Patient Satisfaction in Postanesthesia Unit: Matched Study Participant Methodology

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Objectives: *The aim of this study is to determine patient satisfaction compared to nurse perception of patient satisfaction in Peri-anesthesia unit.* ***Background:*** *In 2014 American Society of Anesthesiology published guidelines stating standards for care for hyper- vigilance during perioperative patient assessments. Other policy publications focus on equipment and practices in this clinical setting. However, none of these sources provide an account of patient experience.* ***Methods:*** *This is a Prospective, convenience paired matched sampling study using Three multi- choice questionnaires were distributed to patients and nurses in this unit. Both nurse and patient questionnaires were distributed simultaneously and paired.* ***Results:*** *200 patients and total staff 30 nurses, 26 participated in the study- response rate 87%. Patients' perception showed highest level of satisfaction in nurses' listening. The nurses rated patients' satisfaction with communication and environmental conditions highest compared to other categories. The only significant difference between the nurses and patients' perceptions was in specific symptom communication, patients rated this lower satisfaction compared to nurses ranking this domain.* ***Conclusion:*** *In conclusion, similarity was found between nurses' and patients' ratings. This knowledge is relevant in raising awareness that nurses should be more vigilant evaluating and inquiring about peri-operative patients' symptoms.*

Keywords: patient satisfaction, postanesthesia unit, nurse–patient matched analysis, perioperative setting

INTRODUCTION

Policy and Standards for Postanesthesia Care have been recommended by the American society of anesthesiology (Apfelbaum et al., 2013). These standards regarding postanesthesia management include transport guidelines, hemostatic and respiratory vigilance regulations, and physician and nurse responsibilities (Apfelbaum et al., 2013). There are other sources of policy and procedure information about the postanesthesia unit environment published on hospital websites (Royal Melbourne Children's Hospital 2019). These publications focus on the equipment and routine practices occurring in this clinical setting. However, none of these sources provide an account of patient experience.

In the 2013 guidelines of standards for care, consultants and American Society of Anesthesiology members documented that hypervigilance during perioperative assessment of patients' hydration status, breathing, airway, consciousness, pain assessments, and fluid management reduces adverse outcomes and improves patient comfort and satisfaction (Apfelbaum et al., 2013). In addition, pharmacologic prophylaxis of nausea and vomiting the perioperative maintenance of normo-thermia and the use of forced-air

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http://dx.doi.org/10.1891/WFCCN-D-20-00024

warming reduce shivering and improve improves patient comfort and satisfaction and reduces time to discharge, and should be done selectively (Apfelbaum et al., 2013). These guidelines suggested that during the initial 15 minutes in the post anesthesia care unit (PACUs), one nurse should be caring exclusively for one patient to ensure the patient receives attention and avoid interruptions (Apfelbaum et al., 2013). A key element to delivering collaborative, quality, patient-centered care and improving outcomes is effective communication (Suter et al., 2019; Torres, 2009). There is very limited published literature on patient satisfaction in PACU.

The PACU area is a concern for patient safety because it has been identified as high risk for error largely due to the number of patients entering and exiting the preoperative, intra-operative, and postoperative areas (Segall et al., 2012).

In addition, the probability of compromising patient safety increases when anesthesia providers rush through the handoff process to begin the next case on time (Lambert, 2018). The highly trained nurses are skilled in identification and quick evaluation of vital signs and impending complications, which patients are not aware of. The goals of investigating patient satisfaction are to collaborate with patients in order to, continuously improve patient outcomes and experience; however, few studies have successfully explored the recovery room—postanesthesia unit setting. There are a number of studies exploring patient satisfaction in the PACU. The studies explored patient satisfaction and prewarming, (Akhtar et al., 2016), reducing noise level (Morgan & Stiglianese, 2018), and shortening lab results waiting time (Guerzon et al., 2019). Very few published studies were found exploring patient satisfaction from nursing care,. A U.S. pre–post nterventional study was preformed to compare patient satisfaction levels before and after moving to a new unit. The patients' reported increased satisfaction 70%–90% as a result of nurse information provided before surgery (Ziffra et al., 2017). No published papers were found matching nurse–patient satisfaction from nursing care in the postanesthesia unit.

The aim of this study was to explore patient satisfaction compared to nurse perception of patient satisfaction in PACU.

METHODS

This study is a prospective, convenience paired matched sampling design. The study was reported according to the STrengthening the Reporting of OBservational studies checklist of items in reports of case-control studies (STROBE) checklist (Von Elm et al., 2007).

Three different paper self-administered multichoice questionnaires were distributed to patients by the unit secretary and volunteers during morning and evening shifts in an urban level 1 university hospital before patient discharge from PACU to hospital department. The unit secretary and volunteers were chosen to distribute this article questionnaire as not to bias the patients and perhaps cause them discomfort about scoring nursing care if a nurse would distribute the questionnaire. Both nurse and patient questionnaires were distributed simultaneously by the unit secretary and volunteers during and paired.

1. Questionnaire #1 was derived from a national ministry of health survey distributed to all hospitalized patients (in a variety of clinical settings) in the country containing 27 questions. These results are published yearly (Ministry of Health Singapore, 2015). Pilot testing was preformed and found these questions fitting for use in postanesthesia unit. Patients' questionnaire validity ranges from Cronbach α .733–.830. This questionnaire had 23 general satisfaction from nursing care statements which could be scored using Likert scale form 0 (I do not agree at all) to 10 (I agree very much).). The questions encompass five main domains; general communication with the nurse, specific

symptom communication with the nurse, availability of the nurse, nurse attitude toward family members, and recovery conditions. Sample questions included "the nurse explained to me about the equipment attached to me" "the nurse offered me treatment to alleviate my nausea."

2. Nurses' questionnaire investigating their perception of each patient' satisfaction. Nurses' questionnaire validity ranges from Cronbach α .725–.855.
3. Nurse demographic questionnaire. Sample questions included, age, gender, marital status years of experience, and years working in PACU.
4. Patients demographics included gender, marital status, education and level and religiosity.

Patient sample size calculation–200 patients based on published results from Ministry of health 2015 survey results (Ministry of Health Singapore, 2015). The ministry of health calculated the power analysis by calculating the weight construction which was based on the volume of activity in each of the three types departments: Internal, surgical, and other in each of the 24 hospitals surveyed. The power analysis resulted in 200 patients from each department from each hospital.

Nurse population—Total staff 30 nurses, 26 participated in the study-response rate 87%.

Inclusion criteria—Adults over 18 years of age, literacy in local language, and ability to read questionnaire.

Exclusion criteria —Ventilated, sedated, inability to read questionnaire, nonproficiency in local language. In order to prevent one nurse being the only nurse participating and adequate description of nursing population demographics, all nurses received pretrial randomized assigned identification code. All nurse questionnaires were precoded for several reasons. First so that anonymity would be secure and secondly so that each nurse questionnaire could be matched to patient questionnaires without using nurse' names.

Prepaired files with all questionnaires—each file was coded and paired. A research assistant distributed questionnaires to patients and nurses simultaneously. Data were coded into excel files.

Ethical Approval—Prior to the distribution of this survey, we obtained approval from the hospital Institutional Review Board.

Data Analysis

The descriptive statistics of the main factors were calculated in the questionnaire. These data is demonstrated by mean values, and standard deviations (*SD*s). In order to examine differences between the patients "perception and the nurses" perception of the satisfaction factors from the recovery experience, *t* tests were conducted. In order to better understand which factors in the patient experience are most strongly linked to overall satisfaction, a linear regression analysis was conducted to predict the overall score using the five main domains.

RESULTS

One hundred and thirty one patients participated in the study. The sample included 61% female, 66% married, 74% secular, and 35.7% have a college degree (Table 1). The 26 nurses participating in the study included 80.7% females, 76.9% married, average years as a nurse = 9.96 years and 5.01 years in the current unit, and 60% were between ages of 20 and 40 years old (Table 2).

Patients

From the patients' perception, the highest satisfaction was from the nurses' high level of listening (9.75, *SD* = 0.96), the fact that the nurse has an understanding of the patient's situation (9.66, *SD* = 1.38), and that the nurse responded at a reasonable time to the patient's call (9.55, *SD* = 1.51). Patients also rated high satisfaction with nurses' communication, education, and

TABLE 1. Patient Demographics (*N* = 131)

Variable		%	*N*
Gender	Female	61	80
	Male	39	51
Marital status	Single	19.7	26
	Married	66.1	87
	Divorced	3.0	4
	Widower	10.2	13
	Other	1.0	1
Religiosity	Secular	74	97
	Religious	2.4	3
	Traditional	20.5	27
	Ultra-orthodox	3.1	4
Educational level	High school education	12.7	17
	High school education with matriculation	27	35
	Tertiary education	24.6	33
	Academic education	35.7	46

TABLE 2. Nurses Demographics (*N* = 26)

Variable		%	*N*
Gender	Female	80.77	21
	Male	19.23	5
Marital status	Single	23.08	6
	Married	76.92	20
Age group			*N*
20–30		35	9
31–40		25	7
41–50		30	8
51–60		10	2

guidance—nurses' instructions regarding administration of pain medication (8.64, *SD* = 2.94), and nurses' caring toward family members (mean 8.81) were high. In contrast, low satisfaction was expressed in nurses' response to the specific symptoms nausea and vomiting (6.64, *SD* = 4.55).

In order to better understand which factors in which patient experience are most closely related to overall satisfaction, a linear regression calculation was performed.

The factor that most influenced patient satisfaction was specific communication with the nurse about symptoms (r = 0.643) (Table 3).

In order to examine the differences between the perception of the patients and nurses as to the factors of satisfaction with the recovery experience, t tests were calculated. The findings show a high similarity between how patients perceive the recovery experience and how nurses perceive it. The only difference between the nurses and the patients' perceptions was in specific communication with the nurse about symptoms, with patients rated this as having lower satisfaction (7.23) compared to how the nurses ranked this domain (8.90) ($p < .05$) (Table 4).

Nurses

As shown in Table 4, the nurses rated patients' satisfaction with general communication (mean 9.40), and satisfaction with environmental conditions (mean 9.32) was the highest compared to other domains.

In addition, satisfaction with nurse availability (mean 9.04), and the relationship towards relatives (mean 8.97) was high (Table 4).

DISCUSSION

Overall our patient population level satisfaction of nursing care in the perioperative environment

TABLE 3. Regression Coefficients for Predicting Patients' General Satisfaction

	p	*t*	Beta+	Std. Error	B*
General communication with the nurse	<.001	28.193	0.268	0.010	0.276
Nurses' response to specific symptom complaints	<.001	77.997	0.643	0.004	0.346
Availability of nurses	<.001	27.099	0.219	0.005	0.144
Nurses' attitude to relatives	<.001	14.938	0.131	0.006	0.086
Environmental conditions	<.001	16.722	0.136	0.009	0.156

Note. Beta + standardized coefficient and demonstrates strength of the connection B* unstandardized.

TABLE 4. Comparison of Satisfaction Factors from the Perspective of Patients and Nurses

	Difference	Nurse	Patients	
General communication with the nurse	0.232	9.40	9.17	NS
Nurses' response to specific symptom complaints	0.013	8.90	7.23	$P < .05$
Availability of nurses	0.140	9.04	8.69	NS
Nurses' attitude to relatives	0.861	8.97	8.81	NS
Environmental conditions	0.722	9.32	9.01	NS

is high. This matched patient–nurse exploration demonstrates close nurse prediction on the level of patient satisfaction in the postanesthesia recovery room.

Some studies report that timing of the satisfaction survey distribution may also influence results (Arias-Botero & Padrón-Mercado, 2017; Suhonen et al., 2012; You et al., 2013). Many surveys are conducted early after surgery or before discharge from hospital. This may produce different findings from surveys conducted several days or weeks later. Such assessments are less likely to reflect immediate perceptions and are more likely to be influenced by aspects of clinical recovery and the success of the procedure (You et al., 2013).

Similarities in perceptions of satisfaction between patients and nurses have been published in previous studies in different patient populations, postanesthesia units and surgical wards (Arias-Botero & Padrón-Mercado, 2017; Suhonen et al., 2012). Specific perioperative domains and patient satisfaction have been previously explored. A trial comparing forced-air prewarming and patient satisfaction after outpatient surgery and to evaluate the effect on core temperature and thermal comfort. Patients had higher level of satisfaction and thermal comfort scores when prewarmed (Akhtar et al., 2016). A U.S. 2018 study found higher patient and family satisfaction when noise level was reduced (Morgan & Stiglianese, 2018).

When considering treatment decisions, it appears that the intensity of postoperative acute pain is not necessarily proportional to the magnitude of the surgery performed, as it may be affected by the patient's expectations and the range of analgesic techniques. Postoperative pain after ambulatory surgery, in particular, is often much more intense than anticipated and is the main cause of hospital readmission (Coluzzi et al., 2011). An absence of adverse effects and adequate analgesia are the main determinants of satisfaction in these patients (Coluzzi et al., 2011). The cur-

rent study found that patients are very satisfied with nurses' treatment of pain and speed in which nurses responded.

A multicountry Czech Republic, Cyprus, Finland, Greece, and Hungary study found postsurgery patients were most satisfied with technical aspects of care and less with the information given. There were differences between country in patients' perceptions of individuality in care and patient satisfaction. A positive correlation between the level of individualized care received and patient satisfaction was found, confirming that customized nursing care delivery influences patients' satisfaction with care and demonstrating that this quality of care indicator might be able to be used as a predictor of patient satisfaction, one outcome of care (Suhonen et al., 2012). This confirms the findings in our study, that patients reported low satisfaction with specific symptom management and would be more satisfied with higher nurse attentiveness to specific symptoms.

A Colombian study found that the nurses reported lack of time to focus on patient care tasks due to a heavy administrative burden. It is indeed contradictory that the staff with the major responsibilities in providing patient care and top-level training has less patient contact (Arias-Botero & Padrón-Mercado, 2017). This study exploring recovery room nurses' perception of their professional role found that PACU is a clinical setting providing intensive patient care with weak processes such as patient handover and monitoring, and low team communications among care providers. However, work overload, extended administrative tasks take away focus from patient care are all conducive to the occurrence of adverse events (Arias-Botero & Padrón-Mercado, 2017). Although our study did not explore the reasons for nurses' or patient perception of lower satisfaction, the Columbian study might explain these perceptions (Arias-Botero & Padrón-Mercado, 2017). Lack of satisfaction may be explained by barriers to communication which were identified between surgeons, anesthesiologists, and nurses. These deficits may be due to the absence of structured information reporting systems PACU nurses report a lack of time to focus on patient care tasks due to a heavy administrative burden

LIMITATIONS

This is a single center study with a limited number of PACU nurses. The methodology would be stronger if we could have performed the study in multiple PACU units in different cities and countries. In addition, the patient satisfaction self-administered questionnaire has been used with patients in surgical and internal medicine departments and never used before among perioperative population of patients.

CONCLUSION

Similarity was found between nurses' ratings and patient ratings. This reflects a high nurse sensitivity and promptness in fulfilling patient expectations and providing competent care. Regarding patients' perception of nurses' communication about specific symptoms, this practice needs to be targeted with improvement initiatives. Nurses need to take into account that in addition to pain, patients feel other symptoms like nausea, and vomiting and nurses need to increase their vigilance.

Relevance to Clinical Practice

Perioperative nurses should be hypervigilance in evaluating a range of postoperative patients' symptoms. Nurses working in postanesthesia units should explore patient perceptions regarding their PACU experience and adjust their practice accordingly.

REFERENCES

Akhtar, Z., Hesler, B. D., Fiffick, A. N., Mascha, E. J., Sessler, D. I., Kurz, A., Ayad, S., & Saager, L. (2016). A randomized trial of prewarming on patient satisfaction and thermal comfort in outpatient surgery. *Journal of Clinical Anesthesia*, *33*, 376–385. https://doi.org/10.1016/j.jclinane.2016.04.041

Apfelbaum, J., Silverstein, J., Chung, F., Connis, R. T., Fillmore, R. B., Hunt, S. E., Nickinovich, D. G., Schreiner, M. S., Silverstein, J. H., Apfelbaum, J. L., Barlow, J. C., Chung, F. F., Connis, R. T., Fillmore, R. B., Hunt, S. E., Joas, T. A., Nickinovich, D. G., & Schreiner, M. S. (2013). Practice guidelines for postanesthetic care an updated report by the American society of anesthesiologist's task force on postanesthetic care. *Anesthesiology: The Journal of the American Society of Anesthesiologists*, *118*(2), 291–307. https://doi.org/10.1097/ALN.0b013e31827773e9

Arias-Botero, J., & Padrón-Mercado, C. (2017). Portrayal of the performance of the postanesthesia care unit, based on the perception of the professional nursing staffs. *Revista Colombiana de Anestesiología*, *45*, 16–23. https://doi.org/10.1016/j.rcae.2017.09.008

Coluzzi, F., Bragazzi, L., Di, E., Pizza, G., & Mattia, C. (2011). Determinants of patient satisfaction in postoperative pain management following hand ambulatory day-surgery. *Minerva Medical*, *102*(3), 177–186.

Guerzon, I., Martin, D., Vy, S., DeSilva, R., Seabra, T., Mascetta, A., Reidy, P., Buranasombati, G., & PI, J. A. (2019). Increasing patient satisfaction by decreasing turnaround time for lab results. *Journal of PeriAnesthesia Nursing*, *34*(4), e23. https://doi.org/10.1016/j.jopan.2019.05.061

Lambert, L. H. (2018). Improved anesthesia handoff after implementation of the written handoff anesthesia tool (WHAT). *AANA Journal*, *86*(5), 361–370.

Ministry of Health Singapore. (2015). Yearly survey. https://www.moh.gov.sg/news-highlights/details/2015-survey-of-patient-satisfaction-with-public-healthcare-institutions

Morgan, K., & Stiglianese, C. (2018). Operation: Shhh! reducing noise in the PACU. *Journal of PeriAnesthesia Nursing*, *33*(4), e3–e4. https://doi.org/10.1016/j.jopan.2018.06.011

Royal Melbourne Children's Hospital; Australia. (2019). https://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/

Segall, N., Bonifacio, A., Schroeder, R., Barbeito, A., Rogers, D., Thornlow, D. K., Emery, J., Kellum, S., Wright, M. C., Mark, J. B., & Durham, V. A. (2012). Can we make postoperative patient handovers safer? A systematic review of literature. *Anesthesia & Analgesia*, *115*(1), 102–115. https://doi.org/10.1213/ANE.0b013e318253af4b

Suhonen, R., Papastavrou, E., Efstathiou, G., Tsangari, H., Jarosova, D., Leino-Kilpi, H., Patiraki, E., Karlou, C., Balogh, Z., & Merkouris, A. (2012). Patient satisfaction as an outcome of individualised nursing care. *Scandinavian Journal of Caring Sciences*, *26*(2), 372–380. https://doi.org/10.1111/j.1471-6712.2011.00943.x

Suter, E., Arndt, J., Arthur, N., Parboosingh, J., Taylor, E., & Deutschlander, S. (2009). Role understanding and effective communication as core competencies for collaborative practice. *Journal of Intrapersonal Care*, *23*(1), 41–51. www.splashcap.com/JCAHO_2006-NPSG-3D.pdf (2009)

Torres S. Impact of hand-off communication on fall reduction in an inpatient setting https://gradworks.umi.com/33/69/3369479.html (2009, accessed 15 September 2019)

Von Elm, E., Altman, D., Egger, M., Pocock, J. S., Gøtzsche, P. C., & Vandenbroucke, J. P. (2007). The strengthening the reporting of observational studies in epidemiology (STROBE) statement: Guidelines for reporting observational studies. *Annals of Internal Medicine*, *147*(8), 573–577. https://doi.org/10.7326/0003-4819-147-8-200710160-00010

You M., Aiken L., Sloane et al. (2013). Hospital nursing, care quality, and patient satisfaction: cross-sectional surveys of nurses and patients in hospitals in China and Europe. *International Journal of Nursing Studies,* 50(2), 154–161.

Ziffra, D., Acousta, N., & Feniza, E. (2017). New day surgery unit: Patient centered care. *Journal of PeriAnesthesia Nursing*, *32*(4), e13–e14. https://doi.org/10.1016/j.jopan.2017.06.063

Disclosure. The authors have no relevant financial interest or affiliations with any commercial interests related to the subjects discussed within this article.

Funding. The author(s) received no specific grant or financial support for the research, authorship, and/or publication of this article.