Research Paper

The Effect of Health Coaching Based on the Health Belief Model on the Quality of Life of Patients With Coronary Heart Disease: A Pilot Study

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ABSTRACT

Background: Coronary heart disease (CHD) is a leading cause of global mortality and has a significant impact on patients' quality of life (QoL). This study examines the effect of health coaching based on the health belief model (HBM) on the QoL of CHD patients at the Regional General Hospital Unit (UPT) of Sinjai, Republic of Indonesia.

Methods: This pilot study employed a quasi-experimental pre-test-post-test design with a control group. A total of 44 outpatient CHD patients were recruited using purposive sampling and were randomly divided into an intervention group (n=22) and a control group (n=22). The study was conducted at the Cardiology Outpatient Clinic of Sinjai Regional General Hospital from July to September 2024. The intervention group received HBM-based health coaching for 9 weeks (5 sessions) in addition to conventional education. The control group received conventional education for 9 weeks. QoL was assessed using the WHOQOL-BREF questionnaire. Data were analyzed using the Wilcoxon, Mann-Whitney, independent t-test, and chi-square test in SPSS software, version 26.

Results: The findings showed a significant improvement in the QoL within the intervention group (P=0.0001), whereas no significant change was observed in the control group (P=0.109). Pre-test QoL scores did not differ significantly between the intervention and control groups (P=0.385). However, a significant difference was found between the two groups in the post-test results (P=0.0001).

Conclusion: HBM-based health coaching effectively improves QoL in patients with CHD. Integration of this program into healthcare services is recommended. Because this was a pilot study, further research with larger samples and longer follow-up periods is needed to strengthen the evidence and assess long-term effectiveness.

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Highlights

- Health coaching based on the HBM significantly improved QoL in patients with CHD.

- HBM-based health coaching significantly improved all dimensions of QoL (physical, psychological, social, and environmental) in the intervention group.

- A collaborative, patient-centered HBM-based health coaching approach proved more effective than conventional education in empowering patients with CHD to manage their chronic conditions.

Plain Language Summary

This study evaluated the effect of health belief model (HBM)- based health coaching on the quality of life (QoL) of patients with coronary heart disease (CHD) at Sinjai Regional General Hospital, Indonesia. The results showed that HBM-based health coaching significantly improved QoL among patients with CHD. These findings emphasize the importance of collaborative and patient-centered interventions that actively involve patients in health-related decision-making. This approach helps patients understand the gap between their desired health goals and current behaviors and develop awareness and motivation to change. Integrating health coaching with the HBM proved more effective at promoting behavioral change and improving patients' ability to manage chronic conditions than conventional education. Nevertheless, this study acknowledges the ongoing challenges posed by the high incidence of CHD and the need for sustained engagement from all stakeholders to ensure the intervention's long-term success.

Introduction

Coronary heart disease (CHD) is a significant global health issue. The World Health Organization (WHO) reported that in 2018, approximately 17.9 million deaths were caused by CHD, with 85% of these due to heart attacks and strokes (WHO, 2018). CHD accounts for 45% of the 9.4 million global deaths, and this number is projected to reach 23.3 million by 2030 (WHO, 2018). In Indonesia, the 2018 basic health research reported a CHD prevalence of 1.5%, affecting approximately 2 million people (Ministry of Health, 2018).

CHD affects not only physical health but also patients' overall quality of life (QoL). CHD patients often experience declining functional capacity, psychological distress, and limitations in social and environmental activities (Amarullah & Rosyid, 2021; Nuraeni et al., 2016; Santoso et al., 2017). Unstable CHD patients usually have a severely impaired QoL (Iswahyudi et al., 2020), with 70.9% of CHD patients experiencing poor QoL (Shoufiah & Noorhidayah, 2017). Therefore, an appropriate intervention approach is necessary.

The health belief model (HBM) is a well-established health behavior change theory that has proven effective in various health interventions. This model is designed to explain individual behaviors that can be modified through specific interventions (Klein et al., 2013; Romano & Scott, 2014). It identifies factors influencing health behaviors, including perceived susceptibility, severity, benefits, barriers, and self-efficacy (Tarkang & Zotor, 2015). The HBM also helps explain the relationship between beliefs and health behaviors, particularly treatment adherence (Shabibi et al., 2017).

HBM-based health coaching integrates coaching principles with HBM constructs to facilitate health behavior change (Olsen, 2014). It is a patient-centered, collaborative, and effective approach to supporting behavior change and improving health outcomes. One advantage of health coaching is establishing a goal-oriented, patient-centered partnership that focuses on health through patient empowerment and education (Olsen, 2014). Previous studies have shown health coaching's effectiveness in managing chronic diseases. Health coaching significantly improves dietary habits and self-efficacy in managing chronic conditions such as diabetes and heart disease (Lin et al., 2021). It can lead to better self-care strategies and improved health outcomes, which are essential for enhancing QoL in patients with chronic disease (Ji & Yu, 2023).

However, specific evidence regarding CHD patients remains limited. Therefore, this study aims to evaluate the effect of HBM-based health coaching on CHD patients' QoL.

Materials and Methods

Study design

This pilot study uses a quasi-experimental pre-test-post-test design with a control group. Pilot studies use a relatively small sample. They are appropriate for early-stage intervention development because they primarily aim to evaluate feasibility, safety, and preliminary effectiveness before larger clinical trials (Teresi et al., 2023).

Setting and sample

The study was conducted at the Cardiology Outpatient Clinic of the Regional General Hospital Unit in Sinjai Regency, South Sulawesi, Republic of Indonesia, from July to September 2024.

The target population included CHD patients receiving outpatient care. The sample was selected using non-probability purposive sampling, in which participants were chosen based on predetermined criteria relevant to the study objectives (Sugiyono, 2020). The inclusion criteria were as follows: (1) actively attending monthly outpatient examinations at the cardiology clinic, (2) being 18 years or older, (3) being in a stable condition while participating in the HBM-based health coaching sessions, (4) and having consent to participate in the study. Exclusion criteria included cognitive impairment or mental health issues, or hearing or speech impairments. A total of 44 CHD outpatients participated in the study and were randomly assigned to an intervention group (n=22) or a control group (n=22).

The sample size was determined based on guidelines from Gay & Diehl (1992) and Sekaran (2003), which recommend 10-20 samples per group for experimental research (Memon et al., 2020). Initially, we planned 20 samples per group (total 40 samples). To account for a potential 10% dropout, the sample size was adjusted using the formula: n'=n/(1-f), resulting in 22 subjects per group. Therefore, the total sample size for this study is 44 participants (22 intervention group, 22 control group)

The study's conceptual framework is shown in Figure 1.

Research instrument

The instrument used to measure the QoL in CHD patients was the World Health Organization quality of life (WHOQOL-BREF) questionnaire, Indonesian version (Riyanto, 2022). This study did not conduct validity and reliability tests, as the WHOQOL-BREF questionnaire is a standardized instrument. This tool has been established as valid and reliable, with validity test results ranging from r=0.89–0.95 and reliability test results from R=0.66–0.87 (Sekarwiri, 2008).

The WHOQOL-BREF consists of 26 items covering 4 domains: (1) physical health (7 items), (2) psychological health (6 items), (3) social relationships (3 items), and (4) environmental health (8 items), plus 2 items assessing overall QoL and general health. Each item is rated on a 5-point Likert scale (1 = very dissatisfied/poor to 5 = very satisfied/good). Domain scores are calculated and

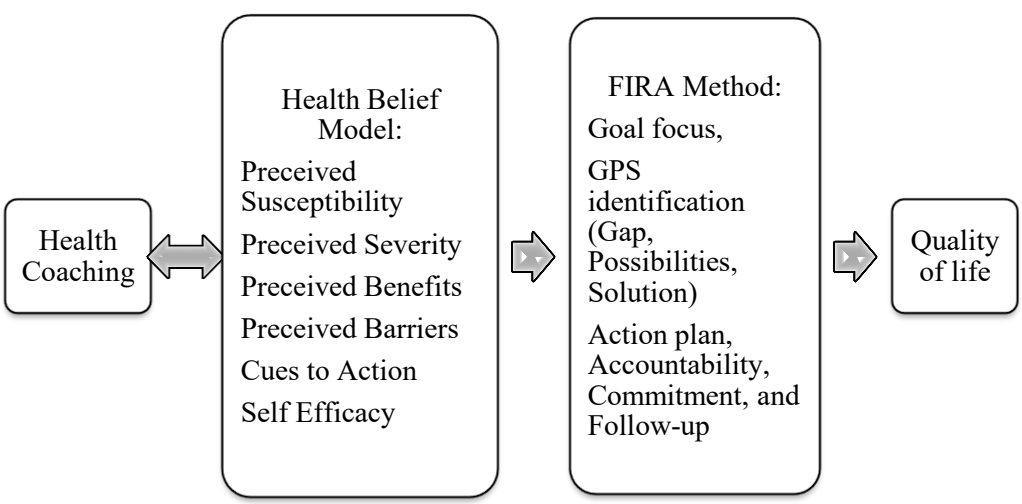


Figure 1. Theoretical framework of health coaching based on the HBM on the QoL

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transformed to a 0-100 scale, with higher scores indicating better QoL. QoL categories are defined as follows: poor (0-40), moderate (41-70), and good (71-100).

Research procedure

Intervention group

Received conventional education provided by hospital nurses. The health coaching sessions were conducted by a registered nurse with a bachelor's degree in nursing and certified health coach training.

This study's health coaching intervention used the FIRA model (an acronym for focus, identify, action planning, and accountability) developed by Amalia & Siregar (2015). The FIRA model was selected because it provides a structured, patient-centered approach that aligns well with HBM principles. The FIRA framework emphasizes self-awareness, personal responsibility, and goal-oriented behavior change, which are essential for improving QoL in CHD patients. Unlike traditional didactic health education, the FIRA model empowers patients to identify their own barriers and solutions, fostering intrinsic motivation and sustainable lifestyle modifications. Additionally, this model has been successfully applied in health coaching contexts and is culturally appropriate for the Indonesian population (Amalia & Siregar, 2015). This model provides a structured framework for guiding patients through behavior change and health improvement. The FIRA model consists of 4 sequential steps.

1. Focus on goals: The coach explores the coachee's health improvement desires and establishes clear objectives for the session. Example questions include: "What topic would you like to discuss in this coaching session?" and "Why is this goal important to you?"

2. Identify G.P.S (gap, possibilities, solution): The coach facilitates identification of 3 key elements:

a. Gap: Assessing current status versus desired goals using a 1-10 scale

b. Possibilities: Exploring available options and opportunities

c. Solution: Selecting the most feasible solution from identified possibilities

3. Action plan: The coach guides the coachee in developing concrete, actionable steps to implement the chosen solution, including implementation strategies.

4 Accountability: The coach ensures the coachee's commitment, monitors progress, and establishes follow-up mechanisms to maintain accountability for the action plan.

The intervention group underwent health coaching based on the HBM, conducted over 9 weeks in 5 sessions, each lasting 30–40 minutes.

Week 1-2 (session 1): We provided an overview of CHD, followed by a health coaching intervention using the FIRA method, focusing on the physical dimension of QoL and reinforcing progress during the session.

Week 3-4 (session 2): We discussed behavioral changes since session 1, conducted health coaching using the FIRA method focused on the psychological dimension of QoL, and provided reinforcement.

Week 5-6 (session 3): We discussed behavioral changes since session 2, provided health coaching using the FIRA method, focused on the social dimension of QoL, and provided reinforcement.

Week 7-8 (session 4): We continued discussing behavioral changes made after session 3, conducted health coaching using the FIRA method, focused on the environmental dimension of QoL, and provided reinforcement.

Week 9 (session 5): The researchers monitored patient progress toward behavioral change goals from sessions 1 to 4, evaluated intervention effectiveness, adjusted the action plan as needed, provided reinforcement during the evaluation, and concluded the health coaching sessions.

These are coaching materials covering HBM components.

Perceived susceptibility:

● How at risk do you think you are for health complications from CHD if you do not improve your QoL?

● How does your current health condition affect the likelihood of future complications?

Perceived severity:

● What are the worst possible health consequences if you do not improve your QoL?

● How does CHD currently impact your daily life and overall well-being?

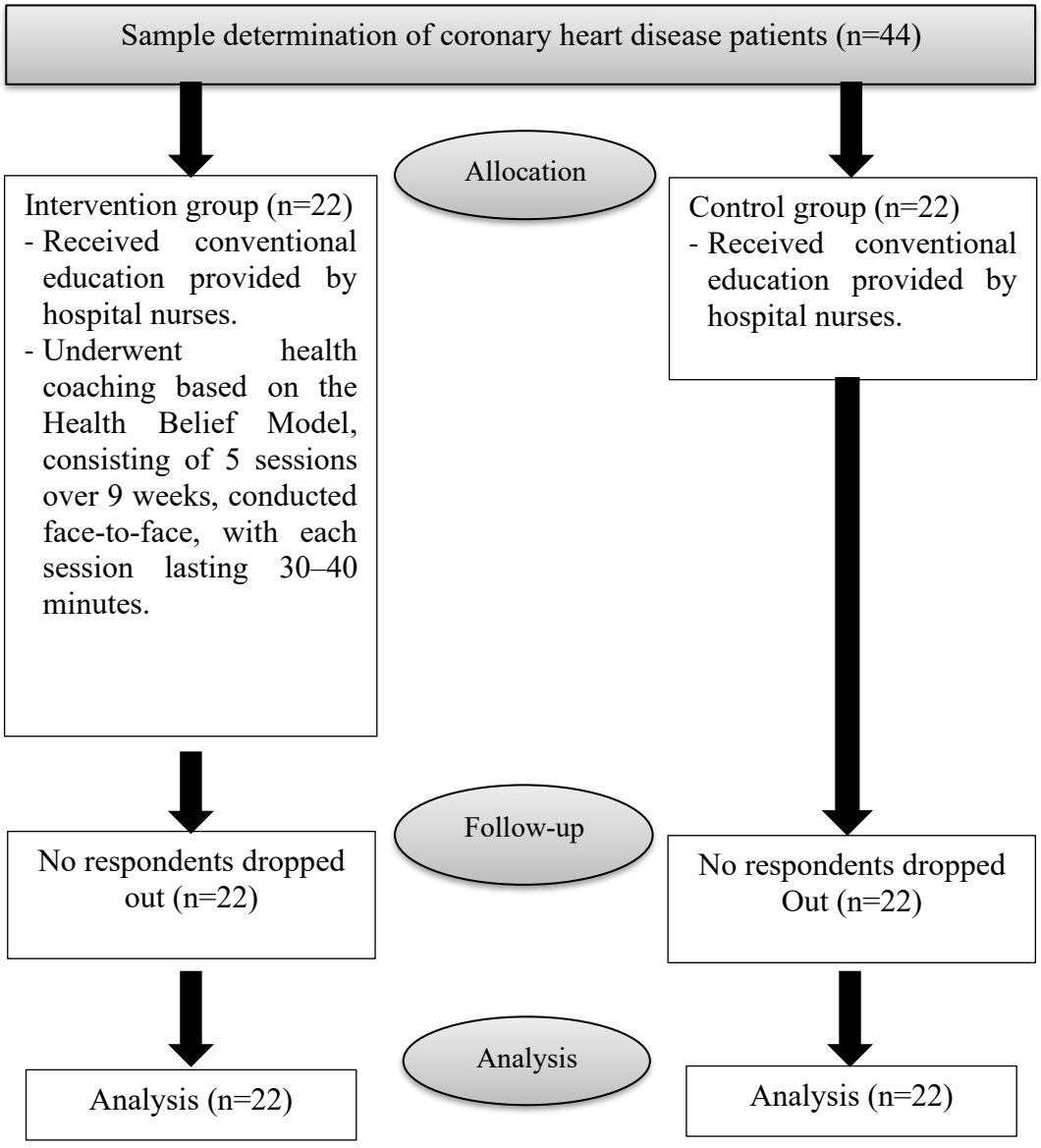


Figure 2. Research flowchart of health coaching based on the HBM

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Perceived benefits:

● What specific benefits do you expect from improving your QoL?

● How can improving your QoL help you manage CHD?

Perceived barriers:

● What are the main obstacles preventing you from improving your QoL?

● How can you overcome these obstacles?

Cues to action:

● What events or factors motivate you to start improving your QoL immediately?

● What drives your decision to initiate these changes now?

Self-efficacy:

● How confident are you in making the planned changes to improve your QoL?

● What factors can boost your confidence in achieving your QoL goals?

Table 1. Demographic characteristics of the intervention and control groups (n=44)

Variables		No. (%)		P
		Intervention Group (n=22)	Control Group (n=22)	
Age (y)	Mean	53.18	54.36	0.477**
	<35 (early adulthood)	2(9.1)	0(0.0)	
	36-45 (late adulthood)	2(9.1)	3(13.6)	
	46-55 (early elderly)	9(40.9)	8(36.4)	
	56-65 (late elderly)	7(31.8)	9(40.9)	
	>65 (senior)	2(9.1)	2(9.1)	
Gender	Male	10(45.5)	17(77.3)	0.030*
	Female	12(54.5)	5(22.7)	
Education level	Elementary school	4(18.2)	2(9.1)	0.540*
	Junior high school	3(13.6)	2(9.1)	
	Senior high school	5(22.7)	10(45.5)	
	Higher education	10(45.5)	8(36.4)	
Occupation	Entrepreneur	7(31.8)	10(45.5)	0.361*
	Civil servant	4(18.2)	4(18.2)	
	Retired	3(13.6)	4(18.2)	
	Housewife	8(36.4)	4(18.2)	
Marital status	Married	22(100.0)	22(100.0)	1.000*
	Single	0(0.0)	0(0.0)	
Surgical history	Yes	4(18.2)	7(31.8)	0.296*
	No	18(81.8)	15(68.2)	
Comorbidities	Hypertension	11(50.0)	14(63.6)	1.000*
	Type 2 diabetes mellitus	3(13.6)	2(9.1)	
	Hyperlipidemia	5(22.7)	3(13.6)	
	Hyperuricemia	3(13.6)	2(9.1)	
	Non-hemorrhagic stroke	0(0.0)	1(4.5)	

**The independent t-test, *The chi-square test.

Table 2. Changes in QoL in the intervention and control groups (pre-test and post-test)

Variable	Intervention Group						Control Group					
	Pre-test (n=22)		Post-test (n=22)		MD	P*	Pre-test (n=22)		Post-test (n=22)		MD	P*
	Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)			Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)		
QoL	57.02±10.23	55.12 (41-83)	65.07±9.14	62.87 (52-86)	8.05	0.0001	53.85±4.51	52.94 (47-65)	54.10±4.46	53.33 (47.65)	0.25	0.109

MD: Mean difference.

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*The Wilcoxon test.

The answers to these HBM-based questions were systematically integrated into the FIRA coaching process to (1) assess patients' current health beliefs and identify knowledge gaps or misconceptions, (2) guide personalized goal-setting based on individual perceptions and motivations, (3) develop tailored strategies to overcome identified barriers, (4) create individualized action plans adjusted to each patient's self-efficacy level, and (5) monitor progress by revisiting these questions in follow-up sessions to track belief changes and adjust interventions accordingly. All responses were documented to maintain continuity across sessions and evaluate individual progress throughout the intervention period.

Control group

The control group received 9 sessions of conventional education provided by hospital nurses. The flow of participants through allocation, follow-up, and analysis is presented in Figure 2.

Data analysis

To assess changes in QoL, a paired t-test was used if the data were normally distributed. If the data were not normally distributed, the Wilcoxon test was used, with a significance level of P<0.05 (Sugiyono, 2020). To compare QoL changes between the intervention and control groups before and after the intervention, an independent t-test was used if the data were normally distributed, and the Mann-Whitney test was used if the data were not normally distributed (Sugiyono, 2020). These procedures were designed to ensure that the analysis results align with the distribution of the data being analyzed. The data were analyzed using SPSS software, version 26.

Results

Participants' characteristics

Based on Table 1, only gender differed significantly between groups (P=0.030), with the intervention group having more females (54.5%) than the control group (22.7%).

The groups did not differ significantly in age (P=0.477), education level (P=0.540), occupation (P=0.361), marital status (P>0.999), surgical history (P=0.296), or comorbidities (P>0.999).

Table 3. Changes in QoL dimensions within the intervention and control groups (pre-test and post-test)

QoL (WHOQOL-BREF)	Intervention Group		P*	Control Group		P*
	Mean±SD			Mean±SD		
	Pre-test (n=22)	Post-test (n=22)		Pre-test (n=22)	Post-test (n=22)	
Physical	47.73±9.76	57.00±8.81	0.0001	50.64±7.26	54.95±12.66	0.276
Psychological	53.05±7.70	61.86±10.60	0.0001	56.23±8.25	59.73±9.54	0.081
Social relationships	65.55±16.61	73.18±7.58	0.020	54.82±8.24	70.86±9.55	0.0001
Environmental	61.82±11.98	68.05±15.50	0.010	56.45±6.23	74.73±15.47	0.0001

WHOQOL-BREF: The World Health Organization QoL.

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*The Wilcoxon test.

Table 4. Differences in QoL changes in the pre-test between the intervention and control groups

Variable	Intervention Group (n=22)		Control Group (n=22)		Mean Difference (MD)	P*
	Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)		
QoL	57.02±10.23	55.12 (41-83)	53.85±4.51	52.94 (47-65)	3.17	0.385

*The Mann-Whitney test.

Client- Centered Nursing Care

Changes in QoL in the intervention and control groups

Changes in QoL within the intervention and control groups (pre-test and post-test)

The analysis of QoL changes indicates a statistically significant improvement in the intervention group (P=0.0001). Meanwhile, the control group did not show a statistically significant improvement (P=0.109) (Table 2).

The trends show a distinct pattern between the two groups. The intervention group showed a positive trend, with QoL scores increasing by 5.85 points (from 57.02 to 65.07), whereas the control group showed a relatively stable trend, with a slight increase of 0.25 points (from 53.85 to 54.10) (Figure 3).

Changes in QoL dimensions within the intervention and control groups (pre-test and post-test)

The analysis of changes in QoL dimensions indicates that the intervention group improved significantly across all dimensions: physical (P=0.0001), psychological (P=0.0001), social relationship (P=0.020), and environmental (P=0.010). Meanwhile, in the control group, only the social dimension (P=0.0001) and environmental dimension (P=0.0001) showed statistically significant improvement (Table 3).

The trend in QoL dimension improvement differs across groups. The intervention group showed a more consistent, balanced increase across all dimensions, improving from 6.23 to 9.27 points. Specifically, the physical dimension increased by 9.27 points, the psychological dimension by 8.81 points, the social dimension by 7.63 points, and the environmental dimension by 6.23 points. In contrast, the control group showed a more varied, uneven pattern of improvement, with a much wider range of increases (2.1 to 21 points). The greatest improvements in the control group were in the social dimension (21 points) and the physical dimension (16 points), whereas the psychological (3.48 points) and environmental (2.1 points) dimensions showed relatively minor increases (Figure 4).

Differences in QoL changes between the intervention and control groups before and after the intervention

The pre-test analysis of differences in QoL changes between the intervention and control groups showed no statistically significant difference (P=0.385) (Table 4).

Based on the Mann-Whitney test results, the post-test showed a statistically significant difference in QoL changes between the intervention and control groups (P=0.0001) (Table 5).

Discussion

This study examined the effect of HBM-based health coaching on improving the QoL of CHD patients. The results indicated that HBM-based health coaching interventions significantly improved QoL in CHD patients.

Table 5. Differences in QoL changes in the post-test between the intervention and control groups

Variable	Intervention Group (n=22)		Control Group (n=22)		Mean Difference (MD)	P*	r**
	Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)			
QoL	65.07±9.14	62.87 (52-86)	54.10±4.46	53.33 (47.65)	10.97	<0.001	0.688

*The Mann-Whitney test,**Effect size.

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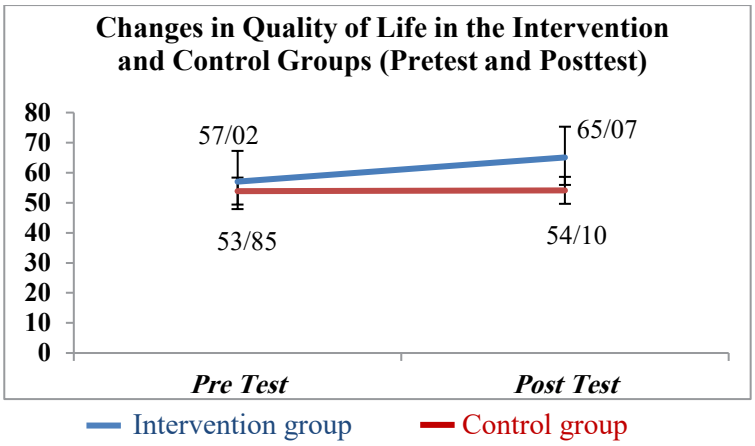


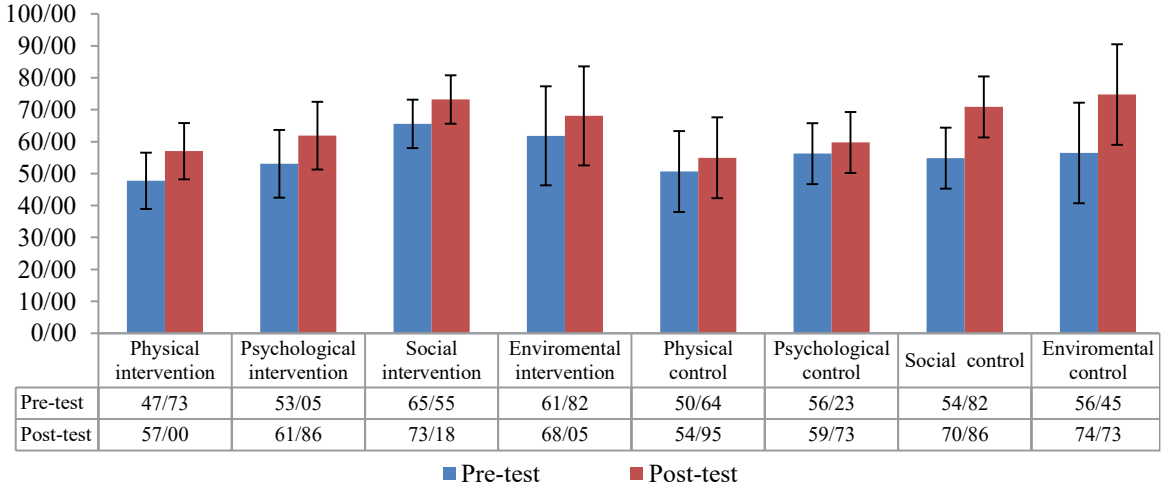
Figure 3. Changes in QoL in the intervention and control groups (pre-test and post-test) Client- Centered Nursing Care

Changes in QoL before and after health coaching intervention in the intervention and control groups

In the intervention group, a significant improvement in QoL was observed across all dimensions. In contrast, in the control group, significant improvements were only found in the social and environmental dimensions, while no significant changes were noted in the physical and psychological dimensions. Although the control group received only conventional education, they may have benefited from social support and environmental improvements, such as family, community, or healthcare services. These factors might have improved the social and environmental dimensions but were less effective than the health coaching intervention in the intervention group. This finding suggests that external factors beyond individual control more influence social and environmental dimensions. Therefore, the primary difference between the intervention and control groups lies in the effectiveness of HBM-based health coaching in comprehensively enhancing QoL, whereas the control group experienced improvements only in social and environmental aspects.

The HBM-based health coaching intervention is a systematic approach rooted in psychological theory. It primarily focuses on modifying patients' perceptions and internal motivation by identifying psychological factors that influence health behaviors (Champion & Skinner, 2008).

A study by Jafar et al. (2023) reported significant improvements in QoL among groups that received virtual health coaching interventions. Additionally, health coaching emphasizes individual needs and practical implementation, proving more effective at improving QoL and fostering healthy lifestyles than traditional, generalized counseling (Lin et al., 2021). Health coaching also plays a crucial role in enhancing patients' motivation and confidence in adhering to disease-management recom-



	Physical intervention	Psychological intervention	Social intervention	Enviromental intervention	Physical control	Psychological control	Social control	Enviromental control
Pre-test	47/73	53/05	65/55	61/82	50/64	56/23	54/82	56/45
Post-test	57/00	61/86	73/18	68/05	54/95	59/73	70/86	74/73

Figure 4. Changes in QoL dimensions in the intervention and control groups (pre-test and post-test) Client- Centered Nursing Care

mendations (Hastuti & Mufarokhah, 2019). Thus, this intervention improves the QoL of CHD patients by focusing on individual needs, motivation enhancement, and belief formation in managing their condition.

CHD patients who do not receive health coaching risk severe negative consequences. Without this intervention, patients tend to be less adherent to treatment and a healthy lifestyle, increasing their risk of severe complications and hospitalizations (Wolever et al., 2013).

Health coaching plays a vital role in enhancing patients' self-management. This finding aligns with other studies showing that health coaching interventions significantly improve self-management behaviors in heart failure patients, which also applies to CHD patients (Hamid, 2021). Health coaching increases patients' understanding of their disease and the necessary lifestyle changes for effective management (Marselin et al., 2023). Additionally, the increased frequency of hospitalizations due to the absence of health coaching interventions in CHD patients imposes a significant burden on the healthcare system. It affects patients' mental and emotional well-being (Jaata & Astuti, 2023). Rising healthcare costs associated with the lack of health coaching interventions stem from patients seeking medical care only when their condition worsens, rather than adopting preventive health behaviors, leading to frequent emergency visits and hospitalizations (Mustonen et al., 2020; Oksman et al., 2017). These findings indicate that the absence of health coaching interventions for CHD patients can lead to numerous adverse effects, including reduced self-management skills, lower health-related QoL, and increased healthcare utilization. The evidence strongly supports structured health coaching programs to increase patient engagement, improve health outcomes, and ultimately reduce the burden of CHD.

Health coaching is a collaborative, patient-centered approach that actively involves patients in health decisions. This method helps patients recognize the gap between their desired health goals and current behaviors, fostering awareness and motivation for change (Kivela et al., 2014; Huffman, 2007). When integrated with the HBM and motivational interviewing techniques, this approach is more effective at encouraging behavioral change and improving patients' ability to manage chronic conditions than theoretical methods alone (VanBuskirk & Wetherell, 2014).

From the researchers' perspective, one key reason this intervention is crucial for improving the QoL of CHD patients is the success of HBM-based health coaching in providing a personalized approach. Since each CHD patient faces different challenges, family environments, and perspectives, along with the tendency to experience fatigue in long-term management, this intervention helps patients evaluate their perception of their disease. Patients are guided to identify their sources of support (family, healthcare facilities, community) and explore their aspirations and efforts to achieve their goals. This approach boosts patients' confidence and motivation to manage CHD while addressing emotional barriers often overlooked in traditional counseling, ultimately improving their QoL.

Differences in changes in QoL before and after health coaching intervention based on the HBM in the intervention and control groups

The findings indicate a significant difference in QoL improvement between the group receiving a combination of conventional education and an HBM-based health coaching intervention and the group receiving only conventional education. Although both groups had comparable QoL levels before the intervention, the intervention group showed greater improvement after treatment because of differences in intervention stages and methods. Previous studies support this finding, showing that HBM-based health coaching is more effective at improving QoL and patient adherence than conventional education because it positions the patient at the center of decision-making (Bennett et al., 2010; Kivelä et al., 2020b). Other research suggests that education and rehabilitation programs should be practical, affordable, sustainable, and require close monitoring (Tillmann et al., 2017). Conventional education has limitations in providing accurate information and meeting patients' clinical needs (Shan et al., 2020). Studies show that single interventions have limited effectiveness in achieving optimal outcomes. A comprehensive program that combines education, cognitive-behavioral therapy, physical activity, and psychological support is necessary to achieve optimal results (Anderson et al., 2017). Therefore, an HBM-based health coaching intervention yields better results in improving patients' QoL than conventional education. A comprehensive approach that integrates various intervention methods is practical and sustainable and is highly recommended to achieve more effective treatment outcomes.

Providing HBM-based health coaching for CHD patients is a strategic and highly appropriate approach to improving QoL. Unlike health education or counseling, which are more one-directional, health coaching interventions focus more on patient-centered decision-

making regarding their disease. Thus, integrating health coaching with the HBM effectively improves QoL among CHD patients.

Research findings show a significant difference in QoL after the HBM-based health coaching intervention between the intervention and control groups (Glanz et al., 2015). This outcome closely relates to integrating the key components of the HBM: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Rosenstock et al., 1988). Each component plays a crucial role in shaping health behavior and can be effectively addressed through health coaching interventions (Jones et al., 2015; Sharma, 2021).

Perceived susceptibility refers to an individual's belief about their risk of developing a health problem. Tailored information about susceptibility motivates patients to take appropriate steps to manage their health. Previous research shows that increasing awareness of personal risk factors can lead to better health behaviors and adherence to treatment plans (Casadei et al., 2019; Kivelä et al., 2020a). Other studies indicate that patients who recognize their risks are more likely to engage in positive health behaviors, such as following a healthy diet and exercising regularly, which can improve their QoL (Giournta et al., 2020; Moryś et al., 2014). Through health coaching, patients can receive clearer information about their risks and how to manage them, thereby enhancing their perceived susceptibility and encouraging preventive actions.

Perceived severity involves beliefs about how serious a health condition is. Emphasizing the severity of their condition encourages patients to prioritize their health and engage in necessary lifestyle changes. Previous research has shown that when patients perceive their condition as serious, they are more likely to adopt healthier behaviors (Fowler, 2023; Veerapu et al., 2020). Other studies show that patients who recognize the severity of their condition tend to be more proactive in managing their health (Hnyda & Avadhani, 2017; Panzaru & Holman, 2015). Thus, health coaching can help patients understand the impact of CHD and the importance of proper management, thereby increasing their motivation to participate in programs designed to improve their QoL.

Perceived benefits focus on the belief that taking action to improve health will yield advantages. Previous research indicates that when patients understand the positive outcomes associated with health-promoting behaviors, they are more likely to engage in those behaviors (Casadei et al., 2019; Kivelä et al., 2020a; Tiede et al., 2017). Other studies show that patients with strong beliefs about the benefits of lifestyle changes, such as healthy eating and exercise, are more likely to adhere to intervention programs (Baradaranfard et al., 2018). Thus, health coaching can provide tangible evidence of the benefits of behavioral changes, reinforcing perceived benefits among CHD patients.

Perceived barriers refer to obstacles patients identify as hindrances to behavioral change. Previous research indicates that reducing perceived barriers is associated with increased engagement in health-promoting activities (Ghorbani-Dehbalaei et al., 2021; Veerapu et al., 2020). Therefore, health coaches should help patients identify and address potential barriers so they can participate more easily in coaching programs.

Cues to action trigger individuals to take health-related actions. Previous research shows that cues to action can significantly improve adherence to health regimens (Kivelä et al., 2020a; Tiede et al., 2017). Other studies suggest that social support and timely reminders can increase patient motivation to participate in health programs (Laksmi et al., 2021; Nursita & Pratiwi, 2020). By providing appropriate cues, health coaching can help CHD patients become more engaged in managing their health, ultimately improving their QoL.

Self-efficacy refers to an individual's confidence in their ability to perform the behaviors necessary to achieve desired health outcomes (Bandura, 1977, Bandura, 1997; Rosenstock et al., 1988). Previous research consistently shows that higher self-efficacy is associated with better health outcomes and adherence to treatment plans (Casadei et al., 2019; Ghorbani-Dehbalaei et al., 2021; Purcell et al., 2021; Prasetyo & Dewi, 2021). Thus, the HBM provides a strong framework for health coaching interventions aimed at improving the QoL of CHD patients. By addressing each component, health coaching can effectively motivate patients to adopt healthier behaviors, overcome obstacles, and ultimately enhance their overall well-being.

Overall, the HBM components influence the health behavior of CHD patients following health coaching interventions. By increasing awareness of susceptibility and severity, highlighting the benefits of preventive actions, and overcoming barriers, patients' QoL can be significantly improved (Natour et al., 2023; Tsai et al., 2021). By using all components of the HBM, health coaches can create a supportive environment that empowers patients to make informed health decisions. This practice not only impacts treatment adherence and lifestyle changes but also enhances overall QoL.

Study limitations

This study's limitations include a small sample size and a short intervention duration, which make it difficult to generalize the results and assess the intervention's long-term effects. A limited sample size may not fully represent the broader population, making it difficult to draw strong conclusions. Additionally, the short intervention duration may limit observation of long-term behavioral or health-condition changes.

Further research is needed to explore the impact of health coaching on patients with CHD, strengthen the scientific evidence, and improve program implementation across healthcare facilities. Because HBM-based health coaching has been shown to enhance the QoL of CHD patients, integrating this program into healthcare services is recommended, with trained healthcare professionals using the HBM approach. Continuous monitoring and program evaluation are also necessary to ensure long-term success and early problem detection.

Conclusion

The intervention group showed significantly greater improvements in QoL than the control group after receiving an HBM-based health coaching intervention.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Faculty of Nursing, Hasanuddin University, Makassar, Indonesia (Code: 866/UN4.I8.3/TP.01.02/2024). All participants signed informed consent before participation.

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Authors' contributions

All authors contributed equally to the conception and design of the study, data collection and analysis, interception of the results and drafting of the manuscript. Each author approved the final version of the manuscript for submission.

Conflict of interest

The authors declared no conflict of interest.

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