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# Risk communication and caring behavior related to patient satisfaction: A cross-sectional study at the Mangusada Regional Hospital, Badung District, Bali Province, Indonesia

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## ABSTRACT

**Background and purpose:** The quality of hospital services during the COVID-19 pandemic tends to decline. This can affect patients' satisfaction in carrying out treatment and care. Risk communication and caring behavior are important aspects that can affect patient satisfaction. The purpose of our study was to determine the relationship between risk communication and caring behavior of nurses with patient satisfaction on internal medicine polyclinic in the Mangusada Regional Hospital, Badung District, Bali Province, Indonesia.

**Methods:** Our research design is analytic observational with cross sectional approach. We conducted research at the internal medicine polyclinic of the Mangusada Regional Hospital, Badung District from March 1 to April 21, 2022. Samples of our study were 120 patients who visited the internal medicine polyclinic. Variables of our study which include patient characteristics, risk communication and caring behavior were collected using a questionnaire and analyzed with univariate, bivariate and multivariate approach using multiple logistic regression test with 95% confidence interval.

**Results:** The study revealed that 52.5% of patients had low satisfaction, 54.2% of patients perceived low risk communication and 54.2% of patients perceived low caring behavior. There is a relationship between nurse risk communication with patient satisfaction (aOR=5.2; 95%CI: 1.9-14,3, p=0.001) and nurse caring behavior with patient satisfaction (aOR=9.8; 95%CI: 3.7 - 26,0, p=0.000).

**Conclusion:** Risk communication and nurse caring behavior are related to patient satisfaction at internal medicine polyclinic in the Mangusada Regional Hospital, Badung District. This underscores the importance of focusing on improving care practices and communication strategies to enhance patient satisfaction. It also emphasizes the need to ensure the good ratio of health care workers to the number of patients in order to provide quality health services.

**Keywords:** patient satisfaction, caring behavior, risk communication, nurses

## INTRODUCTION

Patients' satisfaction is commonly used as an indicator to measure the quality of health services. During the COVID-19 pandemic, the quality of hospital services tends to decline due to limited hospital resources in dealing with the pandemic crisis. This raises problems, especially the perception of patient satisfaction in obtaining health services.<sup>1,2</sup> This problem in accordance with the Sanglah Hospital's report in 2020 that patient satisfaction during the COVID-19 pandemic has decreased due to officers getting busier and workloads getting heavier so that patients do not get the attention they need.<sup>3</sup> Internal medicine polyclinic is an important unit in the hospital because it serves diseases with a high incidence, namely infectious and non-communicable diseases.<sup>4</sup> Mortality from infectious diseases, especially COVID-19 is a serious problem in addition to other infectious diseases that are still happening. On the other hand, mortality from non-communicable diseases is also expected continue to increase.<sup>5</sup>

One of the most important dimensions an effort to increase patient satisfaction is risk communication.<sup>6</sup> Risk communication is a crucial part of increasing patient satisfaction in hospitals.<sup>7</sup> Risk communication is very important in order to increase patient awareness regarding risk factors for disease they are experiencing.<sup>8-10</sup> One crucial element that can act as a catalyst in risk communication is nurse caring behavior. In the context of nursing, caring behavior goes beyond mere actions; it embodies a genuine concern for patients' well-being, expressed through attentive listening, empathy, and respect. This behavior is essential for building trust between nurses and patients, which is foundational for effective healthcare delivery.<sup>11</sup> However, caring behavior is often not fully implemented in practice because it requires more time and effort to cultivate a relationship based on trust and empathy, which can be challenging in fast-paced healthcare environments.<sup>12</sup>

Caring behavior is a fundamental aspect of the nursing profession, deeply rooted in the principles of empathy, respect, and compassion.<sup>8</sup> Nurses are trained to prioritize patient well-being, often going beyond the technical aspects of care to provide emotional support and build trust. Proper implementation of caring behavior by nurses involves active listening, understanding patient needs, and responding with kindness and respect. While the profession emphasizes these qualities, the demanding nature of healthcare environments can sometimes challenge the consistent application of caring behavior.<sup>10</sup> Despite these challenges, many nurses strive to uphold these principles, recognizing that caring behavior is not just a professional obligation but also a key to fostering positive patient outcomes.

Currently, research related to risk communication and caring behavior has not explained their relationship with patient satisfaction comprehensively. A systematic review study found that the only element that affects satisfaction with services is the way care giver communicates and interacts both verbally and non-verbally.<sup>12</sup> This review is limited to the way caregivers communicate. Other studies also found that only caring behavior has a positive and strong correlation with patient satisfaction and other variables have not been studied yet.<sup>13</sup> Given the complex role of risk communication and caring behavior in hospitals, and considering the restrictions on patient visits to health facilities during the COVID-19 pandemic, further studies are necessary. The pandemic led to a reduction in patient visits due to strict health protocols and concerns about virus transmission. However, if there was an increase in visits during this period, secondary data should be included to support this

observation and provide a clearer understanding of the situation.<sup>14</sup>

The lack of optimal risk communication and caring behavior can be attributed to several factors, including insufficient time, a shortage of skilled health workers, lack of confidence, and deficiencies in empathy and sensitivity among healthcare providers. Additional contributing factors include inadequate training, limited access to risk communication support tools, poor patient self-discipline, patient reluctance to make lifestyle changes, restricted time allocation, and insufficient support from hospital management. These issues are supported by various studies and theories. For instance, research highlights how time constraints and inadequate training impact the quality of risk communication.<sup>8</sup> Similarly, studies discuss how the shortage of skilled personnel and lack of resources affect the implementation of caring behaviors.<sup>12</sup> Addressing these challenges requires a comprehensive approach, including enhanced training, better resource allocation, and stronger institutional support, as emphasized in the literature on improving healthcare communication and patient care.<sup>14</sup> The purpose of our study was to determine the relationship between risk communication and nurse caring behavior with patient satisfaction in the internal medicine clinic at Mangusada Regional Hospital, Badung District, Bali Province, Indonesia.

## METHOD

Our study was an analytic observational study using a cross-sectional design, conducted at the Internal Medicine Polyclinic of Mangusada Regional Hospital in Badung District, Bali Province, Indonesia. The available staff included 3 doctors, 3 nurses, and 1 administrative officer. However, these 9 staff members were not part of the research samples. They are mentioned here to provide context regarding the staffing levels at the hospital, which is relevant to understanding the balance between staff and patient numbers, especially considering the high volume of patient visits during the COVID-19 pandemic. Data collection for the study took place from March 1 to April 21, 2022.

The population of our study comprised patients who visited the Internal Medicine Polyclinic at Mangusada Regional Hospital from January to September 2021, totaling 938 individuals. We selected a sample of 120 patients from this group using convenience sampling. The criteria for inclusion in the study were being over 16 years old, in good physical condition (able to stand, walk, talk, read, and write), possessing a good memory, and having sought treatment more than twice. To clarify, our research focused specifically on patients who visited the Internal Medicine Polyclinic during this period and met the specified criteria.

We collected data on risk communication, caring behavior, and patient satisfaction using structured questionnaires. Risk communication was assessed with a custom questionnaire featuring 10 binary questions, focusing on patient awareness and staff communication, with scores converted to percentages and categorized based on median cut-off points. Caring behavior was measured using a modified Caring Behavior Inventory (CPC) with 10 items rated on a Likert scale, and scores were similarly converted and categorized. Patient satisfaction was evaluated with a questionnaire adapted from the SERVQUAL model, covering dimensions such as tangible aspects, reliability, responsiveness, assurance, and empathy, with scores converted to percentages and categorized. All questionnaires underwent reliability testing with 30 patients and data were analyzed using SPSS software, version 22.

We performed univariate analysis to describe the frequency distribution of each variable, bivariate analysis to assess the difference in the proportions between independent variables and the dependent variable using the chi square statistical test with 95% confidence intervals and multivariate analysis to determine the relationship between patient characteristics, risk communication and caring behavior nurses with patient satisfaction used multiple logistic regression and stratification analysis to see the confounding effect.

The ethics permit was obtained from the Research Ethics Committee of the Mangusada Regional Hospital with the number 800/553/RUMAH DAERAH M/2022.

## RESULT

Table 1 shows 60.0% of patients aged 46-65 years, 53.3% are female, 42.5% have secondary education, 79.2% with working status of which 54.2% work in the informal sector and 45.0% earning above the regional minimum wage. As many as 91.7% of patients have health insurance with 50.0% of which BPJS PBI type. Furthermore, 90.8% of the patients were married. As much as 75.0% of patients perceived the waiting time at the hospital was below the standard.

Table 2 shows that patients' characteristics impact satisfaction significantly. Younger patients (17-45 years) have lower satisfaction (66.7%) compared to older patients (>65 years) with higher satisfaction (77.8%),  $p=0.032$ . Higher education levels correlate with greater satisfaction (82.5%,  $p=0.000$ ). Unemployed patients report higher satisfaction (70.4%) compared to employed ones (40.9%),  $p=0.007$ . Formal workers are more satisfied (33.3%) than informal workers (55.4%),  $p=0.013$ . Higher-income patients (>Regional Minimum Wage) are more satisfied (81.5%),  $p=0.000$ . Insured patients show higher satisfaction (44.5%) compared to uninsured ones (80%),  $p=0.032$ . BPJS non-PBI beneficiaries have lower satisfaction (73.5%),  $p=0.003$ . High levels of risk communication and nurse caring behavior are associated with higher satisfaction (67.3% and 74.5%, respectively), both with  $p=0.000$ .

Table 3 shows the factors that are independently related to patient satisfaction consisted of risk communication, caring behavior and age. High risk communication tends to give 5 times higher of patient satisfaction (aOR=5.2; 95%CI: 1.9-14.3,  $p=0.001$ ). Nurses with high caring behavior tend to increase satisfaction 9 times higher (aOR=9.8; 95%CI: 3.7-26.0,  $p=0.000$ ). Meanwhile, patients aged over 45 years tended to be 4 times more satisfied (aOR=4.3; 95%CI: 1.4-12.8,  $p=0.008$ ).

Table 1. Frequency distribution of patients' characteristics

Characteristics (n=120)	Frequency (f)	Proportion (%)
<b>Age (years)</b>	Mean=49.2, SD=11.89	
17-45	39	32.5
46-65	72	60.0
>65	9	7.5
<b>Gender</b>		
Male	56	46.7
Female	64	53.3
<b>Education level</b>		
Never been in school	4	3.3
Primary school	25	20.8
Secondary school	51	42.5
Tertiary education	40	33.3
<b>Working status</b>		
Yes	95	79.2
No	25	20.8
<b>Type of occupation</b>		
Formal	30	25.0
Informal	65	54.2
None	25	20.8
<b>Income</b>		
≥Regional Minimum Wage	54	45.0
<Regional Minimum Wage	41	34.2
None	25	20.8
<b>Health insurance</b>		
Yes	110	91.7
None	10	8.3
<b>Type of Health Insurance</b>		
BPJS PBI	60	50.0
BPJS non PBI	35	29.2
Other Insurance	15	12.5
None	10	8.3
<b>Marital Status</b>		
Yes	109	90.8
None	11	9.2
<b>Waiting time</b>		
According to standard	30	25.0
None	90	75.0

**Table 2. Cross tabulation between characteristics of patient, risk communication and nurse caring behavior according to patient satisfaction**

Variable	Patients' Satisfaction		Total (%)	p
	Low n (%)	High n (%)		
<b>Age (years)</b>				
17-45	26 (66.7)	13 (33.3)	39 (100.0)	0.032
46-65	35 (48.6)	37 (51.4)	72 (100.0)	
>65	2 (22.2)	7 (77.8)	9 (100.0)	
<b>Gender</b>				
Man	29 (51.8)	27 (48.2)	56 (100.0)	0.883
Women	34 (53.1)	30 (46.9)	64 (100.0)	
<b>Education level</b>				
Never been in school	0 (0)	4 (100)	4 (100.0)	0.000
Primary school	6 (24)	19 (76)	25 (100.0)	
Secondary school	24 (47.1)	27 (52.9)	51 (100.0)	
Tertiary education	33 (82.5)	7 (17.5)	40 (100.0)	
<b>Working status</b>				
Yes	55 (59.1)	38 (40.9)	93 (100.0)	0.007
No	8 (29.6)	19 (70.4)	27 (100.0)	
<b>Type of occupation</b>				
Formal	20 (66.7)	10 (33.3)	30 (100.0)	0.013
Informal	36 (55.4)	29 (44.6)	65 (100.0)	
None	7 (28.0)	18 (72.0)	25 (100.0)	
<b>Income</b>				
≥Regional Minimum Wage	44 (81.5)	10 (18.5)	54 (100.0)	0.000
<Regional Minimum Wage	12 (30.0)	28 (70.0)	40 (100.0)	
None	7 (26.9)	19 (73.1)	26 (100.0)	
<b>Health insurance</b>				
Yes	61 (55.5)	49 (44.5)	110 (100.0)	0.032
None	2 (20.0)	8 (80.0)	10 (100.0)	
<b>Type of Health Insurance</b>				
BPJS PBI	30 (50.8)	29 (49.2)	59 (100.0)	0.003
BPJS non PBI	25 (73.5)	9 (26.5)	34 (100.0)	
Other Insurance	6 (42.9)	8 (57.1)	14 (100.0)	
None	2 (15.4)	11 (84.6)	13 (100.0)	
<b>Marital Status</b>				
Yes	58 (53.2)	51 (46.8)	109 (100.0)	0.623
No	5 (45.5)	6 (54.5)	11 (100.0)	
<b>Risk Communication</b>				
Low	18 (32.7)	37 (67.3)	55 (100.0)	0.000
High	45 (69.2)	20 (30.8)	65 (100.0)	
<b>Caring Behaviour</b>				
Low	14 (25.5)	41 (74.5)	55 (100.0)	0.000
High	49 (75.4)	16 (24.6)	65 (100.0)	

**Table 3. The final model of the relationship between risk communication and caring behavior with patient satisfaction**

Variable	Early models		p	Final model		p
	aOR	95%CI		aOR	95%CI	
<b>Risk Communication</b>						
Low	5.3	1.9-14.3	0.001	5.2	1.9-14.3	0.001
High	Ref					
<b>Caring Behaviour</b>						
Low	9.8	3.7-26.0	0.000	9.8	3.7-26.0	0.000
High	Ref					
<b>Age (years)</b>						
17-45	4.3	1.4-12.9	0.008	4.3	1.4-12.8	0.008
46-65	Ref					
<b>Working status</b>						
Yes	0.8	0.01-65.4	0.934	-	-	-
No	Ref					
<b>Income</b>						
Non permanent	4.6	0.05-36.7	0.490	-	-	-
Permanent	Ref					

## DISCUSSION

During the COVID-19 pandemic, quality of hospital services tends to decrease so that it has the potential to cause problems, especially the patients' satisfaction in obtaining health services. Our research has proven that more than half of patients have low satisfaction with the services provided at the Internal Medicine Polyclinic of the Mangusada Regional Hospital. The analysis shows that patient satisfaction is significantly influenced by several characteristics. Younger patients (17-45 years) experience lower satisfaction compared to older patients (>65 years). Higher education levels and unemployment are associated with greater satisfaction. Formal workers are more satisfied than informal workers, and patients with higher incomes report higher satisfaction. Health insurance status also impacts satisfaction, with insured patients generally being more satisfied. BPJS non-PBI beneficiaries report lower satisfaction compared to other types of insurance. Additionally, high levels of risk communication and nurse caring behavior are linked to higher patient satisfaction.

Key factors independently related to patient satisfaction include risk communication, caring behavior, and age. Effective risk communication and high nurse caring behavior significantly enhance patient satisfaction, as does being older than 45 years. These findings align with the theory that effective communication and empathetic care improve patient experiences and satisfaction. Previous studies support these results, highlighting that both communication skills and caring behaviors are crucial for positive patient outcomes.

The results of our study are in accordance with several studies that have been conducted in Indonesia. Research conducted in Cicendo on 2020 resulted in a low level of satisfaction related to the hospital services.<sup>15</sup>

These results are due to the lack of communication between officers so that patients find it difficult to get information related to their illness. Research conducted in 7 provinces in Indonesia helps explain dissatisfaction with hospital services with the highest element being a lack of empathy for patients, making it difficult to get opportunities to consult regarding their illness.<sup>16</sup>

The results of our study are inversely proportional to the results of the community satisfaction survey conducted at the Mangusada Regional Hospital in 2020 which found that 79.78% of the community were satisfied with the outpatient services received.<sup>17</sup> This is because the previous survey was held when the COVID-19 pandemic had not experienced a sharp increase in cases with the delta variant so that internal medicine polyclinic services were carried out optimally with standard health protocols and workloads so that patient satisfaction remained good. When the COVID-19 pandemic with the delta variant occurred, health workers experienced a high workload and the fear of contracting COVID-19 increased. In addition, service restrictions to prevent crowds are also carried out strictly. This causes the waiting time to increase and the service of health workers to decrease. This study was conducted in a time setting when the pandemic experienced a peak in cases due to the delta variant so that patient satisfaction tends to decrease.

High risk communication will be able to improve the quality of nursing care provided to patients.<sup>18</sup> This study is able to explain that risk communication that is carried out properly tends to be 5 times higher in providing satisfaction for patients. The results of this study are in accordance with various studies both from Indonesia and outside Indonesia. A systematic review outside Indonesia conducted by Van De Water in 2020 found that detailed and clear risk communication regarding the risks and benefits of treatment, prognosis and possible disease complications can increase a good perception of satisfaction with health services provided and increase acceptance. the patient to the treatment that will be undertaken.<sup>19</sup> A study in Indonesia conducted by Syarief in 2020 helped explain the results of our study that there is a relationship between nurse therapeutic communication with inpatient satisfaction at the Tapen Health Center, Bondowoso District.<sup>20</sup> Risk communication is very important to do, especially for patients with internal diseases due to lifestyle risks. This is to increase the awareness of patients and families regarding disease risk factors as well as efforts to motivate patients and families in preventing disease complications holistically and treatment management to remain obedient and consistent to accelerate recovery. Risk communication that is carried out properly can empower patients to treat their illness independently.<sup>8</sup>

Another important element is to increase the number of doctors and nurses who are competent and proficient in their fields to provide services at the internal medicine polyclinic so that risk communication efforts can run optimally with the end result of increasing patient satisfaction. Other efforts should also be carried out such as providing a special room to carry out risk communication between nurses and patients before patients receive physical examinations and medical therapy by doctors. High risk communication is also related to high caring behavior so that patients will feel comfortable.

High caring behavior is able to create an attitude of caring, respect and inspiration for patients to act in improving the quality of life.<sup>11</sup> Our research is able to explain that nurses who provide services with high caring behavior tend to be 9 times more satisfied with patients. The results of our study are in accordance with several studies that exist in the country such as those conducted by Suweko and Warsito, successfully proving the caring behavior of nurses is related to the level of patient satisfaction in the inpatient room.<sup>21</sup> The research

conducted by Darmawan at the Klungkung Hospital was also able to explain the same thing.<sup>22</sup> Based on the description above, there is a consistent relationship between caring behavior and patient satisfaction. An important aspect to improve caring behavior can be started from the recruitment stage of hospital employees transparently to get the best officers in providing care and service to patients. This can affect the quality of hospital services which lead to an increase in the perception of patient satisfaction. It is also important to strengthen employee capacity through education and training in a synergistic and sustainable manner. Reward and punishment are also expected to be carried out to evaluate employee performance. Rewards can be given through increased incentives to improve welfare. This is very important and is the main aspect to improve the quality of service.<sup>10,23,24</sup>

Age is an important characteristic related to patient perception. Our research has proven that there is a relationship between age and patient satisfaction and patients aged over 45 years tend to be 4 times more satisfied with the services provided. The results of our study can be explained by the theory that the older a person is, the better his psychological and mental development process will be, but at a certain age, this mental development process is not as fast as when he was in his teens. Increasing age affects knowledge and obedience behavior. This can make patients over 45 years of age provide a higher level of tolerance for services. Patients are able to know the conditions that occur during the COVID-19 pandemic so that patients remain satisfied even though risk communication services and caring behavior are still low.<sup>25</sup> The results of our study are in accordance with one of the existing studies in Indonesia conducted by Hakim who succeeded in proving a relationship between age and patient satisfaction.<sup>25</sup> These results are due to the fact that the higher the age of the patient, the lower the desire or expectation to be achieved due to emotional maturity so that they tend to be more accepting.<sup>26</sup> The more mature the age, the ability to receive information will be more flexible so that the potential for complaints that occur tends to be lower.

Our study did not establish a significant relationship between education, occupation, and income with patient satisfaction. Specifically, occupation status and income were not significant factors in the final model of patient satisfaction. The results indicate that, while earlier models suggested possible associations, these were not supported in the final analysis. The findings of our study are consistent with previous research. For example, Roza Mulyani<sup>26</sup> and Hidayati<sup>27</sup> also found no significant link between education, occupation, and income with patient satisfaction. This suggests that these demographic factors may not be the primary drivers of patient satisfaction. Instead, factors such as risk communication and nurse caring behavior play a more critical role.

In the final model, risk communication and caring behavior were shown to significantly impact patient satisfaction, with high levels of both being associated with higher satisfaction. Risk communication had an adjusted odds ratio (aOR) of 5.2 (95% CI: 1.9-14.3,  $p=0.001$ ), and caring behavior had an aOR of 9.8 (95% CI: 3.7-26.0,  $p=0.000$ ). These results highlight the importance of these factors in enhancing patient satisfaction, whereas demographic characteristics like occupation and income did not show a significant impact in the final model. The lack of significance for occupation and income in the final model suggests that these factors might not be as influential as the quality of care provided, including risk communication and nurse caring behavior. This underscores the importance of focusing on improving care practices and communication strategies to enhance patient satisfaction, rather than relying solely on demographic variables.<sup>26-28</sup>

The weakness of our research lies in the instrument used because it was adopted from previous studies and

from related theories that are not yet appropriate in the context of the COVID-19 pandemic emergency situation. The statement in the questionnaire also only focuses on the evaluation of nurses and has not touched comprehensively related to health workers such as doctors and health administrators in hospitals even though aspects of patient satisfaction include roles and collaborations across professional sectors or health workers.

## CONCLUSION

Half of the patients experienced low satisfaction, risk communication and caring behavior. Risk communication and nurse caring behavior are related to patient satisfaction at internal medicine polyclinic in the Mangusada Regional Hospital, Badung District. This underscores the importance of focusing on improving care practices and communication strategies to enhance patient satisfaction. It also emphasizes the need to ensure the good ratio of health care workers to the number of patients in order to provide quality health services.

## COMPETING INTEREST

The authors declare that there is no potential conflict of interest with respect to this research, the authorship and/or publication of this manuscript.

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The study was self-funded.

## AUTHOR'S CONTRIBUTION

IDAMMA designed the study, developed methodologies and data collection tools, conducted data analysis and drafted the manuscript. PPJ and LSA critically reviewed all aspects of the research and assisted in drafting the manuscript. All authors have approved the final manuscript.

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