

# Recommendations on Teaching Methods Tailored to the Characteristics of Individual Nurses: The Relationship between Dislike of Preoperative Visits and Sense of Coherence

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## Abstract

*The purpose of this study is to make recommendations on providing specific educational support to new and inexperienced nurses in clinical settings without relying on experience. Operating room nurses who have an aversion to or dislike preoperative visits are being imparted with knowledge and skills. Still, how to support them in responding to the characteristics of their orientation needs to be clarified. The Sense of Coherence (SOC) questionnaire uniquely quantifies and visualizes an individual's orientation. Therefore, we examined individual educational methods by analyzing the trend of SOC scores according to the degree of dislike for preoperative visits. The participants consisted of operating room nurses from 25 domestic hospitals. The survey consisted of their dislike toward preoperative visits and SOC scores on 29 questions. The analysis consisted of splitting degrees of dislike into two groups and examining the differences in SOC points. We distributed 444 questionnaires, of which 196 received valid responses. Total SOC points were sorted by whether or not they felt wary, which indicated that those reporting dislike had a significantly lower score (Wary: 120.0, Not wary: 126.0,  $p$  value < .001).*

*Further, nurses reporting dislike were found to have lower scores and deviations in the balance of the three SOC sub-concepts (comprehensibility, manageability, and meaningfulness). The effect size of SOC on the dislike of the preoperative visits was 0.21. The group with an aversion to preoperative visits had significantly lower SOC points and deviations in the three SOC sub-concepts. Therefore, it is essential to provide support that works on the individual's intrinsic motivation according to their respective SOC balance rather than simply giving knowledge and skills.*

**Keywords:** Operating room nursing, Preoperative care, Sense of coherence

## 1. Introduction

### 1.1. Background

The purpose of this study is to make recommendations on the effectiveness of support for each individual's characteristics when teaching nurses in clinical practice. To achieve this

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purpose, this study was conducted among operating room nurses in Japan, focusing on the relationship between aversion to preoperative visits and personal characteristics. Prior research has shown that patients who are to undergo surgery experience anxiety [1], and people with no experience under anesthesia and those with negative feelings toward aesthetics have high levels of unease [2]. It has also been shown that reducing preoperative patient anxiety contributes to a faster postoperative recovery [3][4]. Alleviating patient anxiety during preoperative visits, gathering information about patients, developing a nursing plan, and practicing surgical nursing to provide support during the operation form part of a nurse's role in the operating room [5]. For medical safety, nurses assisting in the operation must know the patient before the operation to prevent patient mix-ups [6]. According to a survey of members by the Japanese Society of Operative Nurses, approximately 96.2% responded that they conduct preoperative visits [7], meaning that most medical facilities in Japan conduct preoperative visits to reduce anxiety and ensure the safety of patients undergoing surgery.

Not all operating room nurses feel positively about preoperative visits. A study surveyed attitudes toward preoperative visits and found that 95% of operating room nurses expressed a positive view of the significance and necessity of preoperative visits [8]. However, nurses with less than three years of experience stated they wanted to avoid performing preoperative visits (approximately 20%) or disliked talking to patients (approximately 25%). The results of a study conducted by Yoshikawa and Shirata [9] on operating room nurses' dislike of preoperative visits also indicated that approximately 30% of the patients disliked preoperative visits. The reasons were a lack of communication skills and a perceived lack of knowledge about preoperative visits. In addition, operating room nurses who felt uncomfortable with the visit tended to fear going to the ward and did not find the preoperative visit worthwhile. Preoperative visits are one of the many tasks of operating room nurses. Although they understand its necessity, some were uncomfortable performing them owing to a lack of confidence in their communication skills and knowledge, among other factors. There was an association between dislike of the preoperative visit and proactiveness toward the visits ( $\chi^2$  value: 12.0,  $p$ -value  $< .001$ ), and operating room nurses with a dislike of preoperative visits were found to be less proactive [9].

Given that preoperative visits serve to reduce patient anxiety and gather information to ensure a safe operation, operating room nurses who are uncomfortable with preoperative visits require support. As revealed in studies, one way to support operating room nurses who could be better at preoperative visits is to directly address their lack of knowledge about surgery and anesthesia and confidence in their communication skills to improve them. However, when giving direct instruction, one must consider an individual's understanding and orientation rather than providing standardized guidance. Every experienced nurse involved in teaching new nurses must have faced this problem. The importance of respecting individuality is mentioned, but the specific methods must be revised. Therefore, we decided to consider the particular situation of a dislike or difficulty with preoperative visits and propose that, by visualizing individual characteristics, it would be possible to provide practical guidance to new nurses when teaching them. To measure the characteristics of individual operating room nurses' perceptions of this difficulty, we examined their Sense of Coherence (SOC) [10]. SOC is "a life-world-wide orientation expressed by a person's ingrained, dynamic but persistent sense of certainty" [10]. In other words, it is "a sense that reflects a person's actual way of looking at, facing, and interacting with their world, which is made up of the interactions between the self, the subject, and others and the environment" [11]; it is a scale characterized by the fact that it is not merely a subjective view or emotion.

Further, SOC consists of three sub-concepts: compatibility, which relates to the cognitive aspect; manageability, which relates to the behavioral aspect; and meaningfulness, which relates to the emotional and motivational factors. Based on these characteristics of SOC, comparing the total scores on the SOC questionnaire can reveal the tendency to cope with stress. Therefore, we classified the patients into two groups according to their dislike for the preoperative visit and compared their SOC scores to determine any trend. We also analyzed the tendency of those in the group with difficulties to score on the sub-concept of SOC to obtain suggestions for educational support.

## **2. Methodology**

### **2.1. Survey methodology and participants**

The study sample consisted of approximately 700 hospital operating room nurses who provide preoperative visits to patients undergoing surgery under general anesthesia. The reasons for estimating the sample at 700 were as follows: For example, the sample size for the t-test was calculated using G power Ver. 3.1.9.2, with an effect size of 0.50, significance level of  $\alpha = 0.05$ , power of  $\beta = 0.80$ , and allocation ratio = 1. As a result, the sample size was 128, which is statistically significant. In Japan, studies on the response rate of questionnaires have reported a response rate of 20-30% for unpaid mail surveys [12]. Therefore, we estimated that approximately 700 participants would be necessary to obtain 128 responses when a response rate of approximately 20% is expected. Twenty-five facilities were randomly selected from hospitals across Japan. It was noted that this study was intended for nurses with experience with preoperative visits and assumed preoperative visits would be performed on patients over 20 years undergoing general anesthesia.

### **2.2. Date of collection and content of data**

August through October 2019. The survey included the following essential attributes of the patients: gender, age, years of nursing experience, and years of operating room experience. The Japanese version of the SOC questionnaire with 29 items (SOC-29) was used. We made participants choose from four levels of dislike: "Yes," "A little," "Not really," and "No."

### **2.3. Analysis**

Simple summaries were made of the nurses' attributes: gender, age, years of nursing experience, years of operating room experience, and total SOC scores or scores of the three sub-concepts. We split participants into two groups based on their level of dislike and compared the two. The effect sizes of each group and the SOC and sub-concepts were also analyzed. The questionnaire was multiple-choice. Any item that significantly deviated from the response field making it difficult to judge the accuracy of the response or a blank response, was treated as a missing value. Statistical analysis for this study was performed using IBM SPSS© Statistics version 26.

### **2.4. Definitions**

[Preoperative visits] An operating room nurse visits a patient undergoing surgery before the operation to ensure that the patient is physically and psychologically ready to undergo the operation. They must also explain and obtain consent for the nursing care in the operating room.

[Dislike for preoperative visits] Negative affective recall of feelings that the nurses are not good at performing preoperative visits and are anxious about doing them, which is caused by the operating room nurses' stress response to preoperative visits. This study refers to it as "dislike" unless otherwise stated.

## **2.5. Ethical considerations**

The survey ensured that the operating room nurses were kept anonymous so that no individuals could be identified. In addition, our request document clearly stated that responses were based on the free cooperation of the nurses, that no disadvantages would be caused by accepting or refusing to cooperate with the survey, and that the results would not be used for any purpose other than that of the survey and research. Consent to the survey was obtained by asking participants to return the questionnaire. This study received ethical approval from the Research Ethics Committee of the Faculty of Nursing, Japanese Red Cross Akita College of Nursing (No. 2019\_202).

## **3. Results**

### **3.1. Questionnaire response rate**

The questionnaire was distributed to 444 participants at 19 sites who agreed to participate in the study. Consequently, 208 people responded to the questionnaire, with a response rate of approximately 46.8%. There were 196 valid responses (valid response rate: 94.2%).

### **3.2. Participant attributes [Table 1]**

Of the 196 study participants, 28 (14.3%) were male and 168 (85.7%) were female, with a mean age of  $36.3 \pm 9.9$  years. The number of years of nursing experience was  $14.2 \pm 9.9$ , and the number of years of experience of operating room nurses was  $8.7 \pm 6.9$ .

### **3.3. SOC statistics [Table 1]**

The mean overall SOC total score was  $121.7 \pm 18.7$ , the sense of comprehensibility was  $41.7 \pm 6.3$ , the sense of manageability was  $43.4 \pm 7.8$ , and the sense of meaningfulness was  $36.7 \pm 7.5$ . The Cronbach's alpha coefficient for this study was .850.

### **3.4. Normality of total SOC points and sub-concept points**

To test the difference, the normality of the total SOC scores and the sub-concept scores were tested the Shapiro-Wilk test ( $p > .05$ ). The results of the normality tests were  $p=.023$  for SOC,  $p=.103$  for sense of comprehension,  $p=.002$  for sense of manageability, and  $p=.143$  for sense of meaningfulness. Thus, normality was rejected for SOC and sense of manageability, which had p-values less than 0.05, and a normal distribution was confirmed for sense of comprehension and sense of meaningfulness.

### **3.5. Amount of dislike and SOC difference [Table 2]**

Regarding the amount of dislike and SOC, it was assumed that there was a difference in the SOC or the three sub-concepts depending on the degree of dislike of preoperative visits. Differences were analyzed between the two groups, which were divided based on four levels of dislike ("Yes" and "A little" responses) and not dislike responses ("Not really" and "No"

responses). Significant differences were found for SOC and all three sub-concepts. The median SOC total score and the median score for the sense of manageability were 120.0 and 42.0 for the group with a sense of dislike and 126.0 and 45.5 for the group with no sense of dislike, indicating that the former tended to have lower scores (SOC: U-value = 3395.0,  $p < .002$ , meaningfulness: t-value = 2.02, variance = 194,  $p < .044$ ). The result of analyzing the effect size of SOC with the two groups that disliked the preoperative visit was .21. Additionally, no effect size greater than .20 was found in the three sub-concepts.

Table 1. Subject Attributes • Preoperative Visits • SOC Points (N=196)

Subject Attributes	No.	%			
Overall	196	100			
Gender					
Male	28	14.3			
Female	168	85.7			
Age					
20s	59	30.1			
30s	71	36.2			
40s	42	21.4			
The 50s and up	24	12.3			
No. of years as a nurse					
1	6	3.1			
2-3	25	12.8			
4-5	12	6.1			
6-10	43	21.9			
11-19	62	31.6			
20 or more	48	24.5			
No. of years in the operating room					
1	17	8.7			
2-3	39	19.9			
4-5	25	12.8			
6-10	48	24.4			
11-19	54	27.6			
20 or more	13	6.6			
Amount of dislike					
Yes	14	7.1			
A little	68	34.7			
Not really	78	39.8			
No	36	18.4			
		Total SOC	SOC subconcept points		
	No.	Average±Standard deviation	Comprehensibility Average±Standard deviation	Manageability Average±Standard deviation	Meaningfulness Average±Standard deviation
All	196	121.7±18.7	41.7±6.3	43.4±7.8	36.7±7.5
Male	28	121.5±18.1	43.3±5.6	43.6±8.1	34.6±7.6
Female	168	121.8±18.9	41.4±6.4	43.4±7.8	37.0±7.5

The average age was 36.3±9.9, the average number of years as a nurse was 14.2±9.9, and the average number of years as an operating room nurse was 8.7±6.9.

Table 2. Total SOC by dislike and the three sub-concepts (N=196)

	Total SOC							Effect Size(r)
	No.	%	U	Median (quartile deviation)	p	95% CI		
						Lower	Upper	
Dislike Yes group	82	41.8	3395.0	120.0(10.0)	.001**	113.6	120.8	.21
No group	114	58.2		126.0(11.1)		121.3	128.7	
SOC sub-concept points								
Manageability								
	No.	%	U	Median (quartile deviation)	p	95% CI		Effect Size(r)
						Lower	Upper	
Dislike Yes group	82	41.8	3507.0	42.0(4.5)	.003**	40.2	43.2	.19
No group	114	58.2		45.5(5.1)		43.0	46.1	
Comprehensibility								
	No.	%	t	Variance Average ±Standard deviation	p	95% CI		Effect Size(r)
						Lower	Upper	
Dislike Yes group	82	41.8	3.12	40.1±6.3	.002**	38.7	41.4	.20
No group	114	58.2		42.8±6.1		41.7	44.0	
Meaningfulness								
	No.	%	t	Variance Average ±Standard deviation	p	95% CI		Effect Size(r)
						Lower	Upper	
Dislike Yes group	82	41.8	2.02	35.4±6.6	.044*	34.0	36.9	.13
No group	114	58.2		37.6±8.0		36.1	44.0	

SOC, manageability: : Mann-Whitney-U test, comprehensibility, meaningfulness: t-test (\*p < .05, \*\*p < .01)

### 3.6. SOC trends in those with dislike

[Table 3] shows the trend in the SOC scores of the 14 respondents who disliked preoperative visits. Of the 14 respondents who responded "Yes" to having a sense of dislike, 12 scored lower than the SOC average for those who did not (average of 12 people: 106.5, group with not dislike: 126.0). We also charted the scoring trends of the SOC sub-concepts, and a representative example of the visual balance of the three sub-concepts is shown in [Figure 1-4].

### 3.7. Summary of results

There was a significant difference between the SOC and the three sub-concepts, with nurses who disliked preoperative visits tending to have lower scores on each. The nurses who disliked preoperative visits tended to have different sub-concepts, even if their SOC scores were approximate.

Table 3. SOC trends in those with dislike (n=14)

ID	No. of years as a nurse	No. of years in the operating room	Total SOC	SOC sub-concept points		
				Manageability Average±SD	Comprehensibility Average±SD	Meaningfulness Average±SD
35	1	1	134	52	43	39
49	1	1	111	41	39	31
104	2	2	120	45	41	34
75	7	2	98	37	32	29
163	7	6	121	46	39	36
60	8	2	99	30	42	27
165	8	3	126	49	33	44
56	8	4	117	46	35	36
183	8	6	114	42	40	32
166	10	2	102	37	43	22
164	10	7	124	45	36	43
146	15	11	118	46	34	38
6	22	15	117	40	44	33
111	30	10	96	34	32	30
Avg.	9.1	4.8	106.5	42.1	38.1	33.9

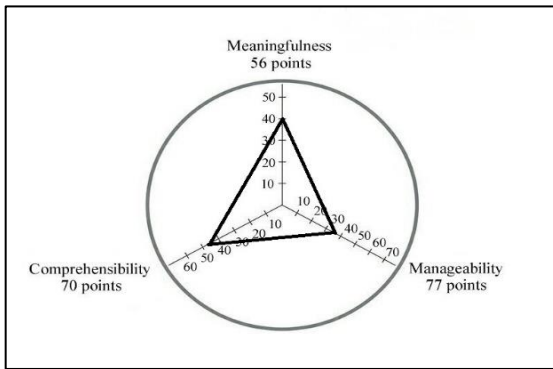


Figure. 1 ID 146 SOC points 118

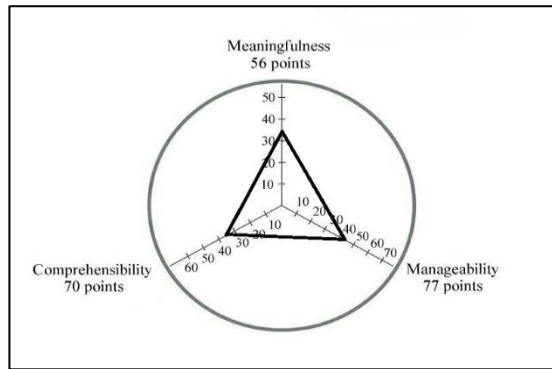


Figure.2 ID 56 SOC points 117

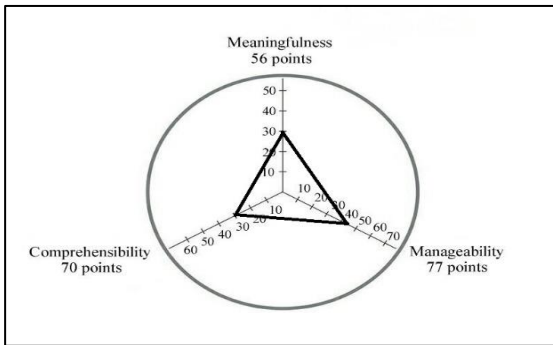


Figure. 3 ID 60 SOC points 99

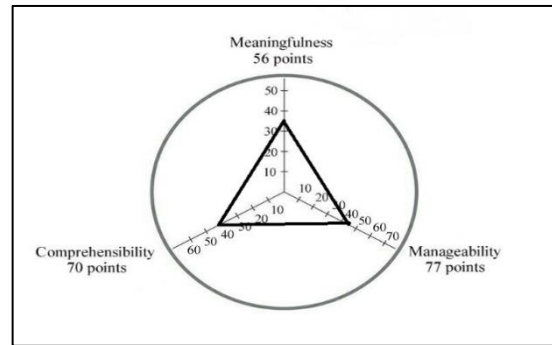


Figure. 4 The SOC balance of operating room nurses without a dislike (average) SOC points 126

## 4. Discussion

### 4.1. Dislike and SOC differences

Differences in total SOC scores and the three sub-concepts were analyzed for the two groups, and significant differences were found for all items. [Table 2] shows that nurses who disliked the preoperative visits tended to have a lower SOC, indicating their ability to cope with stress. Given that, in the study by Yoshikawa & Shirata, nurses who felt "fear of going to the preoperative visit" had a dislike for them, it is consistent that the nurses who had a dislike scored lower on total SOC than the group who did not [9]. Therefore, it should be possible to adjust the job support based on these SOC trends. However, given the 95% confidence interval value for the total SOC score, the difference in means is estimated to range from 0.7-15.1 points, and the difference between the two groups may be of little practical significance. Analysis of the effect size of SOC with the two groups who disliked preoperative visits was 0.21, suggesting that SOC may have a negligible effect on dislike. There are three reasons for suggesting that the substantive difference may be slight. The first is the possibility that the participants of this study had mental health difficulties. Studies have been conducted on nurses' SOC in terms of the mean SOC about levels of work-related anxiety [13], and the relationship between gender, mental status, and SOC scores [14], but none of these studies suggested significant differences. However, SOC is associated with Post Traumatic Stress Disorder (PTSD) [15] and burnout [16], and Japanese nurses are associated with burnout [17] and stress [18], suggesting that there is a relationship between mental health and SOC in nurses' performance. Therefore, it can be inferred that there is a need to understand their mental health status and compare the SOC scores. Second, the influence of attributional groups was also predicted. Antonovsky stated that the values and evaluations of work by individuals and society influence the formation of individual SOC [10]. Therefore, SOC may have a specific range of values with little variability because each person has an identity as a nurse and works according to a set of norms as part of a group of nurses. Identity refers to collecting an individual's societal roles [10]. Antonovsky states that those with a strong identity have a strong SOC [10]. It has been found that professional experience as a nurse influences the formation of a nurse's identity [19]. Therefore, the participants of this study had abundant years of nursing experience ( $14.2 \pm 9.9$ ), and it is possible that specific nurses were eliminated over the years, resulting in a trend of less variability in the SOC. The third possibility is that a single factor does not form SOC. Their formation is influenced by family upbringing, gender differences, and childhood experiences [20]. As it is not dependent on any single factor, it can be inferred that there is a possibility of not finding a significant difference in SOC using just the concept of dislike. It can be inferred from the above three reasons that there is a potential for further research on the relationship between dislike of preoperative visits and the trend in SOC scores. However, it is clear from the results that nurses who dislike preoperative visits tend to have lower SOC scores.

### 4.2. SOC trends in nurses with a sense of dislike

In this study, 14 nurses disliked their preoperative visits [Table 3]. The results of the sub-concepts for these 14 participants showed a tendency toward low scores for certain items shown in [Figures 1] and [Figure 2] and for all three sub-concepts demonstrated in [Figure 3] when compared to the mean shown in [Figure 4] of the group with no dislike. Ebina named the type with a prominent sense of comprehensibility, as shown in [Figure 2], as the "brain wave type" and described a coping method that involves seeking support when one feels it is



difficult to cope on one's own as they have a high ability to predict current and future situations but have low confidence and motivation to overcome difficulties [21]. In addition, as shown in [Figure 3], the type with a prominent sense of manageability is called the "confident type," and although they have confidence in their ability to cope with difficulties, they tend to be easily perturbed by sudden problems and have little motivation to overcome them; they should be advised to improve their ability to predict outcomes and consider the significance of facing difficulties. Thus, the tendency to cope with stress may differ even if the total SOC scores are similar. Understanding the balance between the three sub-concepts of SOC can be used in deciding the direction of self-improvement. It can be an indicator to guide support workers in helping operating room nurses who are feeling challenged. For operating room nurses who dislike preoperative visits for one reason or another, as in this study, intervention based on their individual SOC could improve their attitude.

### **4.3. Training support built upon SOC trends**

As people with high SOC tend to respond appropriately to stress at work [22], understanding one's SOC tendencies is expected to play an essential role in self-development and in receiving support from others [23].

For the reasons mentioned earlier, there are three aspects of SOC and life experience: consistent experience, experience with a balanced level of burden, and experience with participation in producing outcomes [20]. For example, "consistent experience" relates to having a sense of comprehensibility, for instance, by having clear criteria for evaluation in the workplace. In contrast, experience with a balanced level of burden relates to a sense of manageability by using the person's knowledge and resources to cope with external demands (burdens). Experience with participation in producing outcomes relates to a sense of meaningfulness, as it involves taking responsibility for the execution of one's task and having one's actions affect the outcome. Meaningfulness plays a vital role. Antonovsky states that high or low meaningfulness affects the sense of comprehensibility and manageability and, consequently, directs the rise or fall of SOC [10]. In this study, nurses who felt greater dislike tended to have a lower sense of meaningfulness [Table 2]. Based on these results, Antonovsky's SOC predictions, and the study as mentioned earlier by Yoshikawa and Shirata [9], it was hypothesized that nurses who felt fearful and unrewarded about performing preoperative visits tended to have lower total SOC scores, which may be related to a lower sense of meaningfulness. Therefore, feedback from experience with participation in producing outcomes in daily nursing practice is essential to training support. There are also multiple reports on the potential effectiveness of using SOC in educational settings. The results show that students with higher SOC scores are more motivated to learn [24] and have a better view of their work [25]. The results also show that professional involvement can improve SOC scores [26]. Thus, the SOC can be educational support for new and inexperienced nurses.

### **4.4. Limitations of this study and prospects**

Nurses who expressed dislike in the current study tended to have low SOC, including all three sub-concepts. However, other studies have reported that multiple factors influence the formation of SOC. In the present study, it is possible that various factors, other than disgust, influenced SOC. Therefore, it may be helpful to utilize SOC trends as individual trends rather than considering them from the perspective of awareness of a single task. As the trend of

SOC can be grasped by sub-concept scores, this information can be used to educate new nurses and other stakeholders by studying the trend monthly or yearly.

## 5. Conclusion

The purpose of the study was to make recommendations on providing educational support independent of experience and bias toward providing simple knowledge. Analysis of the results regarding aversion to preoperative visits revealed that the aversion group tended to have lower SOC and all three sub-concepts but suggested that substantive differences may be insignificant. However, nurses who reported dislike for preoperative visits showed a bias toward the three sub-concepts, even though they had similar SOC scores. As SOC is affected by life and work factors, it may be helpful to monitor SOC scores not only at a specific point but also on an ongoing basis to provide educational support to new nurses. Future studies must examine whether continuous monitoring of SOC scores, rather than just at specific points, can help provide educational support to new nurses and other stakeholders.

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