cikidang Port, Pangandaran, with a sample of 126 respondents selected through simple random sampling. Dietary patterns were measured using the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ), while health beliefs were measured using a Health Belief Model questionnaire covering perceptions of susceptibility, severity, benefits, and barriers. Data were analyzed using univariate and bivariate analyses with correlation tests. The results showed that most fishermen had poor dietary patterns, while the majority of respondents had high perceptions of susceptibility, severity, and benefits, as well as low perceptions of barriers. Bivariate analysis found no relationship between the four components of the Health Belief Model and fishermen's dietary patterns. These findings indicate that high health beliefs are not necessarily accompanied by healthy dietary behaviors and suggest that factors such as working conditions, limited access to food, and the lack of integration of self-efficacy and cues to action may also influence dietary patterns.

Keywords: Health Belief Model, dietary patterns, fishermen, Pangandaran

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INTRODUCTION

Fishermen in the Pangandaran coastal area are a group of workers with heavy work characteristics, long working hours, and unpredictable working times, which can potentially affect their health, including their eating patterns (Fahmi et al., 2025). Fishing activities carried out from early morning until hours later at sea often cause fishermen to neglect regular meal times and food choices. Eating patterns that do not comply with the principles of balanced nutrition in the

long term can increase the risk of health disorders, reduce immunity, and impact the productivity of fishermen in the Pangandaran coastal area. Therefore, eating patterns are an important aspect that needs to be considered in efforts to improve the health of local fishermen.

Fishermen in Pangandaran have eating patterns that are affected by diverse elements, encompassing environmental, socioeconomic, and individual aspects. One key individual aspect impacting health behavior involves health beliefs. The Health Belief Model (HBM) offers a theoretical perspective on health behavior, indicating that individuals' health-preserving activities are guided by their assessments of disease susceptibility, the gravity of health conditions, the positive outcomes of prevention, and the challenges they anticipate (Currie *et al.*, 2000). Specifically for the eating patterns of Pangandaran fishermen, ideas about the health threats from unhealthy diets and the recognized advantages of embracing healthier eating can influence their routine food consumption decisions.

Previous research has shown that night shift work significantly alters mealtimes (Kosmadopoulos *et al.*, 2020). Studies in Greece, the United States, and Canada involving nurses, police officers, and soldiers also found that long working hours, particularly night shifts, disrupt eating patterns, characterized by increased consumption of fast food and low intake of fruits and vegetables (Todorova *et al.*, 2024).

Several previous studies have shown that components of the Health Belief Model play a role in shaping health behaviors, including eating behaviors, among college students, pregnant women, and children (Putri., 2026). However, studies that specifically examine the relationship between beliefs based on the Health Belief Model and the eating patterns of fishermen in the Pangandaran Beach area are still limited. The unique working conditions of fishermen, irregular sailing schedules, and limited access to healthy food while at sea pose challenges to the implementation of healthy eating patterns.

Based on this background the research was carried out to examine the connection between beliefs derived from the Health Belief Model theory and the eating patterns of fishermen along the Pangandaran Beach region. The findings from this study are anticipated to serve as a foundation for creating promotive and preventive strategies, especially within community nursing, aimed at enhancing nutritious eating habits and the overall well-being of fishermen in the Pangandaran coastal zone.

METHODS

The research employed a quantitative descriptive design utilizing a cross-sectional method to investigate the link between beliefs grounded in the Health Belief Model theory and the dietary habits of fishermen. It took place in the Cikidang Port region of Pangandaran Beach. The target population included active fishermen from that location, with 126 participants chosen through simple random sampling, adhering to specified inclusion and exclusion criteria. The use of simple random sampling is intended to avoid selection bias and ensure that every member of the population has an equal chance of being selected as a respondent. The inclusion criteria for this study were fishermen in the Cikidang Port region of Pangandaran Beach who were aged 18 years or older, had been actively working for at least 6 months, were willing to participate as respondents, and were able to complete the questionnaire. The exclusion criteria included fishermen who were seriously ill, did not complete the questionnaire in full, or had cognitive or communication impairments.

The data collection process involved direct administration of a structured questionnaire. The Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ) was employed to measure dietary patterns, and the Health Belief Model questionnaire was used to gauge health beliefs, including views on susceptibility, severity, benefits, and barriers. Before respondents filled out the

questionnaire, they were briefed on the research and asked for their approval as part of informed consent.

This study used the SQ-FFQ instrument, whose validity has been established by Al-Shaar *et al.*, (2021). The test results showed a Spearman correlation coefficient of 0.57, which increased to 0.64 after correction, indicating good validity in assessing long-term nutrient intake. Reliability testing using the test–retest method yielded an average ICC value of 0.69, indicating good consistency. Therefore, the researchers did not conduct a retest because the instrument met the standards for adult male respondents.

The Health Belief Model (HBM) instrument was based on the study by Nuriannisa *et al.*, (2023), but a revalidation test was conducted due to differences in respondent characteristics. The test results showed validity values ranging from 0.517 to 0.810, which are classified as moderate to high. Reliability testing using Cronbach's Alpha yielded values of 0.620–0.811, indicating good internal consistency; thus, the instrument was deemed valid and reliable.

Data collection for this study was conducted using a paper-based questionnaire. The questionnaire was administered by the researcher through face-to-face structured interviews with respondents after they were briefed on the purpose of the study. This method was chosen to facilitate the process for respondents and to ensure the clarity and completeness of the data collected.

Univariate methods were applied to the data to characterize the respondents and the research variables, while bivariate techniques were used to examine the association between the Health Belief Model and fishermen's dietary patterns through relevant statistical tests. Ethical approval for this study was granted by the Health Research Ethics Committee of the Faculty of Health Sciences and Technology at Jenderal Achmad Yani University in Cimahi, with approval number 042/KEPK/FITKes-Unjani/XI/2025, and the entire investigation followed principles of research ethics.

RESULTS

The distribution of respondents' diets is presented to illustrate the nutritional intake of fishermen based on the categories of low, adequate, and higher. The evaluation of dietary habits was carried out with the Semi-Quantitative Food Frequency Questionnaire (SQ-FFQ), and the results were grouped according to the percentage of the Nutrient Adequacy Rate (NAR).

Table 1: Frequency Distribution and Percentage of Respondents' Eating Patterns

Eating Patterns	Frequency (f)	Percentage (%)
Low	113	89.7
Medium	10	7.9
High	3	2.4
Total	126	100

Based on the results of the dietary pattern frequency analysis, it was found that of the total 126 respondents, the majority were in the low category. A total of 113 respondents (89.7%) were in the low category, while 10 respondents (7.9%) were in the moderate category, and only 3 respondents (2.4%) were in the high category.

After presenting an overview of the respondents' dietary patterns, the next section presents data on the level of confidence among fishermen based on the Health Belief Model (HBM) theory. The level of belief was measured using the Health Belief Model questionnaire, which covers four main factors, namely perception of susceptibility, perception of severity, perception of benefits, and perception of barriers. Each factor was classified into low and high categories based on the total score obtained from each dimension of the instrument.

Table 2. Distribution and Percentage of Respondents' Perceived Susceptibility

Susceptibility	Frequency (f)	Percentage (%)
Low	27	21.4
High	99	78.6
Total	126	100

Based on the frequency analysis, of the 126 respondents, the majority had a high perceived susceptibility, with 99 respondents (78.6%), while 27 respondents (21.4%) had a low perceived susceptibility.

Table 3. Distribution and Percentage of Respondents' Perceived Severity

Severity	Frequency (f)	Percentage (%)
Low	16	12.7
High	110	87.3
Total	126	100

The analysis findings indicated that most respondents perceived a high level of severity, with 110 individuals (87.3%) falling into this category, whereas 16 respondents (12.7%) reported a low level of perceived severity.

Table 4. Distribution and Percentage of Respondents' Perceived Benefits

Benefits	Frequency (f)	Percentage (%)
Low	7	5.6
High	119	94.4
Total	126	100

Based on the frequency distribution, almost all respondents had a high perceived benefit, with 119 respondents (94.4%), while only 7 respondents (5.6%) had a low perceived benefit.

Table 5. Distribution and Percentage of Respondents' Perceived Barriers

Barriers	Frequency (f)	Percentage (%)
Low	87	69
High	39	31
Total	126	100

The results showed that 87 respondents (69.0%) had low perceived barriers, while 39 respondents (31.0%) had high perceived barriers.

Subsequently, a bivariate analysis was performed to investigate the associations between the four components of the Health Belief Model perceived susceptibility, perceived severity, perceived benefits, and perceived barriers and the dietary patterns of fishermen.

Table 6. Relation between Dietary Patterns and Perceived Susceptibility

Variable	Susceptibility		p-value
	Low	High	
Dietary Patterns	Low	25	1.000
	Medium	2	
	High	0	

From the examination of the link between dietary patterns and perceived susceptibility via Fisher's Exact test, a p-value of 1.000 ($p > 0.05$) emerged. This outcome suggests that no statistically significant association existed between dietary patterns and the respondents' perceived susceptibility.

Table 7. Relation between Dietary Patterns and Perceived Severity

Variable		Severity		p-value
		Low	High	
Dietary Patterns	Low	16	97	0,574
	Medium	0	10	
	High	0	3	

The results of Fisher's Exact test on the relationship between dietary patterns and perceived severity showed a p-value of 0.574 ($p > 0.05$). This indicates that there was no statistically significant relationship between dietary patterns and respondents perceived severity.

Table 8. Relation between Dietary Patterns and Perceived Benefits

Variable		Benefits		p-value
		Low	High	
Dietary Patterns	Low	7	106	1.000
	Medium	0	10	
	High	0	3	

From the examination employing Fisher's Exact test, a p-value of 1.000 ($p > 0.05$) was recorded for the association between dietary patterns and perceived benefits. Thus, it can be inferred that no statistically significant link existed between dietary patterns and the respondents perceived benefits

Table 9. Relation between Dietary Patterns and Perceived Barriers

Variable		Barriers		p-value
		Low	High	
Dietary Patterns	Low	80	33	0,078
	Medium	4	6	
	High	3	0	

The outcome of Fisher's Exact test revealed a p-value of 0.078 (greater than 0.05) regarding the connection between eating patterns and perceived barriers. These results point to the absence of a statistically significant association between eating patterns and the barriers perceived by respondents, despite the p-value being near the significance cutoff.

DISCUSSION

According to the research outcomes, the predominant dietary habit among fishermen in the Pangandaran Coast region is low quality, affecting 89.7% of them. This low dietary pattern indicates that the energy and nutrient intake of fishermen does not meet the Recommended Dietary Allowance (RDA) for adult males of 2,550 kcal per day as stated in Indonesian Minister of Health Regulation No. 28 of 2019. A deficiency in energy and iron intake over a certain period of time can have an impact on work productivity, because energy is the main source of physical activity, while iron plays an important role in the formation of hemoglobin for the distribution of oxygen to body tissues (Arsanti *et al.*, 2023).

The poor dietary patterns of fishermen in Pangandaran may be influenced by the characteristics of their work, which requires high physical activity with long and irregular working hours. These conditions cause irregular meal times and encourage fishermen to consume convenient foods that are easily available while at sea. These findings are in line with previous studies stating that irregular work patterns and shift work affect eating behavior, including irregular meal schedules and a tendency to choose foods that are high in calories and low in nutritional value (Todorova *et al.*, 2024).

In addition to work factors, the coastal environment of Pangandaran also contributes to the dietary patterns of fishermen. The Pangandaran community still faces challenges in consuming a

balanced and nutritious diet, with a fairly high tendency to consume instant foods in their weekly consumption patterns (Riskesdas, 2018). Fishermen, as a group of coastal workers, are vulnerable to unhealthy eating patterns, even though they have access to animal protein sources from their sea catches (Rosyanti *et al.*, 2024)

Although fishermen have ample access to animal protein sources such as fish, their dietary patterns do not always reflect optimal nutritional intake. This is due to the tendency of fishing communities to sell high-value catches, while their daily consumption relies more heavily on lower-quality fish or shifts to more affordable foods, such as instant noodles, especially when catches are low (Dipanshi & Azaria, 2024).

Fishermen tend to consume convenient and instant foods, especially while working at sea. Working conditions that demand convenience led fishermen to bring food items that are easy to prepare, such as instant foods and foods high in flavor enhancers. This habit is not limited to when they are at sea but also carries over into their daily lives, resulting in an unhealthy diet that poses health risks (Kiki *et al.*, 2021).

The findings indicate that the majority of fishermen demonstrated high levels of belief in the Health Belief Model components, including perceived susceptibility, perceived severity, and perceived benefits, while reporting low perceived barriers. Nevertheless, the analysis revealed no significant association between the four Health Belief Model components and fishermen's dietary patterns. These findings indicate that a high level of belief in health risks and benefits does not necessarily translate into the adoption of healthy eating behaviors in daily life.

The absence of a relationship between the Health Belief Model and fishermen's eating patterns suggests that eating behaviors are not only influenced by individual perceptions but also by other factors that were not examined in this study. According to Putri (2026), even if individuals have high beliefs about vulnerability, severity, benefits, and barriers, this does not guarantee that individuals will engage in health behaviors if self-efficacy and cues to action are not integrated. (Putri., 2026) and (PIKÓ2, 2019) studies show that self-efficacy plays an important role in encouraging individuals to consistently engage in health behaviors.

Thus, the results of this study reinforce that the poor dietary patterns of fishermen in the Pangandaran Coast area are more influenced by environmental factors, job characteristics, and work condition limitations than by health belief factors alone. Therefore, efforts to improve fishermen's dietary patterns need to be carried out through a more comprehensive approach that considers structural factors, environmental support, and the strengthening of other psychosocial factors.

This study has several limitations, including a lack of specific literature on the health and dietary patterns of fishermen, so the analysis still draws on the general population. Additionally, data collection was hindered by the fishermen's irregular work schedules and weather conditions. This study also did not integrate all components of the Health Belief Model (HBM), particularly cues to action and self-efficacy, so the examination of psychosocial factors was not fully comprehensive.

CONCLUSION

This study shows that most fishermen in the Pangandaran Coast region have a low dietary pattern, indicating that their energy and nutrient intake does not meet their daily nutritional requirements. This condition has the potential to negatively impact the health status and work productivity of fishermen, given the characteristics of their work, which demands high physical activity and irregular working hours.

The analysis revealed no significant relationship between dietary patterns and the Health Belief Model constructs, including perceived susceptibility, perceived severity, perceived benefits, and perceived barriers, among fishermen. These findings indicate that health beliefs alone are

not sufficient to encourage changes in eating behavior. Therefore, efforts to improve the dietary patterns of fishermen in the Pangandaran Coast area need to consider the role of self-efficacy and cues to action as important drivers of behavioral change, in addition to improving working conditions and providing adequate external support.

RECOMMENDATION

Based on the study findings, efforts to improve dietary patterns among fishermen in the Pangandaran Coast area should not be limited to enhancing health beliefs based on the Health Belief Model components examined, but should also take into account other factors that influence eating behavior. The persistence of poor dietary patterns despite high perceptions of susceptibility, severity, and benefits highlights the need for a more comprehensive approach to promoting healthier eating behaviors.

The findings of this study are expected to be useful for health agencies as a basis for evaluating efforts to improve fishermen's dietary habits, as well as to serve as a foundation for nurses in designing educational interventions, health promotion programs, and behavioral support for healthy living that are tailored to the characteristics of fishing communities.

Further research is recommended to include the components of self-efficacy and cues to action in the Health Belief Model analysis to obtain a more comprehensive picture of the factors that influence fishermen's dietary patterns. In addition, further research is needed that considers the work environment and social conditions of fishermen, so that the results of the research can be used as a basis for planning interventions that are more suited to the characteristics of fishermen in the Pangandaran Coast region.

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