

Factors affecting individual beliefs associated with the quality of life of traditional divers in the coastal area

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Abstract

Traditional divers in Surabaya's coastal area face challenges despite the abundance of marine resources. This study aims to explore the factors that related to the quality of life among these divers. The research followed an observational analytic approach with a cross-sectional design. The study involved 31 traditional

divers from Kedung Cowek Village in Surabaya, randomly selected based on specific criteria. The research utilised the Health Belief Model theory to assess individual beliefs and the WHO-QOL-BREF tool to measure their quality of life. The individual beliefs were categorised into five indicators: perceived vulnerability, perceived severity, perceived obstacles, perceived benefits, and self-efficacy. Out of these factors, two had a significant influence on the quality of life of traditional divers: perceived benefits ($p = 0.009$) and self-efficacy ($p = 0.020$). The study concludes that the quality of life for traditional divers in the Surabaya coastal area is primarily influenced by perceived benefits and self-efficacy. It suggests that nearby healthcare facilities could offer health education to traditional divers, focusing on specific protective measures to reduce the risks associated with diving, such as barotrauma and decompression sickness.

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Introduction

Indonesia possesses vast marine and coastal resource potential.¹ However, this potential is not paralleled by the quality of life of traditional divers in coastal regions. A significant portion of coastal residents engage in traditional diving as their primary livelihood.²⁻⁴ Traditional divers are men who use rudimentary equipment and breath-hold diving or surface-supplied air via compressors to search for marine resources in the sea.⁵ Unfortunately, the quality of life for traditional divers is often subpar.⁶ The government has been striving to enhance the welfare of traditional divers, with a particular focus on the health sector. These efforts include promoting preventative measures, such as ensuring work safety, improving nutrition, enhancing basic sanitation, providing clean water, addressing maternal and child health, and managing infectious and noninfectious diseases, in addition to empowering traditional divers.⁷ Welfare is gauged by the overall quality of human life.⁸

While a significant number of traditional divers has the potential to sustainably manage marine resources, low quality of life could diminish the resource management potential of traditional divers.⁹ The decline in the quality of life of traditional divers also hampers the achievement of Sustainable Development Goals (SDGs), particularly Goal 1 (no poverty) and Goal 3 (good health and well-being).¹⁰ In fact, the Indonesian government aims to eradicate extreme poverty, targeting a reduction to zero percent by 2024, as outlined by the President of the Republic of Indonesia on March 4th, 2020.¹¹ The actual extent of poverty affects society in both urban and rural areas,¹² with a particular impact on coastal regions.¹³ The government's programs have shown promising results, with poverty rates dropping to below double digits, standing at 9.66% or approximately 25.7 million people as of September 2018, marking a decrease of 1.78 million individuals or 1.14%.¹⁴ Despite these advances, the quality of life of traditional divers still remains at a low level, approximately 73.3%.⁶

Efforts to elevate the quality of life of traditional divers demand considerable attention.^{15,16} Boosting the motivation of traditional divers can be a key strategy to fulfill their basic needs.¹³ One approach to increasing the motivation of traditional divers is the application of the Health Action Process Approach (HAPA).¹⁷ HAPA is anticipated to improve the quality of life of traditional divers, potentially serving as an intervention to empower traditional divers in achieving a higher quality of life.¹⁸

The application of the HAPA model posits that the adoption, initiation, and maintenance of health behavior must be understood as a process comprising a motivational phase and a volitional phase, further divided into planning, action, and maintenance phases, with self-efficacy being a critical condition at all stages along with other cognitive elements.¹⁹ For instance, risk perception primarily facilitates the early stages of the motivational phase but no further. Similarly, outcome expectations are particularly influential in the motivational phase when individuals weigh the pros and cons of behavioral consequences, but their predictive power wanes after personal decisions are made.²⁰ Ultimately, if an individual lacks confidence in their ability to perform a desired action, they may fail to adopt, initiate, and maintain it.²¹ Given this background, the objective of this study was to analyse the individual belief factors associated with the quality of life of traditional divers in the Surabaya coastal area.

Materials and Methods

Research design

This study employed a cross-sectional approach. The sample was selected through simple random sampling, applying predefined inclusion and exclusion criteria. The inclusion criteria included active traditional divers who were willing to participate, residing in Kedung Cowek Village, Indonesia, and engaged in traditional diving. Traditional divers were defined as individuals actively hunting at sea without modern equipment, using breath-hold diving or air supply provided through surface compressors. They operated boats measuring 5 meters in length, 1 meter in width, and 0.5 meters in height, with a maximum passenger capacity of 2 individuals, powered by an outboard engine with a capacity of 5.5 Paarden Kracht (P.K.). Data collection was conducted by the researchers, and the collected data was analysed using a linear regression test.

Study participants

The participants in this study were traditional fishermen, specifically traditional divers, from Kedung Cowek Village in Surabaya, Indonesia. The study population consisted of all traditional divers between the ages of 20 and 80 residing in Kedung Cowek Village, Surabaya. The sample included 31 traditional divers randomly selected from a total population of 34, based on predefined inclusion and exclusion criteria.

Variable, instrument, and data collection

This study examined the individual beliefs of traditional divers and their quality of life. Additionally, demographic factors, including age, gender, education, occupation, religion, economic status, and marital status, were assessed. The research employed a questionnaire to measure the individual beliefs and quality of life of traditional divers. The individual beliefs questionnaire was adapted from the Health-Belief Model theory developed by Victoria et al. (2008)²² and transformed into a questionnaire format. These indi-

vidual beliefs encompassed five indicators: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, and self-efficacy. The validity and reliability of the questionnaire for individual beliefs were assessed before data collection, confirming their validity. The reliability testing resulted in correlation coefficients ranging from 0.679 to 0.971. The instrument used to measure the quality of life was the WHOQOL-BREF. This standardised instrument, acquired from Kiling *et al.* (2019),²³ did not require validity or reliability testing. Data were collected in the first and second weeks of July 2023, and participants provided their responses by filling out the questionnaires.

Data analysis

The collected data were analysed using a linear regression test, assuming the data met the normal distribution requirement. The linear regression aimed to investigate the factors associated with the quality of life of traditional divers in the Surabaya coastal area. Quality of life was measured using the WHOQOL-BREF instrument. The analysis involved assessing the significance of the t-test. The significance value of the t-test was compared with a predefined threshold value of 5%. If the obtained significance value of the t-test was smaller than the threshold value, it indicated a significant influence between individual beliefs and the quality of life of traditional divers.

Ethical clearance

This research received ethical approval from the Health Research Ethics Committee of Sekolah Tinggi Ilmu Kesehatan Hang Tuah Surabaya, Indonesia, granted under ethical certificate number PE/119/VIII/2023/KEP/SHT. Throughout the research process, ethical principles, such as informed consent, respect for human rights, beneficence, and non-maleficence, were observed.

Results

Distribution of demographic characteristics in traditional divers

Based on Table 1, the demographic data of traditional divers on the coast of Surabaya are presented. The results indicate that over half of the traditional divers fall within the age range of 23–45 years (58.1%). All divers in the study are male, with 38.7% having received no formal education. The majority of these divers have been engaged in traditional diving to catch fish and shellfish for over four years (93.5%), and their average monthly income is below the regional minimum wage (74.2%). Furthermore, 93.5% of them are married, with 61.3% serving as the primary breadwinners. The average household consists of two individuals, making up 51.6% of the sample.

This study presents descriptive statistics to characterise the research variables, encompassing the lowest and highest values, the mean, and the standard deviation. The summary of the descriptive statistics for the research variables influencing individual beliefs on quality of life is presented in Table 2.

Table 2 displays the individual belief factors in traditional divers, involving 31 participants. The average score for these factors is 88.71, considering the maximum quality of life score, with a standard deviation of 10.7%. Specifically, the average score for perceived susceptibility to the quality of life among traditional

divers is 15.90 out of a maximum of 22.00, indicating a relatively high perception of susceptibility. The perception of severity, which also affects the quality of life, has an average score of 16.26 out of a maximum of 22.00, signifying a relatively high perception of severity compared to susceptibility. In the context of barriers affecting quality of life, an average score of 12.35 is achieved from a maximum score of 17.00, with a standard deviation of 3.4%. In contrast, perceived benefits yield an average score of 9.13 from a maximum score of 14.00, while self-efficacy results in an average score of 7.68 out of a total of 13.00, accompanied by a standard deviation of 2.5%. These findings suggest that both perception and self-efficacy have a noteworthy impact on changing the quality of life for traditional divers.

Individual belief analysis of quality of life in traditional divers

Table 3 reveals that the significance values for perceived benefits and self-efficacy are 0.009 and 0.020, respectively. These values are smaller than the tolerance limit of 5%, indicating that both perceived benefits and self-efficacy have a significant influence on quality of life. On the other hand, the ANOVA test results in a significance value of 0.071, suggesting that there is no significant influence when considering perceptions of susceptibility, severity, barriers, benefits, and self-efficacy simultaneously on the quality of life of traditional divers. Furthermore, the R-squared value is 0.319, signifying that the impact of individual beliefs, which encompass perceptions of severity, susceptibility, barriers, benefits, and self-

efficacy, on the quality of life of traditional divers amounts to 31.9%. The remaining factors contribute to the remaining variance.

Discussion

Factor individual beliefs associated with traditional divers in the surabaya coastal area

Individual beliefs are essentials particularly in shaping their attitudes and behaviours. In this research, individual beliefs pertain to the traditional divers' beliefs regarding their own health and how these beliefs affect their attitude towards their well-being. This study measures five factors within individual beliefs: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, and self-efficacy. According to Table 2, the perception of benefits and self-efficacy significantly impacts the quality of life of traditional divers. Traditional divers are confident that their work benefits not only themselves but also their families and the environment. They provide marine products to the community, which leads to economic success, aligning with the findings of Ghani *et al.* (2017)²⁴ which suggests that the more traditional divers catch, the more they can provide for the community and their families.²⁴

Furthermore, self-efficacy also influences the quality of life of traditional divers, as their educational status affects their job opportunities. Those with lower levels of education may find it challenging to secure better job opportunities. This aligns with the assumption that the level of education significantly influences

Table 1. Distribution of Demographic Characteristics in Traditional Divers (n=31).

Characteristic Demographic	Frequency (f)	Percentage (%)	p
Age			
23-45 years	18	58.1	
46-77 years	13	41.9	
Gender			
Male	31	100	
Female	0	0	
Graduation			
Not finished elementary school	12	38.7	
Elementary school	11	35.5	
Junior high school	5	16.1	
Senior high school	3	9.7	
Bachelor	0	0	
Timer working as traditional divers			
1-3 years	2	6.5	
> 4 years	29	93.5	
Marital status			
Married	29	93.5	
Not Married	2	6.5	
Income (Monthly)			
< the regional's minimum salary	23	74.2	
> the regional's minimum salary	8	25.8	
Is there a family member other than the respondent who is working?			
Yes	12	38.7	
No	19	61.3	
Number of Family members in a household			
1	8	25.8	
2	16	51.6	
3	7	22.6	

human resources. Traditional divers are often reluctant to attempt new activities unless they believe they are capable of doing them. They believe in the benefits of these new behaviors but may not have the confidence to try them. In many cases, the younger generation of traditional divers is compelled to support their families economically.²⁵

Quality of life of traditional divers

There are various definitions of the quality of life. In this research, the quality of life pertains to that of traditional divers and based on five perception factors: perception of susceptibility, perception of severity, perception of barriers, perception of benefits, and self-efficacy. These results indicate no simultaneous influence of perceptions of susceptibility, severity, barriers, benefits, and self-efficacy on the quality of life of traditional divers.²⁴ Quality of life can be measured through various influencing factors, including education, health, and economic status. Low quality of life often results from deficiencies in human resources, health, and the economy.⁶ The researcher's assumption is that the level of education can significantly influence the quality of life of traditional divers. A low level of education tends to result in diminished human resources, which, in turn, leads to a lack of skills and an inability to perceive and adopt behaviors that support a good quality of life.

Our finding highlights that two factors influence the quality of life of traditional divers. Specifically, perceived benefits and self-efficacy are linked to the low educational levels of traditional divers, which in turn affect family income and economic factors. Traditional divers often encourage their children to assist in

increasing family income and alleviating family burdens. Many traditional divers appreciate the benefits of their work and feel grateful for their improved lives, partly due to increased government and social institution attention to traditional fishermen, especially traditional divers. This perspective aligns with previous research that considers the concept of quality of life as an amalgamation of opportunities, human needs, and welfare.^{26,27} Quality of life pertains to the extent to which human needs are met and can be evaluated objectively and subjectively. Essential human needs include safety, self-sufficiency, and reproduction.²⁸ Moreover, self-efficacy factors significantly impact the quality of life of traditional divers. These divers are particularly susceptible to illnesses such as decompression sickness and barotrauma, and some of them mistakenly believe that these illnesses will naturally heal. They have confidence that their families will continue to support them through such hardships.²⁴

The impact of self-efficacy on the quality of life of traditional divers aligns with previous studies. For instance, traditional divers who engage in extended dives, exceeding 10.5 hours per week, and have over 2.6 years of diving experience are at higher risk of decompression sickness.²⁹ The accumulation of nitrogen in the body over longer dives is a contributing factor, and this condition necessitates treatment as it does not resolve spontaneously.³⁰ Research conducted in the west coast region of Malaysia further supports the idea that the quality of life of traditional divers can be improved with special attention from the government, including the adoption of effective technology in marine fishing activities.^{24,26,27}

Table 2. Descriptive data analysis on traditional divers.

Variable	N	Min.	Max.	Mean	Deviation Std.
Quality of life	31	71	105	88.71	10.759
Perceived severity	31	9	22	16.26	2.792
Perceived susceptibility	31	9	22	15.90	2.914
Perceived barrier	31	0	17	12.35	3.382
Perceived benefit	31	4	14	9.13	2.566
Self-efficacy	31	4	12	7.68	2.508

Table 3. The Result of analysis the influence of individual beliefs on quality of life in traditional divers.

Variable	Unstandardised coefficients B	Std. Error	Standardised coefficients beta	t	Sig. (*)
(Constant)	92.062	14.319		6.430	0.000
Perceived Susceptibility	0.160	0.752	0.043	0.212	0.834
Perceived Severity	-0.441	0.769	-0.114	-0.574	0.571
Perceived Barrier	-0.306	0.567	-0.096	-0.539	0.595
Perceived Benefit	2.113	0.745	0.504	2.838	0.009
Self-Efficacy	-1.855	0.744	-0.432	-2.494	0.020
Sig. **)	0.071				
Normalitas Test (***)	0.525				
R Square	0.319				

*linier regression tes; **anova test; ***Shapiro-Wilk test.

Conclusions

In this research, individual beliefs encompass five factors: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, and self-efficacy. Among these factors, two significantly impact the quality of life of traditional divers: perceived benefits and self-efficacy. To comprehensively understand the factors influencing the quality of life of traditional divers in the coastal areas of Surabaya city, further research is needed to identify and explore additional contributing factors. The research implies that the nearest health facilities should offer health education programs tailored to traditional divers. These programs should provide specific protective measures to mitigate the risks associated with diving activities, such as barotrauma, decompression sickness, and other related health concerns.

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