Jurnal Manajemen Kesehatan Yayasan RS. Dr. Soetomo Vol.11 No.1 April 2025
Print ISSN 2477-0140 Online ISSN 2581-219X
www.jurnal.stikes-yrsds.ac.id

# Tinjauan Sistematis Instrumen Adaptasi Pasien Berdasarkan Model Roy dalam Keperawatan

## *Systematic Review of Patient Adaptation Instruments Based on Roy's Model in Nursing*

**Syamsidar**[1], **Nurfika Asmaningrum***[2], **Rondhianto**[3]
[1]Postgraduate student, Master of Nursing Study Program,
Faculty of Nursing, Universitas Jember
[2,3]Master of Nursing Study Program, Faculty of Nursing Universitas Jember
(Email: nurfika_asmaningrum@unej.ac.id, Jember, Indonesia)

**ABSTRAK**

Pengukuran adaptasi dalam keperawatan berbasis Model Adaptasi Roy sangat penting untuk memahami bagaimana pasien beradaptasi dengan kondisi medis kronis. Penelitian ini menggunakan pendekatan Systematic Literature Review (SLR) dengan mengikuti pedoman PRISMA. Sebagai alat analisis data, penelitian ini menggunakan kerangka PICOC untuk mengevaluasi dan mengorganisir elemen-elemen kunci dari setiap studi yang dipilih. Pencarian literatur dilakukan secara sistematis melalui database akademik bereputasi, seperti Scopus, PubMed, Google Scholar, dan DOAJ. Strategi pencarian menggabungkan Boolean Operators untuk memastikan cakupan yang luas dan relevansi topik. Kata kunci yang digunakan mencakup instrumen pengukuran, Artikel yang dipilih dipublikasikan antara tahun 2015 hingga 2025 dan memenuhi kriteria inklusi dan eksklusi yang ketat. Ditemukan 20 artikel yang memenuhi kriteria inklusi. Instrumen pengukuran adaptasi yang berdasarkan Model Adaptasi Roy menunjukkan validitas dan reliabilitas yang baik, tetapi memiliki keterbatasan dalam mengukur semua mode adaptasi secara holistik. Instrumen yang ada lebih banyak diterapkan dalam konteks perawatan tertentu, seperti pasien dengan gagal jantung, penyakit neurodegeneratif, dan perawatan paliatif. Beberapa instrumen hanya mengukur satu atau dua mode adaptasi, yang membatasi gambaran komprehensif tentang proses adaptasi pasien. Instrumen yang ada sudah valid dan reliabel, masih diperlukan pengembangan instrumen yang lebih holistik dan dapat mengintegrasikan keempat mode adaptasi dalam satu alat ukur yang tervalidasi lintas budaya.

Kata kunci: Pengukuran adaptasi, Model Adaptasi Roy, dan keperawatan

***ABSTRACT***

*Adaptation measurement in nursing based on Roy's Adaptation Model is essential to understand how patients adapt to chronic medical conditions. This study used the Systematic Literature Review (SLR) approach following the PRISMA guidelines. As a data analysis tool, this study used the PICOC framework to evaluate and organize key elements of each selected study. The literature search was conducted systematically through reputable academic databases, such as Scopus, PubMed, Google Scholar, and DOAJ. The search strategy incorporated Boolean Operators to ensure broad coverage and topic relevance. The keywords used included measurement instruments, The selected articles were published between 2015 and 2025 and met strict inclusion and exclusion criteria. There were 20 articles that met the inclusion criteria. Adaptation measurement instruments based on Roy's Adaptation Model showed good validity and reliability, but had limitations in measuring all modes of adaptation holistically. Existing instruments are more widely applied in specific care contexts, such as patients with heart failure, neurodegenerative diseases, and palliative care. Some instruments only measure one or two modes of adaptation, which limits a comprehensive picture of the patient's adaptation process. The existing instruments are valid and reliable, but more holistic instruments are needed to integrate the four adaptation modes into one cross-culturally validated measurement tool.*

*Keywords: Adaptation measurement, Roy's Adaptation Model, and nursing*

## INTRODUCTION

The term adaptation has gained significant attention in describing human responses to health conditions, encompassing physiological, psychological, and social domains. Adaptation can be viewed as both a process and an outcome, where individuals use awareness and choice to achieve integration between themselves and their environment. A study by Thomas et al. (2019) described adaptation as a dynamic and multidimensional process of dealing with health threats, with outcomes reflecting how individuals adjust to these challenges. In this context, adaptation is seen as the alignment between situational demands and individual capacities within psychosocial and biomedical models. This conceptualization emphasizes the importance of both the process and the resulting state of physical, emotional, behavioral, and cognitive functioning as individuals navigate health challenges.

Roy's Adaptation Model (RAM) is one of the principal theories in nursing that explains how individuals adjust to environmental changes through complex coping mechanisms (Dangis & Laoyan, 2018). The model posits that humans are adaptive systems responding to both external and internal stimuli, and it categorizes these responses into four key adaptation modes: physiological, self-concept, role function, and interdependence (Zheng & Jin, 2022). In recent years, the Roy Adaptation Model has been increasingly applied in nursing research, particularly in the management of chronic diseases, post-traumatic rehabilitation, and health education, all aimed at improving the quality of life for patients (Jennings, 2017). Given the growing complexity of health conditions, particularly chronic diseases, understanding how patients adapt to their medical conditions is vital for enhancing nursing care effectiveness. Thus, an approach based on Roy's Adaptation Model is crucial for helping health workers better understand patient coping mechanisms and for developing evidence-based nursing interventions.

Despite its widespread application, there is a significant gap in the literature concerning comprehensive measurement instruments that assess all four modes of adaptation—physiological, self-concept, role function, and interdependence—holistically. Previous studies have predominantly focused on single modes of adaptation, limiting their ability to provide a complete picture of how patients adjust to chronic conditions. No standardized instrument has been developed to universally measure patient adaptation, which is crucial for ensuring more consistent and comparable results across different studies and patient populations.

Roy's Adaptation Model is an essential and widely used philosophical framework in nursing education, which sees humans as biopsychosocial beings. In their pursuit of well-being, individuals frequently face complex challenges that require adaptive responses. Coping and self-defense mechanisms are crucial for performing roles and functions optimally and maintaining personal integrity in the face of health threats. Bennett et al. (2018) emphasized that these mechanisms play a central role in ensuring individuals can effectively navigate the health challenges they encounter within their environment. The holistic approach of RAM highlights the need for nursing professionals to recognize these complexities and provide interventions that support the adaptation process.

In nursing practice, assessing patient adaptation is critical to evaluating the effectiveness of interventions. Roy's Adaptation Model offers a systematic framework for nurses to gauge how patients are adapting to their health conditions, whether through physical, emotional, or social adjustments. Several studies, including Dambi et al., (2018), have demonstrated that proper measurement of adaptation can lead to more effective interventions, enhance healthcare system efficiency, and help develop evidence-based care protocols. However, the lack of a standardized instrument for assessing all modes of adaptation poses a significant challenge for evaluating the effectiveness of interventions across diverse patient populations.

Technological advancements in healthcare present new opportunities for integrating Roy's Adaptation Model into digital interventions. Tools such as telemedicine, mobile health apps, and artificial intelligence-based health monitoring systems enable real-time observation and evaluation of patient adaptation (Clement-Olawade et al., 2024; Danuta et al., 2020). Research has shown that combining RAM with digital technology can enhance the effectiveness of patient adaptation, especially in managing chronic diseases, by improving monitoring, increasing patient involvement in care, and facilitating more accessible health education (Pistorius, 2017). Despite these advances, there are still limited studies that specifically explore how digital technologies can be integrated with RAM in the care of chronic disease patients. Therefore, this study will investigate how technology can enhance the application of RAM to improve patient adaptation to chronic illness.

Although Roy's Adaptation Model has demonstrated effectiveness in improving patient adaptation, there are significant challenges in its implementation. One key challenge is the lack of long-term trials evaluating the impact of RAM-based

interventions on patients' quality of life compared to conventional education methods. Many studies have only assessed the short-term effects (1-3 months), leaving the long-term outcomes uncertain (Nasiri et al., 2024). Furthermore, factors such as social support, health literacy, and coping strategies play a crucial role in a patient's ability to adapt to chronic conditions. However, few studies have systematically examined how these factors interact with RAM or how validated adaptation measurement tools can be used to assess the success of RAM-based interventions.

This study aims to review and evaluate the adaptation measurement instruments developed based on Roy's Adaptation Model in nursing contexts. The study will focus on evaluating the effectiveness of these instruments in measuring the adaptation of patients with chronic diseases, assessing their validity and reliability across different adaptation modes—physiological, psychological, social, and interpersonal. Furthermore, the study seeks to identify the limitations of existing instruments, particularly in the care of patients with hypertension, heart failure, and neurodegenerative disorders. By doing so, this study aims to contribute to the development of more comprehensive and applicable tools that can improve the quality of nursing care for patients with chronic diseases.

## METHODS

This study used a Systematic Literature Review (SLR) approach by following the PRISMA (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*) guidelines to evaluate adaptation measurement instruments based on the Roy Adaptation Model. The literature search process was conducted systematically using reputable academic databases, such as Scopus, PubMed, Google Scholar, and DOAJ. To ensure a broad and relevant search coverage of the research topic, a combination of Boolean Operators was used in the search strategy. The PICOC framework used to analyze the data is as follows:

**Table 1.** Framework PICOC

| Element | Description |
|---|---|
| **P (Population)** | Patients with chronic diseases, including patients with heart failure, neurodegenerative diseases, and palliative care. |
| **I (Intervention)** | Adaptation measure based on the Roy Adaptation Model, which evaluates patients' adaptation responses to their medical condition. |
| **C (Comparison)** | Other measurement instruments not based on the Roy Adaptation Model, if relevant for comparison in the context of measuring patient |

| | |
|---|---|
| | adaptation. |
| **O (Outcome)** | Effectiveness and validity of the instrument in measuring patients' adaptation responses to their medical condition, including physiological dimensions, self-concept, role functioning, and interdependence. |
| **C (Context)** | The context of hospice, palliative care, and long-term care, and the application of adaptation measurement instruments in these care settings. |

The keywords used in the search consisted of three main aspects, namely the measurement instrument, the Roy Adaptation Model, and aspects of validity and reliability. The keywords applied to the Scopus, PubMed, and Google Scholar databases are:

*(Instrument OR tool OR scale OR measure OR assessment OR evaluation) AND ("Roy Adaptation Model" OR "Roy's Adaptation Model" OR "Roy Model" OR "adaptation theory" OR "adaptation measurement") AND (validity OR reliability OR psychometrics OR "psychometric properties" OR evaluation OR "nursing theory")*.

Meanwhile, for searches on the DOAJ database, the keywords used are more specific, namely: *Roy Adaptation Model AND nursing AND measurement*. The studies selected in this research should contain information related to the development or application of patient adaptation measurement instruments in a nursing context based on the Roy Adaptation Model. Articles included in this review were identified, screened and evaluated using strict inclusion and exclusion criteria to ensure that only studies of high relevance and methodological robustness were used in this systematic analysis.

Article selection was performed by applying strict inclusion and exclusion criteria to ensure that only studies with high methodological standards were included in this review. Inclusion criteria included (1) articles published in reputable academic journals within 2014-2024, (2) articles available in full text in English or Indonesian, (3) quantitative or mixed-methods studies that included instrument validity and reliability tests, and (4) studies that evaluated the Roy Adaptation Model in the context of nursing and chronic illness. Meanwhile, exclusion criteria included (1) studies that were only literature reviews without empirical analysis, (2) studies that were not based on the Roy Adaptation Model, and (3) articles that were only available in the abstract without access to the full text. The literature selection process was conducted in four stages according to

the PRISMA flowchart, namely identification, screening, eligibility assessment, and inclusion.

The articles that met the initial criteria were then evaluated using the JBI Critical Appraisal Tools to assess the quality of research methodology, design validity, and potential bias in the reviewed studies. These tools were used to evaluate both qualitative and quantitative studies. Two independent reviewers conducted the evaluation to minimize bias. If discrepancies arose between the reviewers, a third reviewer was involved to resolve the disagreement. This process ensures that the studies included in this review met rigorous methodological standards.

The protocol for this systematic review has been registered in PROSPERO, the international database of prospectively registered systematic reviews in health and social care. The registration ensures transparency in the review process and that the methodology followed established guidelines for conducting systematic reviews.

The results of the articles that met the criteria were entered into a systematic table, which included key information such as the name of the adaptation measurement instrument, author and year, subscales used (Roy adaptation mode), purpose of measurement, target population, as well as the number of samples tested. The presentation of results in tabular form aims to provide a comprehensive overview of the characteristics of the instruments that have been tested in previous studies, as well as facilitate the analysis of the advantages, limitations, and applications of the instruments in nursing practice.

To reduce publication bias and selection bias, this study only included articles that had undergone peer review and had strong methodology. In addition, bias control strategies were applied by considering various factors that could affect the results of the study, such as sample size, mode used, and duration of follow-up in the reviewed studies. These steps aim to increase the validity and reliability of the systematic review results, so that they can provide more accurate and applicable insights in the development of adaptation measurement instruments based on the Roy Adaptation Model in the modern nursing context.

## RESULTS

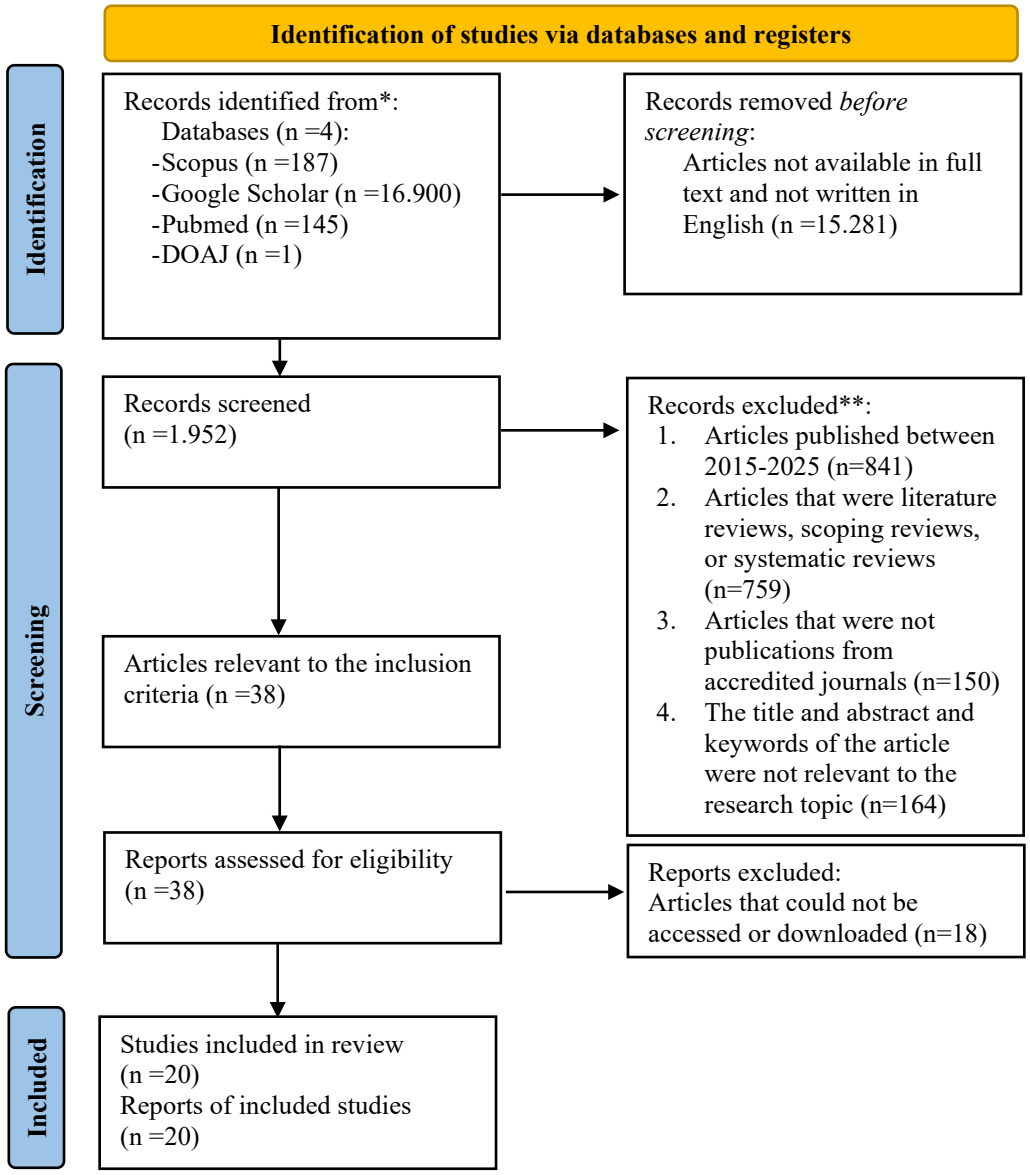


**Figure 1. PRISMA diagram of study selection**

The figure above illustrates the literature selection process in this study using the PRISMA 2020 method. At the identification stage, articles were collected from various academic databases, namely Scopus (n=187), Google Scholar (n=16,900), PubMed (n=145), and DOAJ (n=1), with a total of 19,233 articles found. However, a total of 15,281 articles were removed before the screening process as they were not available in full text or were not written in English. Thus, 1,952 articles remained for the next stage.

At the screening stage, articles that did not meet the inclusion and exclusion criteria were excluded. A total of 841 articles were excluded because they were published outside the 2015-2025 timeframe. Another 759 articles were excluded because they were literature reviews, scoping reviews, or systematic reviews, thus not meeting the criteria for empirical research. An additional 164 articles were excluded because their titles, abstracts and keywords were not relevant to the research topic. At this stage, 38 articles were left in the eligibility assessment stage. In the assessment for eligibility stage, 18 additional articles were excluded because they could not be accessed or downloaded. Thus, 20 articles made it to the final stage and were included in the systematic review. These articles were then analyzed in depth to evaluate the methodological quality, validity of the research design, and possible bias in each study. The final results of this selection process showed that the 20 articles met all the criteria set and were used as the basis for the systematic review analysis of adaptation measurement instruments based on the Roy Adaptation Model in the nursing context.

**Table 2. Literature Analysis Results**

| No | Adaptation Measurement Instrument Name and Author (Year) | Subscales Used (Roy's Adaptation Mode) | Measurement Objective | Target Population and Number of Samples Tested | Framework Used |
|---|---|---|---|---|---|
| 1 | Medication Adherence Rating Scale (MARS) - Demirel & Kiliç (2024) | Physiological Mode (Adherence Behavior, Side Effect Concerns) | Assessing patient adherence to treatment | Hypertensive patients, 60 patients (RCT) | **PICOC**: P (Hypertensive patients), I (MARS), O (Patient adherence), C (Comparison with other instruments, if applicable) |
| 2 | Psychosocial Adjustment to Illness Scale-Self Report (PAIS-SR) - Erdoğan & | Self-Concept (Psychological Distress, Family Support) | Evaluating psychosocial adjustment to illness | Behcet's patients, 120 patients (quasi-experimental) | **PICOC**: P (Behcet's patients), I (PAIS-SR), O (Psychosocial adjustment), C |

| | | | | | |
|---|---|---|---|---|---|
| | Öz (2023) | | | | (Comparison with other psychosocial adjustment scales) |
| 3 | Patient Information Form - Salazar-Barajas et al. (2018) | Interdependence Mode (Health Literacy, Self-Care Behaviors) | Measuring health literacy and patient understanding | Elderly, 300 elderly people (correlational study) | **PICOC**: P (Elderly), I (Patient Information Form), O (Health literacy), C (Comparison with other health literacy scales) |
| 4 | Perceived Stress Scale (PSS) - Lok et al. (2020) | Physiological Mode (Perceived Stress, Coping Mechanisms) | Assess the level of stress felt by the patient | Alzheimer's patients, 80 patients (RCT) | **PICOC**: P (Alzheimer's patients), I (PSS), O (Stress level), C (Comparison with other stress measurement tools) |
| 5 | Cognitive Function Test - Mansouri et al. (2019) | Physiological Mode (Cognitive Function, Memory, Executive Function) | Evaluate the cognitive function of patients with degenerative diseases | Heart failure patients, 150 patients (quasi-experimental study) | **PICOC**: P (Heart failure patients), I (Cognitive Function Test), O (Cognitive function), C (Comparison with other cognitive tests) |
| 6 | Self-Care of Heart Failure Index (SCHFI) - Frazão et al. | Physiological Mode (Self-Care Maintenance, Self-Care | Assessing the patient's ability to perform self-care | Chronic renal failure patients, 200 patients (descriptive | **PICOC**: P (Chronic renal failure patients), I (SCHFI), O |

| | | | | | |
|---|---|---|---|---|---|
| | (2015) | Confidence) | | study) | (Self-care ability), C (Comparison with other self-care scales) |
| 7 | Nursing Diagnosis and Adaptation Scale - Souza et al. (2022) | Self-Concept Mode (Nursing Diagnoses, Adaptive Behaviors) | Identifying patient adaptation problems in nursing | Children with congenital heart disease, 50 children (Delphi Study) | **PICOC**: P (Children with congenital heart disease), I (Nursing Diagnosis and Adaptation Scale), O (Identification of adaptation problems), C (Comparison with other diagnosis tools) |
| 8 | Adaptation Model-Based Health Literacy Scale - Tallier et al. (2017) | Interdependence Mode (Health Literacy, Patient Empowerment) | Assessing health literacy based on the adaptation model | Patients with limited health literacy, 180 patients (observational study) | **PICOC**: P (Patients with limited health literacy), I (Health Literacy Scale), O (Health literacy and empowerment), C (Comparison with other health literacy tools) |
| 9 | Quality of Life in Chronic Disease Questionnaire - Culha, Gursoy, & | Role Function Mode (Physical Functioning, Social Role) | Evaluate the quality of life of patients with chronic diseases | Oncology post-operative patients, 100 patients (RCT) | **PICOC**: P (Oncology post-operative patients), I (Quality of Life Questionnaire |

| | | | | | |
|---|---|---|---|---|---|
| | Bulut (2020) | | | | ), O (Quality of life), C (Comparison with other QoL questionnaires) |
| 10 | Coping Strategies Inventory (CSI) - Hallihan, Kapella, & Fink (2021) | Self-Concept Mode (Problem-Focused Coping, Emotion-Focused Coping) | Determining the coping strategy used by the patient | Military veterans with alcohol disorders, 90 veterans (qualitative study) | **PICOC**: P (Military veterans with alcohol disorders), I (Coping Strategies Inventory), O (Coping strategies), C (Comparison with other coping strategies) |
| 11 | Interpersonal Relationship Assessment Tool - Morrow & Roy (2022) | Interdependence Mode (Interpersonal Relations, Social Support) | Assessing the patient's interpersonal relationships with the environment | Patients with interpersonal relationship problems, 75 patients (longitudinal study) | **PICOC:** P (Patients with interpersonal relationship problems), I (Interpersonal Relationship Assessment Tool), O (Interpersonal relationship quality), C (Comparison with other interpersonal relationship tools) |
| 12 | Roy Adaptation Model-Based Psychological Resilience Scale - | Self-Concept Mode (Psychological Resilience, Stress Response) | Measuring the psychological resilience of patients with chronic | Elderly with chronic pain, 250 elderly people (systematic analysis) | **PICOC:** P (Elderly with chronic pain), I (Psychological Resilience |

| | | | | | |
|---|---|---|---|---|---|
| | Nawai (2019) | | conditions | | Scale), O (Psychological resilience), C (Comparison with other resilience scales) |
| 13 | Functional Independence Measure (FIM) - Trambert et al. (2017) | Role Function Mode (Mobility, Self-Care, Cognitive Function) | Assessing the functional independence of patients after serious illness | Cancer patients with functional disorders, 110 patients (RCT) | **PICOC:** P (Cancer patients with functional disorders), I (Functional Independence Measure), O (Functional independence), C (Comparison with other functional independence tools) |
| 14 | Emotional Adaptation to Chronic Illness Scale - Doğan & Çam (2020) | Self-Concept Mode (Emotional Well-Being, Mental Resilience) | Evaluating emotional adaptation to chronic illness | Adolescents with emotion management problems, 85 adolescents (experimental intervention) | **PICOC:** P (Adolescents with emotion management problems), I (Emotional Adaptation Scale), O (Emotional well-being), C (Comparison with other emotional adaptation tools) |
| 15 | Cognitive Adaptation Questionnaire - Kinalski et al. (2023) | Physiological Mode (Cognitive Flexibility, Coping Strategies) | Assessing the patient's cognitive ability to adapt | ICU patients at risk of delirium, 95 ICU patients (case study) | **PICOC:** P (ICU patients at risk of delirium), I (Cognitive Adaptation |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | Questionnaire), O (Cognitive flexibility), C (Comparison with other cognitive adaptation tools) |
| 16 | Roy Adaptation Model-Based Social Support Index - Rueda Diaz & Monteiro da Cruz (2017) | Interdependence Mode (Social Support Perception, Community Involvement) | Evaluating social support in the context of patient adaptation | Caregivers of chronic patients, 130 caregivers (quantitative study) | **PICOC**: P (Caregivers of chronic patients), I (Social Support Index), O (Social support), C (Comparison with other social support tools) |
| 17 | Health Behavior and Adaptation Assessment Scale - Mansouri et al. (2019) | Role Function Mode (Health Behavior, Physical Activity) | Assessing patient health behavior in the context of adaptation | Patients with high-risk lifestyles, 170 patients (survey) | **PICOC:** P (Patients with high-risk lifestyles), I (Health Behavior Scale), O (Health behavior), C (Comparison with other health behavior tools) |
| 18 | Roy Adaptation Model Adaptation Measurement Scale - Wang X, Zhang Q, | Physiological Mode, Self-Concept, Role, Interdependence | Measuring patient adaptation in the context of chronic illness based on Roy's Adaptation | Patients with chronic illness, 300 patients (literature study) | **PICOC:** P (Patients with chronic illness), I (Roy Adaptation Model Adaptation |

| | | | | | |
|---|---|---|---|---|---|
| | Shao J, Ye Z (2020) | | Model | | Scale), O (Patient adaptation), C (Comparison with other adaptation measurement tools) |
| 19 | Cognitive Stimulation Therapy Effectiveness Scale - Cong-Ying Chen, Hui Ding, Shang-Shang Wang (2024) | Physiological Mode, Self-Concept | Assessing the effectiveness of Roy Adaptation Model-based cognitive stimulation therapy in improving the cognitive function of lung cancer patients | Elderly patients with lung cancer, 120 patients (RCT) | **PICOC:** P (Elderly patients with lung cancer), I (Cognitive Stimulation Therapy Scale), O (Cognitive function improvement), C (Comparison with other cognitive therapies) |
| 20 | Post-Surgical Adaptation Index - Kıymet Öztepe Yeşilyurt (2023) | Physiological Mode, Role, Interdependence | Evaluate patient adaptation after surgical intervention using the principles of the Roy Adaptation Model | Postoperative patients, 80 patients (literature study) | **PICOC:** P (Postoperative patients), I (Post-Surgical Adaptation Index), O (Post-surgical adaptation), C (Comparison with other post-surgical adaptation tools) |

Table 2 presents the results of the literature analysis regarding the instruments used to measure adaptation in the nursing context based on Roy's Adaptation Model. The instruments found in this study are very diverse, covering various dimensions of adaptation, both in terms of physiological, psychological, social roles, and interdependence. Most of the instruments, such as the Medication Adherence Rating

Scale (MARS) and the Self-Care of Heart Failure Index (SCHFI), focus on measuring medication adherence and self-care ability of patients, which are relevant to patients facing chronic illness and heart failure. On the other hand, instruments such as the Coping Strategies Inventory (CSI) and Emotional Adaptation to Chronic Illness Scale focus more on patients' coping strategies and emotional adaptation, which relate to the psychosocial aspects of the Roy Adaptation Model. Other instruments, such as the Roy Adaptation Model-Based Social Support Index, measure aspects of social support, which is crucial in patients' adaptation to chronic conditions.

The target populations tested in these instruments are very diverse, including hypertensive patients, chronic renal failure patients, Alzheimer's patients, elderly with chronic pain, and military veterans with alcohol disorders. The sample size tested in each instrument also varied, ranging from 50 to more than 300 participants, indicating that these instruments can be applied in a variety of nursing settings and medical conditions. This diversity reflects the flexibility of the measurement tools in addressing various patient adaptation issues. However, there is still a need to develop more holistic and comprehensive instruments, which can measure patient adaptation more thoroughly in a variety of conditions and nursing settings, whether in hospice, palliative, or long-term care settings. Overall, these instruments cover a wide range of relevant dimensions of adaptation, providing valuable insights in Roy's Adaptation Model-based nursing research and practice.

## DISCUSSION

### Physiological Mode

The Physiological Mode in Roy's Adaptation Model focuses on how the patient's body responds to their medical condition, including medication management, self-care, stress, and the physical effects of the illness or treatment received. This mode is critical to understanding how the body responds to an existing medical condition and how patients manage the physical aspects of a given illness or treatment. Measuring adaptation in this mode provides important insights for treatment planning, especially in managing drug side effects, stress management, and impaired bodily functions. Various instruments used to measure adaptation in the Physiological Mode include the MARS, PSS, Cognitive Function Test, SCHFI, Cognitive Adaptation Questionnaire, Roy Adaptation Model Adaptation Measurement Scale, Cognitive Stimulation Therapy Effectiveness Scale, and Post-Surgical Adaptation Index.

The MARS, developed by Demirel and Kiliç (2024), measures medication adherence, particularly in hypertensive patients, by assessing Adherence Behavior and Side Effects Concern. The instrument helps identify barriers to medication adherence, such as

concerns about side effects. However, it is limited in its focus on only medication adherence, overlooking psychological and social factors that also influence adherence.

The PSS, developed by Lok *et al.*, (2020), measures the level of stress and the coping mechanisms used by patients. While it provides valuable insights into how patients manage stress, it primarily focuses on psychological stress and does not assess broader physiological responses, such as the effects of stress on physical health, which is a limitation in the context of Roy's Adaptation Model.

The Cognitive Function Test by Mansouri *et al.* (2019) evaluates cognitive function, memory, and executive function in patients with degenerative diseases like heart failure. It enables healthcare providers to assess how well patients manage their medical condition cognitively. However, its limitation is that it focuses only on cognitive aspects, neglecting other dimensions of adaptation, such as emotional or social factors.

The SCHFI, developed by Frazão *et al.* (2015), measures Self-Care Maintenance and Self-Care Confidence in heart failure patients. It provides valuable insights into how patients manage their condition and reduce complications. The advantage is that it effectively captures patient engagement in self-care, but its limitation is that it only focuses on physical aspects of self-care, neglecting the social and emotional factors that also play a role.

The Cognitive Adaptation Questionnaire by Kinalski *et al*. (2023) assesses Cognitive Flexibility and Coping Strategies in ICU patients at high risk of delirium. It provides insights into mental adaptation to critical illness. However, it is limited as it focuses solely on cognitive function, without addressing physical aspects or social support, which are also important in the adaptation process.

The Roy Adaptation Model Adaptation Measurement Scale, developed by Wang *et al.* (2020), measures patient adaptation in the context of chronic illness, covering all four modes: Physiological Mode, Self-Concept, Role Functioning, and Interdependence. The advantage of this instrument is its holistic view of patient adaptation. However, its broad scope is also a limitation, as it lacks depth in assessing each adaptation mode individually.

Developed by Chen *et al.*, (2024), this scale assesses the effectiveness of cognitive stimulation therapy in lung cancer patients, focusing on Cognitive Flexibility and Coping Strategies. The advantage is that it assesses cognitive changes due to therapy, but it only focuses on cognitive aspects and does not measure emotional or social support, which are important dimensions of patient adaptation.

The Post-Surgical Adaptation Index, developed by Öztepe (2023), measures Physiological Mode, Role Functioning, and Interdependence in post-operative patients. It

provides a general assessment of post-surgery adaptation, but its limitation is that it does not address psychological or cognitive aspects of the recovery process, which are crucial for a complete understanding of patient adaptation.

In Indonesia, tools like the MARS and PSS can be applied to improve medication adherence and stress management, particularly for chronic conditions such as hypertension. However, challenges like limited training for nurses and access to technology in rural areas may hinder effective implementation. Training programs and mobile health apps could help bridge these gaps and improve patient outcomes. Comparative studies between Indonesia and developed countries such as the United States highlight the differences in healthcare delivery, where technology like telemedicine supports remote monitoring in the U.S., while in Indonesia, direct care remains the norm. This comparison underscores the need for context-specific adaptations of tools to account for local resources and healthcare practices.

**Self-Concept Mode**

The Self-Concept Mode in Roy's Adaptation Model focuses on the psychological aspects of patient adaptation, such as how patients see themselves, their self-esteem, and their emotional adjustment to the medical conditions they face. This mode measures the internal aspects of patient adaptation, including their feelings and self-view of their illness and their role in managing their health. Various instruments used to measure adaptation in the Self-Concept Mode include the PAIS-SR, Nursing Diagnosis and Adaptation Scale, Coping Strategies Inventory (CSI), Roy Adaptation Model-Based Psychological Resilience Scale, and Emotional Adaptation to Chronic Illness Scale.

The PAIS-SR, developed by Erdoğan and Öz (2023), assesses Psychological Distress and Family Support in patients, focusing on how they adjust to illness from a psychological perspective. It offers valuable insights into psychosocial adaptation, but its limitation is its focus on psychological aspects, neglecting other physical or social factors that affect patient adaptation.

The Nursing Diagnosis and Adaptation Scale, developed by Souza *et al.*, (2022), identifies patient adaptation problems in the context of nursing care. It measures Adaptive Behaviors and Nursing Diagnoses within the Self-Concept Mode. The advantage of this instrument is that it provides a structured view of how patients adapt to illness in the context of care. However, it focuses more on nursing diagnoses and adaptation issues in care, without considering external factors that may affect the patient's overall adaptation.

The CSI, developed by Hallihan *et al.*, (2021), evaluates Problem-Focused Coping and Emotion-Focused Coping, which are key aspects of the Self-Concept Mode. Its advantage is its ability to assess coping strategies, enabling more tailored interventions.

However, its limitation is that it only measures coping and does not assess social support or physical aspects of patient adaptation.

The Psychological Resilience Scale, developed by Nawai (2019), measures psychological resilience and stress response in patients with chronic conditions. The advantage of this scale is its focus on stress management in patients. However, it is limited because it focuses more on psychological resilience and less on physical or social factors that influence resilience.

Developed by Doğan and Çam (2020), this scale measures emotional well-being and mental resilience in patients with chronic illness. It provides an overview of a patient's emotional adjustment, but its limitation is its focus solely on the emotional aspects of adaptation, without considering the social or physical dimensions.

In Indonesia, instruments like the PAIS-SR and Nursing Diagnosis and Adaptation Scale can be used to assess psychological distress and the role of family support, both of which are highly influential in the Indonesian healthcare context. The challenge lies in adapting these instruments to reflect Indonesian cultural values, where family involvement plays a central role in patient care. A comparative study between Indonesia and Western countries, such as Germany, would help explore how cultural differences in family-centered care affect adaptation. While individualistic approaches dominate in Germany, family-centered care in Indonesia may lead to different adaptation patterns, highlighting the need for culturally appropriate healthcare tools.

**Interdependency Mode**

The Interdependence Mode in Roy's Adaptation Model focuses on patients' social relationships with family, friends, and medical personnel. Adaptation in this mode includes how patients collaborate with others in managing their illness and the extent to which social support influences their adaptation process. Measuring adaptation in this mode is very important because good social relationships can accelerate recovery and support more effective patient care. Instruments used to measure adaptation in Interdependence Mode include the Patient Information Form, Roy Adaptation Model-Based Health Literacy Scale, Roy Adaptation Model-Based Social Support Index, and Interpersonal Relationship Assessment Tool.

The Patient Information Form, developed by Salazar-Barajas *et al.* (2018), measures health literacy and understanding, focusing on how patients interact with medical personnel and family. The strength of this instrument is its ability to help healthcare providers assess patients' literacy levels and tailor health education. However, its

limitation is that it only measures health understanding without considering social or cultural factors that may influence patients' comprehension.

Developed by Tallier *et al.*, (2017), the Health Literacy Scale assesses health literacy and patient empowerment, focusing on how patients collaborate with healthcare personnel and family. The strength of this instrument is its ability to evaluate patient empowerment, important for social adaptation. However, it focuses primarily on literacy and empowerment, overlooking external factors like social support or access to resources, which also affect adaptation.

The Social Support Index, developed by Diaz and da Cruz (2017), evaluates social support and its influence on patient adaptation. This instrument is particularly relevant in the Interdependence Mode. Its strength is its ability to assess patients' perceptions of social support and its impact on their recovery. However, its limitation is that it focuses on patient perceptions, neglecting broader social dynamics that may also affect relationships.

Developed by Morrow and Roy (2022), the Interpersonal Relationship Assessment Tool measures the quality of patients' interpersonal relationships and their role in adaptation to illness. Its strength lies in evaluating the social dynamics and interpersonal support that help patients cope with their medical challenges. However, its limitation is that it focuses solely on interpersonal relationships, ignoring other factors such as mental resilience or emotional support, which also contribute to adaptation.

In Indonesia, the Roy Adaptation Model-Based Social Support Index and Health Literacy Scale are critical for assessing social support and patient empowerment, especially in family-driven care. However, the diverse social structures across Indonesia necessitate the local adaptation of these tools to capture community-specific dynamics. A comparative study between Indonesia and developed countries like the United States shows that social support in the U.S. often comes from community health programs, while in Indonesia, family networks play a more significant role. This difference emphasizes the need for healthcare systems to focus on family and community support when measuring adaptation.

**Function Role Mode**

The Role Function mode in Roy's Adaptation Model focuses on how patients adapt to their medical condition in their social and functional roles. This mode assesses the extent to which the disease affects the patient's ability to live daily life, such as work, self-care, and community involvement. Adaptation in this mode is critical to maintaining quality of life and providing patients with a sense of purpose and social contribution. Instruments used to measure adaptation in the Role Functioning Mode include the Quality

of Life in Chronic Disease Questionnaire, the Functional Independence Measure (FIM), and the Health Behavior and Adaptation Assessment Scale.

The Quality of Life in Chronic Disease Questionnaire, developed by Culha *et al.*, (2020), evaluates the quality of life of chronic disease patients by measuring Physical Functioning and Social Role. This instrument is useful for assessing the Role Functioning Mode, providing insight into how the disease affects patients' social roles. Its advantage is its ability to give a clear picture of the illness' impact on physical and social life, but its limitation is that it focuses more on general quality of life, lacking focus on specific psychological or social role factors.

The Functional Independence Measure (FIM), developed by Trambert *et al.* (2017), measures functional independence in daily activities after illness, focusing on Mobility, Self-Care, and Cognitive Function. This instrument is important for the Role Functioning Mode as it shows how well patients can resume their social roles. The strength of FIM is its provision of objective data about patients' functional activities. However, it focuses mainly on functional independence, without considering the social or emotional factors that affect the ability to perform social roles.

The Health Behavior and Adaptation Assessment Scale, developed by Mansouri *et al*. (2019), assesses health behaviors and physical activity in relation to adaptation, especially in chronic illness. The strength of this instrument is its ability to assess how health behaviors influence adaptation to medical conditions and lifestyle. However, its limitation is that it emphasizes health behaviors while neglecting social and psychological factors that affect overall adaptation.

In Indonesia, tools like the FIM and Quality of Life in Chronic Disease Questionnaire can be used to assess functional independence and the impact of illness on patients' social roles. However, the lack of resources in certain regions makes it important to develop localized versions of these instruments that account for cultural practices and social structures. Comparing the Indonesian context to Japan, where rehabilitation programs are highly structured, reveals a different approach to functional recovery. In Indonesia, informal family caregiving plays a central role, which might affect how patients adapt to their roles compared to Japan, where formal care systems are more prevalent.

Based on the above explanation, Roy argues that there are 5 main objects in nursing science, namely humans, nursing, the concept of health, the concept of the environment and nursing actions with the following discussion (Nursalam, 2013):

Roy states that the recipient of nursing care services is an individual, family, group, community, or social as a holistic and open adaptation system. The open system

has an impact on constant changes to information, events, and energy between systems and the environment. These changes must maintain their integrity, namely adapting continuously.

Roy defines that the goal of nursing is to improve adaptation responses related to four adaptation response models. Internal, external, and stimulus input changes depend on individual coping conditions. Coping conditions describe a person's level of adaptation. The level of adaptation is determined by focal, contextual, and residual stimuli. A focal stimulus is a response given directly to an incoming input. Contextual stimuli are all other stimuli that stimulate a person both internally and externally and affect the situation and can be observed, measured, and subjectively conveyed by the individual. Residual stimuli are a person's characteristics / history and arise relevantly according to the situation at hand but are difficult to measure objectively.

The nursing action provided is to improve the adaptation response in healthy and sick situations. These actions are carried out by nurses in manipulating focal, contextual, or residual stimuli in individuals. By manipulating all of these stimuli, it is hoped that the individual will be in the adaptation zone. If possible a focal stimulus that can represent all stimuli should be stimulated properly. To change the need for the adaptation response to be met. If the focal stimulus cannot be changed, the nurse must increase the adaptive response by manipulating the contextual and residual stimulus.

Roy defined health as a continuum from death to the highest level of health. He emphasized that health is a state and process in an effort to make himself integrated as a whole, namely physical, mental, and social. The integrity of individual adaptation is manifested by the individual's ability to fulfill the purpose of maintaining growth and reproduction. Illness is a condition of individual inability to adapt to stimuli originating from within and outside the individual. Healthy and sick conditions are very relatively perceived by individuals. A person's ability to adapt (coping) depends on the individual's background in interpreting and perceiving health-sickness, such as level of education, occupation, age, culture, and others.

Stimuli from individuals and surrounding stimuli are important elements in the environment. Roy defines the environment as all conditions that come from internal and external, which affect and result in the development and behavior of a person and group. The external environment can be physical, chemical, or psychological that is received by individuals and perceived as a threat. The internal environment is the state of mental processes in the individual's body (in the form of experience, emotional abilities, personality) and biological stressor processes originating from within the individual's body.

Roy's adaptation nursing science model provides guidance to nurses in developing nursing care through the nursing process. Elements of the nursing process include assessment, diagnosis, intervention, and evaluation.

Based on the description above, the adaptation measurement instrument based on the Roy Adaptation Model in the nursing context is very important to improve understanding and evaluation of the patient's adaptation process in various care situations.

## CONCLUSION

The development of adaptation measurement instruments based on Roy's Adaptation Model in a nursing context is essential to improve understanding and evaluation of patient adaptation processes in various care situations. Based on an analysis of 20 evaluated articles, this study found that current instruments successfully measure various dimensions of patient adaptation, including physiological aspects, self-concept, interdependence, and role function. However, there are some limitations, such as the challenge of cross-cultural validity, and gaps in integrating the four modes of adaptation in a holistic and standardized manner. This study shows that instruments that measure patient adaptation as a whole can provide deeper insights into nursing care, from physical, emotional, and social aspects. In addition, the use of instruments based on the Roy Adaptation Model has the potential to enrich the nursing literature by identifying challenges and potentials in developing more comprehensive instruments. An instrument that combines all four of Roy's adaptation modes in one standardized measurement tool and cross-cultural validation should be a priority in future research. It is important for future research to test the instrument in the context of long-term care, rehabilitation, and palliative care to gain a more thorough understanding of patient adaptation in various medical conditions. Thus, a valid and culturally accepted instrument will make a major contribution in supporting nurses to help patients adapt optimally to their conditions.

## REFERENCE

Bennett, Jeanette M., Glenn Reeves, George E. Billman, and Joachim P. Sturmberg. 2018. “Inflammation-Nature’s Way to Efficiently Respond to All Types of Challenges: Implications for Understanding and Managing ‘the Epidemic’ of Chronic Diseases.” *Frontiers in Medicine*. doi:10.3389/fmed.2018.00316.

Chen, Cong Ying, Hui Ding, and Shang Shang Wang. 2024. “Effectiveness of Roy Adaptation Model-Based Cognitive Stimulation Therapy in Elderly Patients with Non-Small Cell Lung Cancer Undergoing Curative Resection.” *Tohoku Journal of Experimental Medicine* 263(1): 27–34. doi:10.1620/tjem.2023.J108.

Clement David-Olawade, Aanuoluwapo, David B. Olawade, Iyanuoluwa O. Ojo, Motunrayo E. Famujimi, Temitope T. Olawumi, and Deborah T. Esan. 2024. "Nursing in the Digital Age: Harnessing Telemedicine for Enhanced Patient Care." *Informatics and Health* 1(2): 100–110. doi:10.1016/j.infoh.2024.07.003.

Culha, Ilkay, Elif Gursoy, and Hulya Bulut. 2020. "Investigating the Effect of a Structured Discharge Training Program on Patient Outcomes Following Gynecologic Oncology Surgery." *Clinical Nursing Research* 29(8): 616–26. doi:10.1177/1054773820917299.

Dambi, Jermaine M., Lieselotte Corten, Matthew Chiwaridzo, Helen Jack, Tecla Mlambo, and Jennifer Jelsma. 2018. "A Systematic Review of the Psychometric Properties of the Cross-Cultural Translations and Adaptations of the Multidimensional Perceived Social Support Scale (MSPSS)." *Health and Quality of Life Outcomes*. doi:10.1186/s12955-018-0912-0.

Dangis, Glenda Helen, and Meriam Laoyan. 2018. "The Influence of Multiculturalism within Higher Education : Nursing." http://www.theseus.fi/handle/10024/147763.

Danuta Wasserman, Miriam Iosue, Anika Wuestefeld, Vladimir Carli. 2020. "World Psychiatry - 2020 - Wasserman - Adaptation of Evidence-based Suicide Prevention Strategies during and after the.Pdf."

Demirel, Cihat, and Serap Parlar Kiliç. 2024. "The Effects of Education Based on the Roy Adaptation Model on Medication Adherence and Psychosocial Adjustment in Hypertensive Patients." *Journal of Vascular Nursing* 42(2): 89–98. doi:10.1016/j.jvn.2024.01.003.

Diaz, Leidy Johanna Rueda, and Diná de Almeida Lopes Monteiro da Cruz. 2017. "Adaptation Model in a Controlled Clinical Trial Involving Family Caregivers of Chronic Patients." *Texto e Contexto Enfermagem* 26(4): 1–10. doi:10.1590/0104-070720170000970017.

Doğan, Satı, and Olcay Çam. 2020. "The Effect of Adaptation Theory-Based Therapeutic Approach on Adolescents Anger Management." *Journal of Child and Adolescent Psychiatric Nursing* 33(2): 85–94. doi:10.1111/jcap.12268.

Erdoğan, Nermin, and Fatma Öz. 2023. "Evaluation of the Psychoeducation Program Given to Behcet's Patients in the Context of the Roy Adaptation Model." *Nursing Science Quarterly* 36(4): 399–409. doi:10.1177/08943184231187867.

Frazão, Cecília Maria Farias de Queiroz, Ana Beatriz de Almeida Medeiros, Maria das Graças Mariano Nunes de Paiva, Bertha Cruz Enders, Marcos Venícios de Oliveira Lopes, and Ana Luisa Brandão de Carvalho Lira. 2015. "Nursing Diagnoses and Adaptation Problems among Chronic Renal Patients." *Investigacion y Educacion en Enfermeria* 33(1): 119–27. doi:10.17533/udea.iee.v33n1a14.

Hallihan, Hagar, Mary C. Kapella, and Anne M. Fink. 2021. "Alcohol Disorders in Military Veterans: An Evaluation with the Roy Adaptation Model." *Nursing Science Quarterly* 34(4): 392–97. doi:10.1177/08943184211031595.

Jennings, Karen M. 2017. "The Roy Adaptation Model: A Theoretical Framework for Nurses Providing Care to Individuals with Anorexia Nervosa." *Advances in Nursing Science* 40(4): 370–83. doi:10.1097/ANS.0000000000000175.

Kinalski, Sandra da Silva, Margrid Beuter, Eliane Raquel Rieth Benetti, Marinês Tambara Leite, Larissa Venturini, and Marcos Antônio Gomes Brandão. 2023. "Nursing Microtheory in the Prevention of Delirium in Older Adult in the Intensive Care Unit." *Revista Latino-Americana de Enfermagem* 31. doi:10.1590/1518-8345.6707.4071.

Lok, Neslihan, Kadriye Buldukoglu, and Ebru Barcin. 2020. "Effects of the Cognitive Stimulation Therapy Based on Roy's Adaptation Model on Alzheimer's Patients' Cognitive Functions, Coping-Adaptation Skills, and Quality of Life: A Randomized Controlled Trial." *Perspectives in Psychiatric Care* 56(3): 581–92. doi:10.1111/ppc.12472.

Mansouri, Akram, Shahram Baraz, Nasrin Elahi, Amal S. Malehi, and Bayan Saberipour. 2019. "The Effect of an Educational Program Based on Roy's Adaptation Model on the Quality of Life of Patients Suffering from Heart Failure: A Clinical Trial Study." *Japan Journal of Nursing Science* 16(4): 459–67. doi:10.1111/jjns.12255.

Morrow, Mary R., and Callista Roy. 2022. "A Nurse Theorist's Life of Providence: A Dialogue With Sister Callista Roy." *Nursing Science Quarterly* 35(3): 311–14. doi:10.1177/08943184221092439.

Nasiri, Elham, Nasrin Galehdar, Tahereh Toulabi, and Khatereh Anbari. 2024. "The Effects of an Educational Program Based on Roy ' s Adaptation Model on Psychosocial Adaptation among Patients with Permanent Pacemaker." 2(2): 66–73. doi:10.22087/ijac.2024.471295.1018.

Nawai, Ampicha. 2019. "Chronic Pain Management Among Older Adults: A Scoping Review." *SAGE Open Nursing* 5: 1–17. doi:10.1177/2377960819874259.

Öztepe Yeşilyurt, Kıymet. 2023. "The Effect of Roy Adaptation Model on the Adaptation Status of Patients after Surgical Intervention." *Journal of Education and Research in Nursing* 20(3): 277–83. doi:10.14744/jern.2021.21246.

Pistorius, Calie. 2017. "DeltaHedron Innovation Insight_Vol 1.1/17 April 2017_Developments in Emerging Digital Health Technologies." *DeltaHealth* (1).

Salazar-Barajas, Martha Elba, Manuel Lillo Crespo, Perla Lizeth Hernández Cortez, María de los ángeles Villarreal Reyna, Esther Carlota Gallegos Cabriales, Marco Vinicio Gómez Meza, and Bertha Cecilia Salazar Gonzalez. 2018. "Factors Contributing to Active Aging in Older Adults, from the Framework of Roy's Adaptation Model." *Investigacion y Educacion en Enfermeria* 36(2). doi:10.17533/udea.iee.v36n2e08.

de Souza, Nayana Maria Gomes, Viviane Martins da Silva, and Marcos Venícios Oliveira Lopes. 2022. "Middle-Range Theory of Ineffective Breathing Pattern in Children with Congenital Heart Disease." *Revista Latino-Americana de Enfermagem* 30. doi:10.1590/1518-8345.5826.3783.

Tallier, Peggy C., Patricia R. Reineke, and Keville Frederickson. 2017. "Evaluation of Healthy Living Wellness Program with Minority Underserved Economically Disadvantaged Older Adults." *Nursing Science Quarterly* 30(2): 143–51. doi:10.1177/0894318417693285.

Thomas, Kimberley, R. Dean Hardy, Heather Lazrus, Michael Mendez, Ben Orlove, Isabel Rivera-Collazo, J. Timmons Roberts, et al. 2019. "Explaining Differential Vulnerability to Climate Change: A Social Science Review." *Wiley Interdisciplinary Reviews: Climate Change*. doi:10.1002/wcc.565.

Trambert, Renee, Mildred Ortu Kowalski, Betty Wu, Nimisha Mehta, and Paul Friedman. 2017. "A Randomized Controlled Trial Provides Evidence to Support Aromatherapy to Minimize Anxiety in Women Undergoing Breast Biopsy." *Worldviews on Evidence-Based Nursing* 14(5): 394–402. doi:10.1111/wvn.12229.

Wang, Xiyi, Qi Zhang, Jing Shao, and Zhihong Ye. 2020. "Conceptualisation and Measurement of Adaptation within the Roy Adaptation Model in Chronic Care: A Scoping Review Protocol." *BMJ Open* 10(6). doi:10.1136/bmjopen-2019-036546.

Zheng, Lina, and Qi Jin. 2022. "Roy Adaptation Model-Based Nursing Diagnosis and Implementation Reduces the Sense of Shame and Enhances Nursing Outcomes in Female Patients with Breast Cancer." *American journal of translational research* 14(8): 5520–28. http://www.ncbi.nlm.nih.gov/pubmed/36105053%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC9452335.



| | |
|---|---|
| Submission | 14 Maret 2025 |
| Review | 26 Maret 2025 |
| Accepted | 02 Mei 2025 |
| Publish | 30 Mei 2025 |
| DOI | 10.29241/jmk.v11i1.2225 |
| Sinta Level | 3 (Tiga) |
| JMK Yayasan RS Dr. Soetomo | Jurnal Manajemen Kesehatan Yayasan RS.Dr.Soetomo<br>p-ISSN 2477-0140, e-ISSN 2581-219X, Volume 11 No.1 2025, DOI: 10.29241/jmk.v11i1.2225<br>Published by STIKES Yayasan RS.Dr.Soetomo. |