ORIGINAL ARTICLE

IJCS
International Journal of Care Scholars
ISSN: 2600-898X

Navigating Complexity Using Framework Analysis in a Case Study on Self-Management in Nasopharyngeal Cancer

Che Azunie Che Abdullah[1], Sanisah Saidi[1], Nor Ez-Zatul Hanani Mohamed Rosli[2] & Juliana[3]

[1]*Department of Medical Surgical Nursing, Kulliyyah of Nursing, International Islamic University Malaysia, Pahang, Malaysia*

[2]*Department of Public Relations, Universiti Tunku Abdul Rahman (UTAR), Kampar, Perak, Malaysia*

[3]*Department of Nursing, Nursing Academy Kesdam Iskandar Muda Banda Aceh, Aceh, Indonesia*

Article History:
Submitted: 16 November 2025
Revised: 28 July 2026
Accepted: 30 July 2026
Published: 1 September 2026

DOI: 10.31436/ijcs.v9i3.544

Corresponding author:
Che Azunie Che Abdullah
Department of Medical Surgical Nursing,
Kulliyyah of Nursing,
International Islamic University Malaysia,
Pahang, Malaysia
E-mail: azunie@iium.edu.my

ABSTRACT

Background: Nasopharyngeal cancer presents unique self-management challenges due to its complex treatment regimens, long-term side effects, and cultural influences on patient care. While qualitative approaches are widely used to explore these experiences, there remains limited methodological discussion on how specific analytic frameworks can enhance rigor and transparency in case study designs. Therefore, this paper critically examines the application of framework analysis in a qualitative case study exploring self-management among patients with nasopharyngeal cancer.

Methods: Data was generated through in-depth interviews with patients, family, and healthcare providers. The data was analysed using framework analysis that consists of three iterative processes: 1. Data management, 2. Descriptive account, 3. Explanatory account while considering the concept of 'self-management' as the main 'case'. NVivo software supported data management.

Results: Themes, subthemes, and categories emerged and presented at the end of the analysis process. Framework analysis allowed systematic insight to synchronise with the case study design strategies. Analysis of data by using this approach offered in-depth findings and understanding of the 'case' being studied. Importantly, the paper demonstrates how qualitative research and rigorous analytic strategies in framework analysis can strengthen methodological literacy and reflexivity, thereby contributing to the advancement of qualitative inquiry within higher education.

Conclusion: Application of framework analysis in a qualitative case study provided a systematic means of organizing diverse data while retaining contextual depth. Its flexibility allowed integration of both deductive and inductive themes, though challenges arose in managing overlapping codes and sustaining reflexivity to avoid imposing predefined categories.

Keywords: Framework analysis; Qualitative research; Case study; Methodological reflection

INTRODUCTION

Nasopharyngeal cancer (NPC) patients present distinctive challenges for self-management, particularly when patients frequently experience long-term physical, psychological, and social consequences following treatment. Although advances in radiotherapy and systemic treatments have improved survival, many survivors continue to face persistent symptoms such as xerostomia, dysphagia, fatigue, hearing impairment, and altered taste that require continuous self-management beyond the completion of treatment (1). Consequently, self-management in NPC is a complex and dynamic process that extends beyond symptom control to include behavioural adaptation, emotional regulation, decision-making, and mobilisation of family and healthcare resources (2,3). Understanding these multidimensional experiences requires qualitative methodologies capable of capturing the interactions between individuals, their social environments, and healthcare systems. Recent qualitative studies have demonstrated that self-management among patients with NPC is strongly influenced by cultural beliefs, family support, healthcare accessibility, and individual coping strategies, highlighting the contextual nature of patients' experiences (4). As this paper further demonstrates, qualitative case study research involves integrating multiple sources of evidence and diverse participant perspectives. This requires an analytical approach capable of preserving contextual complexity while supporting systematic comparisons within and across the embedded units of analysis (5).

Several qualitative analytical approaches could be used to examine patients' experiences; however, their suitability depends on the study purpose. Interpretative Phenomenological Analysis (IPA) seeks to understand individual's lived experiences through an idiographic lens and is generally conducted with relatively small, homogeneous samples (6). Grounded Theory aims to generate substantive theory through iterative data collection and theoretical sampling, making it most appropriate when theory development is the primary objective (7). Thematic Analysis offers considerable flexibility for identifying patterns across qualitative data but provides fewer procedural mechanisms for systematically managing large datasets involving multiple participant groups and integrating both deductive and inductive analytical processes (8–10).

In contrast, Framework Analysis is particularly well suited to applied to this study that seeks to answer predefined research questions (as explained in method section) while remaining open to concepts emerging from participants' accounts, and involving multiple groups (patients, family, and health care providers). Originally developed for applied policy research, Framework Analysis has become increasingly adopted in healthcare because of its structured yet flexible analytical process, which enables researchers to combine a priori concepts with inductively generated themes, compare findings both within and across cases, and maintain a transparent audit trail throughout analysis (11). These characteristics make Framework Analysis especially appropriate for qualitative case study designs involving multiple embedded units of analysis, where preserving contextual richness while facilitating systematic cross-case comparison is essential (12,13).

Framework analysis has gained prominence for its structured yet flexible approach, enabling researchers to balance deductive and inductive processes when managing large datasets (14). Despite its widespread application in health research, published studies frequently describe Framework Analysis only briefly, with limited explanation of how methodological decisions are operationalised during data analysis. Critical examinations of its execution within case study designs, particularly those addressing complex health conditions like NPC, remain scarce. Without such reflection, methodological tensions, such as balancing pre-existing theoretical constructs with emergent themes or ensuring reflexivity, risk being overlooked. Important considerations, including balancing deductive and inductive coding, constructing analytical matrices, integrating multiple stakeholder perspectives, and maintaining reflexivity throughout the analytical process (11) are often insufficiently reported. Greater methodological transparency is needed to support researchers applying Framework Analysis to complex qualitative datasets and to strengthen the rigour and reproducibility of qualitative health research.

To address this gap, this paper takes a primarily methodological focus, systematically explaining how framework analysis was executed in a qualitative case study (single case - embedded) on self-management among patients with NPC. We critically reflect on the adaptations and methodological insights

gained in the process. By highlighting the strengths and limitations of framework analysis in health-related research, this paper aims to provide critical reflexive insights and practical guidance for researchers applying this method to complex datasets. Besides, we discuss the implications of these strategies for enhancing rigor, transparency, and reflexivity in future studies within higher education.

METHODS

Study Design

Data that we analysed by using framework analysis were obtained through a rigorous data collection method suggested by Yin (15) for a single case (embedded) with multiple units of analysis case study design. Using this design as a framework for the study using the lens of pragmatism (16,17) allowed for vigorous and systematic data collection and analysis to study the case (self-management). The concept of 'Self-management" was the center unit of analysis (or the case), while patients, family members, and health care providers were the multiple units of analysis of this study, that embedded in Malaysian health care system. This study adopted a qualitative case study design to explore self-management among patients with NPC. The case study approach enabled an in-depth examination of experiences within their real-world context (15).

Study Setting

The case study was carried out in two public hospitals in Malaysia that served as the tertiary center and referral center for NPC cases for treatment and follow-up. The case study sites were radiotherapy unit, oncology wards, and Otorhinolaryngology clinic.

Participant Recruitment

Consist of three groups; patients diagnosed with NPC, family, and health care providers. They were recruited based on criterion-based sampling and aimed for maximum variation (12,13,18) (**Table** 1). Three sources of evidence would allow for triangulation to enhance the trustworthiness of the study findings. Therefore, interviews conducted with patients, family, and HCPSs could provide insight into the multiple perspectives of the 'key persons' (19) towards their reality of experience in doing/supporting the self-management of patients with NPC.

Table 1: Inclusion Criteria for Participants Recruitment

Participant	Criteria
Patients	Diagnosed with NPC
	Malaysian patients utilising Ministry of Health (MOH) facilities for treatment
	Age 18 years old and above
	Able to communicate in Malay or English
	Willing to participate in this study
Family members	Main care giver to NPC people - adult children, wife, husband, father, mother, or other members as determined by the NPC people.
	Age 18 years old and above
	Willing to participate in this study
Health care providers	HCPS working in the selected study sites - nurses, doctors, medical assistant, radiotherapist, dietician who involve in management of patients with NPC
	Have experience managing people with NPC after one year of treatment

Data Collection

Semi-structured interviews conducted face-to-face with duration of interviews average around 45–60 minutes. Open-ended questions on experiences of living with NPC, how to self-management, coping strategies, and challenges were asked to the patients, and questions on self-management support were asked to the family members and health care providers based on interview guide prepared priory. The interview data were audio recorded upon informed consent and transcribed verbatim.

Data Analysis

Using Framework Approach for Data Analysis

According to Yin (20), there are at least four levels to achieve while conducting data analysis in a case study. They consist of i) examining the data, ii) categorising the data with a sense of similarity, iii) tabulating the data to see the pattern, and iv) testing or recombining the evidence to allow for a meaningful conclusion to be made. Four general strategies underlying data analysis in a case study were suggested to achieve these levels. They rely on the theoretical proposition, develop a case description, use both quantitative and qualitative data, and examine rival explanations (20). The four levels mentioned by Yin could be effectively conducted for the data of this study by using the framework approach suggested by previous studies (12,13). Therefore, data from interviews were analysed thematically and tabulated into the framework for further refining analysis (12).

In this study, data analysis mostly relied on the research objectives (as a substitute for the research proposition as suggested by Yin (20) above to guide the analysis. This is to ensure the priorities of the study can be described adequately based on the objectives.

The proposition of this case study aligned with research objective as follows:

i. To understand the experience and perception of people living with NPC.
ii. To explore how people living with NPC perceive self-management.
iii. To explore the support needs of family and health care providers towards self-management.
iv. To explore the experience of family members and health care providers in supporting patients with NPC.

The framework approach allowed for identifying the thematic pattern and producing meaningful concepts from the raw qualitative data of this study. While later adaptations of framework analysis, for example, Gale et al., (14) often detail a highly operationalized seven-stage model primarily for multidisciplinary teams, this study adopted the overarching three-phase analytic hierarchy (Data management, Descriptive accounts, and Explanatory accounts) conceptualized by Ritchie and Lewis (12). This three-phase version was explicitly chosen because it aligns seamlessly with case study methodology; it facilitates a clear, iterative progression from organizing complex, multi-source data (management) to developing rich, context-specific case profiles (description), and ultimately generating higher-level interpretations (explanation). This approach comprises three iterative analytic processes, described as follows (i–iii) as outlined by Ritchie and Lewis (12). To ensure operational rigor and transparency, however, the granular steps outlined by Gale et al. (14) were systematically embedded within these three broader phases. The first process is described as follows:

i. Data management: This very initial stage of data analysis involves generating concepts or themes according to the tagging or labelling being made after familiarising with the raw data (12). To avoid conceptually merging distinct analytic actions, data management was delineated into the following clear sub-processes, supported by NVivo software. In this study the process of familiarisation, indexing, charting and developing the initial framework is delineated as follows:
    - Familiarisation: Immersion in the data was achieved by listening to audio recordings and reading interview transcripts and field notes multiple times. This allowed the researcher to grasp the contextual nuances and understand what information the data provided regarding the study's objectives (12,14).
    - Indexing (Coding): Following familiarisation, initial tags and labels were systematically applied to segments of the text to capture key concepts related to NPC self-management.
    - Developing an Analytical Framework: The initial codes were then reviewed for similarities in data patterns and grouped into broader categories. These emerging categories were built into a preliminary thematic framework, which provided a structural guide for analyzing the remainder of the dataset.
    - Charting and developing the initial framework: Finally, the indexed data was extracted and summarized into

the preliminary framework matrix. This allowed the data to be lifted from its original textual context and organized systematically by theme and case, setting the foundation for the subsequent descriptive accounts. Initial themes and categorisation helped provide a general idea towards understanding the situation around self-management of patients with NPC. The initial themes and categories that emerged were built into a preliminary thematic framework to guide further analysis of the whole data from interviews and observations.

ii. Descriptive account: This process was conducted to refine further the meaning of every theme and category assigned earlier (12). During the process in this study, each initial theme or category were assigned with reduced data from the excerpt to assist further in understanding the meaning of each of them. Initial themes and categories were applied into a matrix with the column (theme/categories) and rows (participants). Reduced excerpts were applied to the cells for further analysis. While doing the process of data management and descriptive account iteratively, the themes became more meaningful and refined. Higher abstraction of categorisation was conducted based on the theme pattern.

iii. Explanatory account: This process was the final stage of making a framework analysis approach for qualitative data. In this study, an explanatory account commenced after all of the descriptive accounts of the data became clear in terms of the meaning of the themes and established more tangible categories or typologies. Pattern, direction, and relationship between and among categories were searched and analysed thoroughly to see its response to the questions and objectives of this study. Data from interviews of three groups were triangulated to produce more meaningful findings from the study to understand the situation around self-management in patients with NPC.

The process described here was conducted iteratively depending on the direction of the data in hand. Apart from that, this process of data analysis was conducted simultaneously (iterative method) with data collection. Data analysis commenced after obtaining for example first three to four interviews from participants during the process of data collection and stopped after achieving saturation of data. The following sections entail the conduct of each framework analysis process from three sources of data (patients, family, health care providers) obtained in this study.

Reflexivity and Positionality in Analysis of the Data

Given the qualitative and interpretive nature of this study, maintaining rigorous reflexivity was paramount throughout the framework analysis. My positionality as a former Ear, Nose, and Throat (ENT) nurse shaped my initial lens regarding head and neck cancers. Prior to data immersion, I held a clinical preconception that NPC patients were comparatively "lucky" because their primary treatment modality (radiotherapy) often circumvented the disfiguring surgical procedures associated with other cancers in the region.

To prevent this clinical gaze from minimizing the patients lived experiences or skewing the analysis, continuous reflexive engagement was integrated into the analytic framework. During the familiarisation and indexing stages, I actively bracketed my nursing assumptions regarding treatment severity, making a deliberate effort to code inductively for the psychosocial and hidden emotional burdens of radiotherapy. As initial codes collapsed into broader categories during the descriptive and explanatory accounts, I engaged in regular peer debriefing sessions with the research team members. These sessions served as a critical sounding board to challenge my assumptions and verify that the explanatory accounts were genuinely grounded in the data. Finally, member checking was utilized to validate the interpretive leap from raw transcripts to the final thematic framework, ensuring that the overarching narrative of self-management truly reflected the participants' individual, human experiences rather than my clinical positionality.

Dealing with Validity, Reliability and Ethics in the Study

In a qualitative study, the terms validity and reliability usually refer to the study's trustworthiness and rigourous. This study's

rigour will be achieved by implementing techniques to identify four aspects of trustworthiness as in the following sections (21). The extent to which research findings are credible or trustworthy is shored up by:

i. Credibility – refers to confidence in the 'truth' of the findings in the by study member checking with selected participants, triangulation, and prolong engagement before interview with the participants.
ii. Transferability - showing that the findings have applicability in other contexts by optimizing rich description of context and participant characteristic.
iii. Dependability - showing that the findings are consistent and could be repeated. Thus, to ensure the consistency of the findings, triangulations, peer examination, reflexivity, and audit trail had been implemented on how the study is conducted and how the study is analysed. Initial thematic framework produced was discussed together with the team members to achieve the final themes used to explain the findings of this study.
iv. Conformability - a degree of neutrality or the extent to which the findings of a study are shaped by the participant and not researcher's bias, motivation, or iawarenessst- by aware of the researcher's position or reflexivity.

Rigorous ethical consideration has been carried out for this study including gaining approval from the related organisations, which are the Kulliyyah of Nursing Postgraduate and Research Committee (KNPGRC), IIUM Research Ethical Committee (IREC), Medical Research and Ethic Committee (MREC) and Clinical a Gaining informed consent (verbally and written) from the participants and Research Centre (CRC) of the hospital. Besides, data from the research will be kept secured with the highest precautions; password access is used to secure the computer data and will keep confidential, as well as anonymization of the transcripts during analysis process.

Ethics Approval and Consent to Participate

This study received ethical approval from the Kulliyyah of Nursing Postgraduate Research Committee (KNPGRC), the IIUM Research Ethics Committee (IREC), and the Malaysian Research Ethics Committee (MREC). Written informed consent was obtained from all participants prior to data collection, in accordance with the principles of the Declaration of Helsinki.

RESULT

In-depth interviews in this study yielded 40 transcripts from three groups of participants: patients with NPC (n = 16), family members (n = 7), and HCPs (n = 17) after data saturation has been achieved for each group. The transcripts were analysed using the framework approach according to the iterative process as aforementioned in method section. The step-by-step process of application of the framework approach during data analysis of the interview transcript was described as follows.

Data Management

The interview transcript was read at least two to three times, along with the reflective and field notes during the interview was conducted. This method was to assist in familiarisation and immersion into the interview atmosphere and seek what the content of the interview could offer. Interpretation of the transcript was based on researching towards the understanding of the experience of SM among the participants. For example, transcripts from the patients were interpreted by reading and rehearsing again what and how they live with NPC do self-management in their lives? This thinking produced initial themes and concepts that generally go along with the objectives formulated priory. However, at this stage, the themes and concepts produced are usually very superficial in providing the information to answer research questions adequately. The themes were labelled, tagged, and sorted based on the similarities or initial patterns that showed. The following is how the interview excerpt was identified into the initial category of experience during the trajectory of NPC (**Table 2**). This interpretation was conducted to understand from the beginning the patients' experience into the cancer journey then how later it relates to self-management of NPC throughout the trajectory.

Labelling and tagging the transcripts were assisted by using NVivo software. While interpreting the initial themes/categories were then sorted based on the label and tag applied to the excerpt. This was an example from a patient participant interview transcript tagged

number 1.1 Physical disturbances (upon symptom identification), and 2.1.1 factors influenced self-management; health belief (**Table 3**).

Table 2: Identification of Initial Theme/Category from Interview Excerpts

Interview excerpts	Initial category
"It was during the month of February, it was really hot, I had nosebleed. Very frequent nosebleed. It was quite massive bleeding. But I thought it was common (during hot climate), so I just pay a clinic visit." (*Mr R, 42 years old, NPC stage III*)	
"I had this cancer since 2016. I had bloody sputum, my ears feeling like having watery discharge. I felt it….like water inside my ears, but here was none. I thought it was because of the hot climate I was a foreman working under the sun, when I got fatigue, I just went for drink (alcohol). So I just ignore the symptoms, just ignore the feelings of watery discharge inside my ears." (*Mr O, 54 years old, NPC stage IV*)	Experience before diagnosed with NPC
"My condition was okay at the first time I diagnosed with cancer. Not much problem." (*Mr B, 63 years old, NPC stage not confirmed*)	

Table 3: Labelling and Tagging

Interview excerpts	Labelling and Tagging
"I was a mechanic. Now I quit. Unemployed. I had the lump [at neck] since last year. But I still working at that time. But after knowing that it is cancer, I quit my job because I want to do chemo and all the treatments. I quit because I afraid the lump would get worse. Because at that time the lump was swollen too much" (*Mr A, 36 years old, NPC stage III*)	1.1
"I defaulted the treatment because at that time one of my relatives had given me one Chinese medicine. The lump here [at neck] seems reduced in size. So that is why I wanted to see how it goes first" (*Mr A, 36 years old, NPC stage III*)	2.11

Then, these initial themes and categories were used to build a preliminary thematic framework as in **Table 4**. A similar process of producing a thematic framework was conducted for interview data from family and HCPSs before triangulation was commenced between these findings to understand and explain self-management of patients with NPC and the support they needed and received from their significant others (the two groups) (**Table 5** and **Table 6**).

Descriptive Account

During the process of descriptive account, interview excerpts were assigned to the themes or categories to further refined their meaning. This process was conducted by reducing the interview excerpt into more meaningful data and by maintaining the participants' words as much as possible. All of this was applied using a matrix or framework. The row (participant) and the column (themes/categories/concept) were analysed thoroughly for the refined and meaningful data. The example of data reduction is described below (**Table 7** for patients' data, **Table 8** for health care providers' data).

Table 4: Preliminary Thematic Framework for Patients Interview Data

Research Questions/Objectives		Tagging	Preliminary Categories
Q1	Experience to self-management when living with NPC	1.1	Physical disturbances
		1.2	Psychosocial aspect
		1.2.1	Emotional and psychological disturbances
		1.2.2	Lifestyle and behaviour change
		1.2.4	Financial issues
		1.2.5	Spirituality aspects
		1.3	Self-management strategies
		1.3.1	Physical management
			Alternative medicine
			Change diet pattern
		1.3.2	Psychological management
			Deviation techniques
			Just let go
Q2	Factors influence self-management	2.1	Internal factors
		2.1.1	Experience of doing self-management
			Health belief
			Positive effect from medical management
		2.1.2	Responsibilities as breadwinner
		2.1.3	Self-determination
		2.1.4	Information-seeking behaviour
		2.1.5	Alternative treatment option
		2.1.6	Post-treatment surveillance compliance
		2.2	External factor
		2.2.1	Spouse and family support
		2.2.2	HCPs-related factors
Q3	Needs towards self-management (HCPs-related needs)	3.1	Gap between patients-HCPs
		3.2	Attentive and interactive listener
		3.3	Confidence in cancer expert
		3.4	Crucial informational needs
Q4	Support received towards self-management	4.1	Family
		4.2	HCPs
		4.3	Health service

Table 5: Preliminary Thematic Framework for Family Interview Data

Research Questions/Objectives		Tagging	Preliminary Categories
Q1	Family perspective when caring for patients	1.1	Patient changes
		1.1.1	Physical disturbances/changes
		1.1.2	Social disturbances/changes
		1.1.2.1	Financial issues
		1.2	Support provided
		1.2.1	Support for physical needs and lifestyle change positive effect from medical management
		1.2.2	Support for medical-related events
		1.3	Limitation
		1.3.1	Emotional conflicts
		1.4	Others

Table 6: Preliminary Thematic Framework for Family Interview Data

Research Questions/Objectives		Tagging	Preliminary Categories
Q1	HCPSs perception in managing patients with NPC	1.1	Treatment nature
		1.2	Perceived role in managing patient
		1.3	Perspectives towards patients to self-management
		1.4	Support for self-management
		1.4.1	Information/advice on medical task
		1.5	Limitation in practice
		1.6	Others

Table 7: Reduced Data in Framework (Patient)

Excerpt	Reduced data
"I am not thinking about this [having NPC]. This is what God gives to me, I have to accept. I do not want to think too much about this, since it's very negative. If you think negatively, you will make yourself sad. I always said to myself if God ask me to go [dies], I will just surrender. If God ask me to survive, then okay. Think negatively, then you continue feeling sad. Even if you have no appetite, you have to eat, to make yourself fat [healthy]. So, I just continue eating." *(Mrs W, 54 years old)*	• Prevent self from thinking negatively about diagnosis of NPC to be able to move on • Self-motivate/determination to get well

Table 8: Reduced Data in Framework (HCPSs)

Excerpt	Reduced data
"Usually we (nurses) assist for the doctor for scope. Then we assess patients who completed their treatment (during follow-up) after chemo or radio. They okay. Usually looks good…they can walk and do all (normal activity). We just advice for their care at home (such as) medication, encourage for nasal douching for nasal hygiene. Then if patients come with lethargic we assess how they care at home" *(HCPsA1 Mariah)*	• Assess general condition post- treatment on follow-up • Advice about care at home; self- care of treatment related physical side effect

Data reduction enables further analysis towards meaningful understanding of self-management in patients with NPC. As for the example given above, the reduced data was assigned under the initial theme of internal factor, self-determination and reduced data from other participants in the framework matrix as described below (**Tables 9** and **Table 10**). This experience was valuable in understanding how patients with NPC can decide to proceed with their treatment after being diagnosed with NPC, and most of them agreed to treatment without any hesitation.

The descriptive account continues to refine the data further and sort the initial themes and concepts into actual themes and categories. For example, the first category of the first phase of cancer trajectory experienced by the patients was sorted into the following findings:

(Pre-diagnosis)
Theme: Process of health-seeking behaviour.
Subtheme 1: Symptoms appraisal.
Subtheme 2: Symptoms burden.

Explanatory Account

For this stage, findings from interviews from three groups would supplement and support each other to make sense of the study findings. This is where triangulation of findings from patients, family members and health care providers were conducted, and presented. Thematic framework from the three groups were used to explain each other and explained thoroughly.

Themes Emerged

Themes emerged from the three data sources are presented in the following **Table 11** and **12**.

Table 9: Framework Analysis for Initial Theme of Internal Factor towards Self-management (Patient)

Initial theme emerged; Experience when diagnosed with NPC; internal factor of self-determination	
• Mrs W • 54 years old • Unconfirmed NPC stage	• Prevent self from thinking negatively about the diagnosis of NPC • To be able to move on • Self-motivation to get well
• Mr B • 63 years old • Unconfirmed NPC	• Receiving bad news with positive • Attitude start searching for information
• Mr S • 42 years old • NPC stage IV	• Mentally prepared when diagnosed • Keen for quick treatment

Table 10: Framework Analysis for Initial Theme of Perceived Support for Self- management (HCPSs)

	Initial Theme Emerged; Informational Support
HCPS- A1 Mariah nurse	• Assess general condition post-treatment on follow-up advice about care at home • Self-care related physical side effect
HCPS-A2 Fiona nurse	• Answering patient's concern with adequate explanation • Care reassure about the positive outcome of the treatment
HCPS-A9 Roha ENT specialist	• Increase awareness by providing public education as mean of informational support

Table 11: Overview of Themes and Categories Describing Experience Trajectory and Self-management of Patients with Nasopharyngeal Cancer

Trajectory of Cancer	**Themes**	**Subthemes**	**Categories**
Phase 1: Pre-diagnosis	Process to health care seeking behaviour	Comprehending the situation	• Symptom appraisal • Symptoms burden
Phase 2: When being diagnosed	Process of accepting the disease	• Emotional changes • Emotional management	• Feeling discouraged versus embracing the fate • Avoidance • Comprehending the NPC occurrence
Phase 3: Life during treatment	Dealing with treatment challenges	Self-determination Strategies of gaining energy	
Phase 4: Life after treatment	Dealing with physical and emotional sequelae as NPC survivors	Struggles in managing fears and health conflicts	

Table 12: Theme and Subtheme Describing Support for Self-management

Patient; Theme - Living with NPC; support from others	**Family members; Theme - Perspectives in supporting patients for self–management**	**Health care providers; Theme - Perceived role in supporting patients with NPC**
1. Family	1. Supporting patients' needs and challenges	1. Psychosocial support provision
• Encouragement and companionship • Financial and logistic	• Emotional support • Support for physical and social needs- not experienced in managing patients, not include in planning of care • Change of role and responsibilities	• Emotional/motivational support-mainly on Financial/welfare aspect only • Importance of family
2. Health care providers		2. Importance of information provision
• Trustworthiness and reassurance for treatment and self-management		• Reassurance • Opportunity for consultations Recognising individuality • Education on self-management of medical-related tasks
Health care facilities		

DISCUSSION

The themes emerged from the framework analysis were then triangulated across the three participant groups to synthesize a comprehensive understanding of self-management support in this case study. By comparing these multiple perspectives, critical convergences and discrepancies between perceived roles and actual needs were identified.

First, triangulation revealed a conceptual disconnect regarding informational and psychological support. Health care providers (HCPs) perceived their role primarily through the subtheme "Importance of information provision," focusing heavily on medical-related tasks such as self-care education and treatment compliance. While HCPs also identified "Psychosocial support provision" as part of their role, they frequently translated this "emotional/motivational support" into practical financial or welfare assistance. Consequently, long-term psychological support for self-management was often overlooked, sometimes driven by the HCPs' focus on the relatively positive prognosis of NPC. Conversely, patients indicated that effective support required "Trustworthiness and reassurance" from HCPs. However, the environmental constraints and the often-paternalistic nature of cancer care practices hindered patients' comfort in discussing their actual psychosocial concerns. This highlights a clear discrepancy between the medicalized support HCPs perceived they were providing and the holistic health beliefs and symptom management support the patients actually needed.

A second major finding from the triangulation process centered on the systemic gaps in family integration. Under their perceived roles, HCPs explicitly recognized the "Importance of family" in promoting effective self-management for physical, psychological, and medical tasks. Yet, despite this awareness, no standardized practice was implemented to involve family members in patient care. This gap was strongly corroborated by the family members' data. Under the subtheme "Supporting patients' needs and challenges," families reported feeling "not included in planning of care." They experienced limited involvement in patient care planning with the HCPs and left out the important information that they perceived could help in supporting

their sick spouse. They also experienced a sudden "change of role and responsibilities" and lacked the necessary experience and informational support from HCPs to confidently assist their sick spouse. Besides, discrepancies in patients' needs and support received from HCPSs were found, particularly in patients' health beliefs of symptoms management and psychosocial needs. Families, as another unit of analysis in this case study, also had informed them of the support they provided to patients and, at the same time, revealed their own needs to be supported to enable them to support their ill members confidently. The family perspective had provided additional insight into the fact that they also needed to be together with patients as a unit of care in the management of NPC.

Ultimately, triangulating these multiple units of analysis demonstrates that families do not merely provide support; they have their own parallel needs. The overlapping perspectives strongly suggest that overcoming the complexities of NPC self-management requires health care providers to shift their approach, viewing the patient and their family collectively as a single, integrated unit of care.

Critical Methodological Analysis of this Study

This study implemented a single case study (embedded) design. Viewing this design through the philosophical lens of pragmatism was highly instrumental; pragmatism focuses on practical, real-world solutions and allowed the research to transcend strict methodological binaries (16,17). In the pragmatist perspective, which focuses more on practical meaning of knowledge in specific contexts (in this study health care facilities where patients received treatment), problems that need to be solved (how patients do and experience self-mangement, do they being properly supported?) and offer insight into problem-solving orientation as a contribution to informed future practice seemed to better suited to fulfil the aim of this research objectives. Therefore, pragmatism became the philosophical stance for this study. Hence, within the pragmatism perspective, it is believed that multiple data collection methods should be employed to address the research questions more appropriately. It is believed that acknowledging all relevant tools and sources will contribute to better research practice, subsequently enhancing the data findings' value.

By adopting this pragmatic paradigm, the study was able to integrate multiple units of analysis (patients, health care providers, and family members) across two hospital settings where patients receive their complete treatment regimens. This approach provided the multifaceted, rigorous data necessary to triangulate and deeply understand "self-management" not merely as an abstract concept, but as a contemporary, day-to-day issue grounded in the reality of patients with NPC. Consequently, the research objectives were addressed comprehensively, capturing the phenomena from a holistic perspective rather than relying on a single group's viewpoint.

Furthermore, the integration of the framework analysis method was highly synergistic with the four general strategies for case study analysis outlined by Yin (15). Aligning these two methodologies offered a highly specific and systematic analytic pathway to understand the "case," executed as follows:

- Relying on theoretical propositions: The priori research objectives served as the guiding propositions for this study. These objectives were frequently revisited to steer data analysis, anchoring the preliminary thematic framework and guiding the deductive coding of the data from the initial familiarisation phase to the formulation of final themes.
- Working data from the ground up; This principle allowed the researcher to apply the inductive approach of the data and enabled a broader scope of the 'case' being studied (although still guided by research questions and objectives to ensure adequate understanding of the phenomena of interest). This dual inductive-deductive application allowed for rigorous data examination and a broader, yet highly relevant, scope of the case.
- Developing a case description: Framework analysis inherently supports this strategy through its charting and mapping phases. By organizing data into a descriptive matrix, the method created a transparent audit trail tracing the origin of every category. This descriptive framework was then utilized to conduct cross-case synthesis between the three embedded units of analysis (patients, HCPs, and family), clarifying the contextual boundaries of self-management. Examining plausible rival; themes emerged from this

study resulting from the synthesis of saturated data of interview of each unit of analysis. Rather than only looking for consensus, the framework matrices allowed for the systematic examination of contrasting perspectives. By triangulating the saturated data across the different units of analysis, the researcher could identify and explore rival interpretations, such as discrepancies between the support HCPs believed they were providing versus the support families felt they were lacking, thereby opening broader, critical insights into the case.

CONCLUSION

Embedding framework analysis within a qualitative case study design proved highly suitable for disentangling the complex concept of self-management among patients with NPC. Importantly, this methodological synergy offers significant conceptual alignment with the advancement of research practice. For doctoral students and early-career researchers, navigating large volumes of qualitative data can be overwhelming. The transparent, structured, and auditable trail provided by this integrated approach serves as an excellent pedagogical model, enhancing methodological literacy and demonstrating how rigor and reflexivity can be practically sustained in complex qualitative inquiry.

LIMITATIONS AND RECOMMENDATIONS

First, contextual limitations regarding the study's setting and sampling affect the transferability of the findings. The patients recruited were individuals actively receiving or having completed treatment at public tertiary hospitals in a single country, and who were able to communicate effectively in Malay or English. By nature, these participants represent a highly motivated demographic with a strong desire to cure themselves and self-manage their condition. While the researcher believes this group provides the most crucial insights into the active, day-to-day struggle of fighting NPC, it must be recognized that these findings may not fully capture the experiences of those who avoid conventional treatment, lack access to tertiary care, or face severe communication barriers. Consequently, the transferability of these findings to differently structured healthcare systems or distinctly different patient profiles may be limited.

Second, critical reflections must be made regarding the use of framework analysis. While this approach provided a structured mechanism for handling complex case study data, the rigid nature of matrix charting presented challenges when managing overlapping codes. Because the dimensions of 'self-management' concept are highly interconnected, patient narratives frequently applied to multiple categories simultaneously. Rather than strictly forcing the data into a single dominant theme, which risked fracturing the holistic reality of the patients' lived experiences, multiple coding was occasionally permitted during the indexing and charting phases. However, because this approach quickly resulted in highly dense matrices, we had to critically evaluate and decide which single category was the most suitable fit for a specific code. This active decision-making and categorization occurred iteratively throughout the framework analysis, requiring extensive reflexive engagement during the explanatory phase to ensure the final themes were conceptually distinct rather than merely repetitive.

Third, the simultaneous nature of data collection and analysis which commenced after the first three to four interviews, introduced both strengths and potential biases. Analytically, this iterative process was highly beneficial, as it allowed for the progressive refinement of interview questions to probe deeper into emerging concepts. However, it also introduced the risk of prematurely narrowing the focus of subsequent interviews or theoretical sampling based on early findings. To mitigate this bias, the framework matrices were deliberately used to actively track negative cases and ensure that later interviews remained open to new, inductive themes, rather than simply confirming the patterns established by the earliest participants.

Finally, as is standard in qualitative inquiry, the findings of this case study are not meant for statistical generalization to a broader population or universe. Instead, the goal of pairing a case study design with framework analysis was to achieve analytic generalization. By meticulously charting, triangulating, and interpreting the multiple perspectives within this study, the findings serve to expand and refine the theoretical concept of self-management for patients navigating the unique complexities of nasopharyngeal cancer.

CONFLICT OF INTEREST

The authors declare of no conflict of interest in this project.

FUNDING

This project was funded by the International Islamic University Research Grant-Research Initiative Grant 2017.

ACKNOWLEDGEMENTS

The authors would like to acknowledge the valuable contributions of all participants to the findings of this project, as well as the dedicated efforts of all project team members.

AUTHOR CONTRIBUTIONS

CACA: Data collection and drafting manuscript
SS: Reviewing manuscript
NEHMR: Manuscript proofreading and language check
J: Manuscript proofreading and language check

REFERENCES

1. Che Abdullah CA, Saidi S, Lee SP. (2021). Understanding self-management related experience of patients with nasopharyngeal cancer : a review . Enfermeria Clinica , 31. 2021;(July 2008):1–7.
2. Lin YL, Chuang CY, Hsieh VCR, Tsai MS, Liu YF, Chen XX, et al. Unmet supportive care needs of survival patients with nasopharyngeal carcinoma. Int J Environ Res Public Health. 2020 May 2;17(10). doi:10.3390/ijerph17103519 PubMed PMID: 32443492.
3. Abdullah CAC, Saidi S, Lee SP. Self-management through perceived symptoms impact among patients with nasopharyngeal cancer during phase 1 of cancer trajectory. Systematic Reviews in Pharmacy. 2020;11(6):1228–33. doi:10.31838/srp.2020.6.178
4. Mori M, Lin CP, Cheng SY, Suh SY, Takenouchi S, Ng R, et al. Communication in Cancer Care in Asia: A Narrative Review. JCO Glob Oncol. 2023 Sep;(9). doi:10.1200/go.22.00266 PubMed PMID: 37364221.
5. Yazan B, De Vasconcelos ICO. Three approaches to case study methods in education: Yin, Merriam, and Stake. Meta: Avaliacao. 2016;8(22):149–82. doi:10.22347/2175-2753v8i22.1038
6. Smith JA, Flowers P, Larkin M. Interpretive Phenomenological Analysis Theory, Method, and Research. 2nd ed. SAGE; 2021. 1–240 p.
7. Strauss A, Corbin J. Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. Basics of Qualitative Research Grounded Theory Procedures and Techniques [Internet]. 2008. 379 p. Available from: http://srmo.sagepub.com/view/basics-of-qualitative-research/SAGE.xml doi:10.4135/9781452230153 PubMed PMID: 2142574.
8. Nowell LS, Norris JM, White DE, Moules NJ. Thematic Analysis: Striving to Meet the Trustworthiness Criteria. https://doi.org/101177/1609406917733847. 2017 Oct 2;16(1). doi:10.1177/1609406917733847
9. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. Nursing and Health Sciences. 2013. p. 398–405. doi:10.1111/nhs.12048 PubMed PMID: 23480423.
10. Braun V, Clarke V. Using thematic analysis in psychology. Qual Res Psychol. 2006 Jan;3(2):77–101. doi:10.1191/1478088706qp063oa
11. Goldsmith LJ. Using framework analysis in applied qualitative research. Qualitative Report. 2021 Jun 1;26(6):2061–76. doi:10.46743/2160-3715/2021.5011
12. Ritchie J, Lewis J. The foundations of qualitative research . Qualitative research practice : a guide for social science students and researchers. Qualitative Research. 2003. 1–23 p.
13. Ritchie J, Lewis J, Elam G. Designing and Selecting Samples. In: Ritchie J, Lewis J, editors. Qualitative Research Practice. london; 2012. p. 77–108.
14. Gale NK, Heath G, Cameron E, Rashid S, Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Med Res Methodol. 2013 Sep 18;13:117. doi:10.1186/1471-2288-13-117 PubMed PMID: 24047204.
15. Yin RK. Case Study Reasearch and Applications; Design and Methods. 6th ed. SAGE Publications Inc.; 2018. 27–28 p.
16. Morgan DL. Pragmatism as a Paradigm for Social Research [Internet]. 2014. doi:10.1177/1077800413513733
17. Goldkhul G. Pragmatism vs interpretivism in qualitative information systems

research. European Journal of Information Systems. 2012;21(2):135–46.
18. Patton MQ. Sampling, Qualitative (Purposeful). The Blackwell Encyclopedia of Sociology. 2015;2–4. doi:10.1002/9781405165518.wbeoss012.pub2
19. Yin RK. A (VERY) BRIEF REFRESHER ON THE CASE STUDY METHOD The. Applications of Case Study Research. 2012;3–20.
20. Yin RK. Case Study Reseach Design and Methods. Fourth Edi. Sage Publications; 2009.
21. Lincoln YS, Guba EG. Naturalistic Inquiry [Internet]. 1985 [cited 2018 Jun 4]. Available from: https://books.google.com.my/books?hl=en&lr=&id=2oA9aWlNeooC&oi=fnd&pg=PA5&sig=GoKaBo0eIoPy4qeqRyuozZo1CqM&dq=naturalistic+inquiry&prev=http://scholar.google.com/scholar%3Fq%3Dnaturalistic%2Binquiry%26num%3D100%26hl%3Den%26lr%3D&redir_esc=y#v=onepage&q=nat