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PREDICTORS OF SUCCESSFUL INTERPROFESSIONAL COLLABORATION IN PALLIATIVE CARE: VOICES FROM THE INDONESIAN HEALTHCARE COMMUNITY

Muhammad Rizal, Dara Febriana*, Aiyub
Universitas Syiah, Indonesia
Email: dara.febriana@usk.ac.id*

Abstract: *Palliative care in hospitals requires effective collaboration between health workers across professions to ensure quality care and improve patients' quality of life. This study aims to analyze the factors influencing the implementation of Interprofessional Collaboration (IPC) in palliative care at referral hospitals in Aceh Province, Indonesia. The design of this study was quantitative descriptive with a cross-sectional approach conducted in two referral hospitals, involving 189 respondents selected through purposive sampling. Data were collected using a questionnaire that measured individual characteristics (age, profession, education, length of service), as well as individual, team, and organizational factors, utilizing the Assessment of Interprofessional Team Collaboration Scale (AITCS-II) and Perception of Interprofessional Collaboration Model (PINCOM-Q) instruments. Data analysis was performed using the chi-square test and logistic regression. The results showed that age (p = 0.004), profession (p = 0.008), length of service (p = 0.011), individual factors (p = 0.013), team factors (p = 0.010), and organizational factors (p = 0.006) had a significant effect on the implementation of IPC. The profession variable had the strongest effect (OR = 9.853). In conclusion, the implementation of interprofessional collaboration in palliative care is influenced by individual and organizational characteristics, with profession emerging as the main determinant. Support for specific professions can increase the success of collaboration by up to 9.8 times, positively impacting service quality, efficiency, and patient satisfaction.*

Keywords *: Interprofessional Collaboration , Palliative Care, Professional Factors .*

INTRODUCTION

Health services in the current global era are required to provide quality care, yet many aspects of health service provision remain global challenges in health development, occurring in almost all countries. Along with the increasing complexity of health problems, health workers are expected to deliver comprehensive and patient-centered services (Mohammed et al., 2016). Therefore, the implementation of *interprofessional collaboration (IPC)* is essential to realize effective teamwork (Kaifi et al., 2021).

The implementation of *IPC* has been shown to reduce medical errors, improve patient safety, enhance service efficiency, and increase satisfaction for both patients and health workers, particularly in complex services such as palliative care (Haruta et al., 2019; Ylitormanen et al., 2023). *IPC* has a very positive impact on both palliative and non-palliative health services, including increasing access to and coordination of care, improving the quality of life in people with chronic diseases, strengthening patient safety, reducing disease complications, minimizing inter-professional conflict, and lowering mortality rates (Setiadi et al., 2017).

In palliative care, the application of *IPC* is especially important, as it emphasizes patients and their families due to the terminal nature of health problems that often cannot be cured. This requires the contribution of various professions to minimize patients' suffering. In 2017, more than 75% of hospitals had palliative care programs. A national study of palliative care team job descriptions identified key responsibilities such as psychosocial assessment, family meetings, decision-making support, assistance during the dying process, and grief support. However, the role of palliative care teams remains limited, requiring special attention to strengthen collaborative service models in hospitals (O'Donnell et al., 2023).

National policies, such as the *Standar Nasional Akreditasi Rumah Sakit (SNARS)* and Law No. 36 of 2014 concerning Health Workers, emphasize the importance of *interprofessional collaboration* to

improve service quality. Nevertheless, structural barriers—such as the dominance of certain professions, interprofessional stereotypes, and ineffective communication—continue to pose significant challenges in practice (Setiadi et al., 2017; Haryani, 2021; Djaharuddin et al., 2023).

In the context of palliative care, *IPC* is becoming increasingly important. This service is multidimensional, encompassing physical, psychological, social, and spiritual aspects, and therefore requires the synergistic involvement of multiple professions. However, the implementation of *IPC* in hospital-based palliative care remains limited. Several studies have shown that the success of collaboration is strongly influenced by individual, team, organizational factors, and the broader health system context (O'Donnell et al., 2023; Kesonen et al., 2022).

Previous research highlights the value of *IPC* in enhancing palliative care, yet lacks sufficient focus on the Indonesian hospital context. For instance, Pornrattanakavee et al. (2022) demonstrated that a collaborative model between palliative care nurses and medical oncologists significantly improved quality of life and reduced 7-day readmission rates among advanced cancer patients. Meanwhile, Wilson et al. (2023) explored barriers and enablers to palliative care development in Aceh, revealing critical challenges such as limited understanding, weak policy support, and insufficient cultural integration of care services.

Based on this background, this study was conducted to analyze the factors influencing the implementation of *interprofessional collaboration* in palliative care services at referral hospitals in Aceh Province. The findings are expected to provide a foundation for formulating strategies to improve the quality of palliative care services in Indonesia through *interprofessional collaboration*.

MATERIALS AND METHODS

Research Design and Location

This study employed a descriptive quantitative design with a cross-sectional approach. The research was conducted in two provincial referral hospitals that provide palliative care, from January to March 2024. The purpose of this design was to identify the relationship between various individual, team, and organizational factors and the implementation of *interprofessional collaboration (IPC)* in palliative care.

Population and Sample

The study population consisted of all health workers involved in palliative care, including doctors, nurses, pharmacists, nutritionists, and clergy, with a total of 2,530 individuals. The sample was selected using purposive sampling techniques based on inclusion and exclusion criteria. The sample size was determined using the Slovin formula, resulting in 189 respondents.

The inclusion criteria were health workers—doctors, nurses, pharmacists, nutritionists, and clergy—who actively worked in palliative care units and were willing to participate. The exclusion criteria were health workers who were on leave, had worked for less than one month, did not serve in a palliative care unit, or did not complete the questionnaire (*drop-out*).

Instruments and Data Collection

The research instrument was a structured questionnaire consisting of two main parts:

1. *Assessment of Interprofessional Team Collaboration Scale II (AITCS-II)*, used to measure the implementation of *IPC*. This instrument contains 23 items, with a reliability value of 0.937. All questions were declared valid with a Pearson correlation value of >0.284, indicating that the instrument is reliable and valid. The measurement results were categorized as follows: good collaboration (≥4.0), moving towards collaboration (3.0–3.9), and requiring development of collaborative practices (1.0–2.9) (Orchard et al., 2018).
2. *Perception of Interprofessional Collaboration Model Questionnaire (PINCOM-Q)*, used to evaluate perceptions of individual, team, and organizational factors. This standard instrument consists of 48 items, with a reliability value of 0.905 (very reliable) and validity ranging from 0.298 to 0.908. Responses were rated on a 7-point Likert scale: 1 = strongly agree, 2 = agree, 3 = somewhat agree, 4 = neutral, 5 = somewhat disagree, 6 = disagree, and 7 = strongly

disagree. The average *PINCOM-Q* score is a self-reported measure of subjective perceptions of collaboration, where lower scores indicate agreement with collaboration and higher scores indicate disagreement (Odegard, 2009).

Demographic data collected included age, profession, education level, and length of service.

Data Analysis

Data were analyzed using *PSPP (Perfect Statistic Professionally Presented)* software, a free and open-source statistical program for statistical data analysis, including descriptive analysis, hypothesis testing, correlation, regression, chi-square test, and reliability analysis (Liu, 2020).

Univariate analysis was conducted to describe the frequency distribution and characteristics of respondents. Bivariate analysis employed the chi-square test to determine the relationship between independent and dependent variables. Multivariate analysis was then performed using logistic regression to identify the dominant factors influencing the implementation of *interprofessional collaboration* in palliative care. Results are presented in the form of frequency tables, cross-tabulations, significance values (*p*-values), and odds ratios (OR) with 95% confidence intervals (CI).

RESULTS AND DISCUSSION

Table 1. Frequency distribution of independent variables of IPC implementation in palliative care services in hospitals in the province (n=189)

No	Respondent Demographics	f	%
1.	Age (Mean = 37.52, SD = 6,418)		
	Mature	156	82.5
	Middle-aged	33	17.5
2	Gender		
	Man	72	38.1
	Woman	117	61.9
2.	Profession		
	Health workers	154	81.5
	Medical personnel	35	18.5
3.	Education		
	Vocational education	43	22.8
	Professional education	113	59.8
	Specialist education	33	17.5
4.	Length of working		
	1-3 Years	33	17.5
	3-5 Years	59	31.2
	>5 Years	97	51.3
5	Terminal Illness		
	End stage renal failure	32	16.9
	cirrhosis of the liver	55	29.1
	Obstructive pulmonary disease	18	9.5
	Recurrent stroke	24	12.7
	Cancer	36	19.0
	HIV/AIDS	8	4.2
	End stage heart failure	12	6.3
	Caring for dying patients	2	1.1
	Other Terminal Illnesses	2	1.1
5.	Individual Factors		
	High Perception	102	54.0
	Low Perception	87	46.0
6.	Team Factor		
	High Perception	97	51.3
	Low Perception	92	48.7
7.	Organizational Factors		
	High Perception	100	52.9
	Low Perception	89	47.1
9.	IPC Implementation		

No	Respondent Demographics	f	%
	Good	160	84.7
	Moving Towards	29	15.3

Based on table 1, it shows that the majority of respondents in this study were adults as many as 156 respondents (82.5%), female gender as many as 117 respondents (61.9%), health workers as many as 154 respondents (81.5%), professional education as many as 113 respondents (59.8%), length of service more than 5 years as many as 97 respondents (51.3%), Terminal disease. Hepatic cirrhosis as many as 55 respondents (29.1%) individual factors were found to be high as many as 102 respondents (54.0%), team factors were found to be high as many as 97 respondents (51.3%), organizational factors were found to be high as many as 100 respondents (52.9%) and IPC Implementation was found to be high as many as 160 respondents (84.7%).

Table 2. Results of the Logistic Regression Model Feasibility Test

No	Variables	P-Value	Information
1.	Age	0.0 04	Worthy of Entering into Logistic regression mode
2.	Profession	0.0 08	Worthy of Entering into Logistic regression mode
3.	Education	0, 093	Worthy of Entering into Logistic regression mode
4.	Length of working	0.0 11	Worthy of Entering into Logistic regression mode
5.	Individual Factors	0.013	Worthy of Entering into Logistic regression mode
6.	Team factors	0.010	Worthy of Entering into Logistic regression mode
7.	Organizational factors	0.006	Worthy of Entering into Logistic regression mode

Based on table 2, above, it can be seen that the variables that can be continued to the multivariate modeling of multiple logistic regression with a p value <0.25 are the age factor variable (p = 0.004), profession factor (p = 0.008), education factor (p = 0.090), length of service factor (p = 0.011), individual factor (p = 0.013), team factor (p = 0.010) and organizational factor (p = 0.006).

a. Modeling stage I

At this stage, the independent variables that have passed the bivariate selection are subjected to stage I logistic regression modeling analysis together using the enter method, as can be seen in the following table:

Table 3. Results of the First Logistic Regression Analysis Model for the Relationship between IPC Factors and IPC Implementation

No	Variables	P-Value	95% CI		OR/Exp(B)
			Lower	Upper	
1.	Age	0.092	0.822	13,218	3.296
2.	Profession	0.001	2,703	42,450	10,712
3	Education	0.002	0.099	0.580	0.240
3.	Length of working	0.306	0.859	1,049	0.949
4.	Individual Factors	0.268	0.640	4.982	1,786
5.	TEAM Factor	0.114	0.801	8,035	2,537
6.	Organizational factors	0.281	0.618	5.272	1,804

Based on table 3 above, it can be seen that the independent variables that are significantly related to the implementation of IPC are the profession and education factors which have p < 0.05, while the age factor, length of service, individual factor, team factor and organizational factor are not significantly related (p > 0.05).

b. Modeling stage II

The next step is to eliminate variables with a *p value* > 0.05, namely the age variable (*p* = 0.092), length of service (*p* = 0.306), individual factors (*p* = 0.268), team factors (*p* = 0.114) and organizational factors (*p* = 0.281). The first elimination of variables removed from the model is the age variable, length of service, individual factors, team factors and organizational factors, which can be seen in the following table:

Table 4. Results of the Second Logistic Regression Analysis Model for Factor Relationships IPC

No	Variables	P-Value	95% CI		OR/Exp(B)
			Lower	Upper	
1.	Profession	0.001	3.102	31,299	9,853
2.	Education	0.002	0.128	0.626	0.283

Based on table 4 above it can be seen that the independent variables are significantly related to the implementation of IPC are the profession and education factors that have *p* < 0.05, between the two factors the one most related to the implementation of IPC is the profession factor so that the next stage of modeling testing was not carried out. It can be interpreted that the profession factor has a significant relationship with IPC in the model with *p* = 0.001 with an *odds ratio* (OR) value of 9.853 , meaning that the profession has a 9.8 times chance of implementing IPC at the Aceh Provincial Hospital. Followed by the education factor with an OR value of 0.283.

The results of this study indicate that the implementation of *Interprofessional Collaboration* (IPC) in palliative care services in Aceh Province hospitals is influenced by various factors, namely age, profession, length of service, individual, team, and organizational factors, while education does not show a significant relationship. These findings reflect the complexity of factors that influence cross-professional collaboration in the context of patient-focused health services.

Age factor has a significant relationship with the implementation of IPC, where older health workers show better involvement in collaboration. This is in line with previous studies showing that age is directly proportional to experience, emotional stability, and confidence in interprofessional communication (Yuliana et al., 2022; Sulistyaningsih et al., 2021). However, younger health workers also show a positive tendency towards collaboration due to their more modern educational background and openness to innovation, such as the use of communication technology (Haruta et al., 2019).

Profession factor was also found to have a significant influence. These results support the findings of Azzahra et al. (2024) and Kamil et al. (2025) which stated that a clear understanding of the roles, responsibilities, and competencies of each profession is the main foundation in creating effective collaboration. When each health worker understands their duties and respects other professions, joint decision-making becomes more efficient and meaningful.

This is different from the education variable **,** which in this study was not significantly related to the implementation of IPC. These results strengthen previous studies by Amiruddin (2020) and Sulistyaningsih et al. (2021), which stated that collaborative skills are more influenced by direct experience, interpersonal communication, and organizational culture than educational level alone. Education that is only oriented towards theory without cross-professional experience is not enough to form complete collaborative competencies.

Length of service shows a significant relationship to the implementation of IPC. The longer the work experience, the greater the understanding of the organizational system and team dynamics, thus supporting cross-professional coordination and communication (Widyastuti et al., 2023). This experience also correlates with professional maturity and the ability to resolve conflicts constructively within the team.

Individual factors such as motivation, communication style, perception of professional power, and mutual respect. also proved significant. This finding is in accordance with the research of Timperi et al. (2024) and Degu et al. (2023), which emphasize the importance of communication competence, reflective leadership, and self-awareness as prerequisites for IPC effectiveness. When health workers feel valued and committed to the team, they will be more active in the collaborative process.

Team factors also play an important role in the success of IPC. Team effectiveness is determined by coordination, collective decision-making, and trust and mutual respect among members. As stated by Sembiring et al. (2024) and Djaharuddin et al. (2023), obstacles such as unresolved conflicts and ineffective communication can weaken team synergy, while a healthy team culture will strengthen the implementation of IPC.

The most important finding of this study is that the profession factor is the most dominant determinant in the implementation of IPC (OR = 9.853). Each profession masters its respective roles and responsibilities, if each profession understands and carries out its role competently and has awareness of the function and responsibility of the profession, then IPC will run optimally (Azzahra et al., 2024).

Thus, the implementation of IPC is not only determined by the individual capacity of health workers, but is also strongly influenced by the dynamics of the team and the organizational system in which they work. A multifactorial approach that includes interpersonal training, the establishment of a collaborative work culture, and strengthening institutional policies is a strategic step to strengthen the implementation of IPC in hospitals, especially in palliative care that requires holistic and interdisciplinary care.

The implications of these findings indicate that effective IPC implementation is not only influenced by individual, team, and organizational factors, but is also greatly influenced by health worker profession factors. The finding that the profession has the highest Odds Ratio (9.853) emphasizes the importance of strengthening profession-based collaboration competencies in improving the quality of palliative care. Hospitals need to design cross-professional policies and training that encourage equality of roles and responsibilities and effective interprofessional communication. then providing organizational support is a strategic factor in creating a work environment that supports sustainable collaborative practices so that it becomes the basis for developing policy and education interventions to improve the quality of interprofessional collaboration in the context of palliative care.

The limitations of this study are geographical because the research was only conducted in two hospitals in the Province. because only two hospitals treat palliative patients and support research on the implementation of IPC in palliative care, then there are several respondents who refuse because they are busy with patient services in the hospital and other limitations, namely limited time and costs in the research.

CONCLUSION

Based on the findings of this study, it can be concluded that the implementation of *interprofessional collaboration (IPC)* in palliative care services at the provincial hospital is influenced by various factors. Individual factors such as age and length of service of health workers have a significant relationship with the implementation of *IPC*, indicating that experience and maturity contribute to the effectiveness of interprofessional collaboration. In addition, profession is also significantly related to *IPC*, reflecting differences in roles, responsibilities, and perceptions among members of the palliative care team. Conversely, the level of education does not show a significant relationship, suggesting that collaborative competence is not solely determined by formal education. Furthermore, team factors and organizational factors were also associated with *IPC*, underscoring the importance of team dynamics and institutional structural support in fostering effective collaboration. Therefore, efforts to strengthen *IPC* in palliative care should focus on reinforcing individual, team, and organizational aspects in an integrated manner to ensure holistic and patient-centered services.

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