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A Comparative Analysis of Patient Satisfaction with In-house and Contractual Dietary Services in Hospitals in Chandigarh

Ishan Bakshi, Suresh Chauhan*, Madhu Arora and Rekha Kaushik

MMICT and BM (Hotel Management), Maharishi Markandeshwar (Deemed to be University), Mullana-Ambala, Haryana, India

***Correspondence to:**
Suresh Chauhan
MMICT and BM (Hotel Management),
Maharishi Markandeshwar
(Deemed to be University),
Mullana-Ambala, Haryana, India.
E-mail: sureshshyama2003@gmail.com

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Abstract

Diet is incredibly important for treating patients and managing numerous illnesses. A well-balanced diet requires considerable expertise and forethought to produce. Along with contributing to chronic degenerative diseases including cancer, diabetes, and cardiovascular disease, inadequate and inappropriate diets are to blame for under nutrition. In hospitals, patient satisfaction with dietary services is also considered when determining the caliber of the facilities' food services. The quality of the meal, sanitation, warmth, texture, and other factors are just a few that might affect how satisfied a patient is. Patients who consume contaminated food run the risk of developing additional ailments, whilst those who consume poor-quality food would not receive the proper nourishment. In addition to meeting patients' nutritional demands, the food served in hospitals must be nutritious and appropriate for their clinical needs. A patient who is satisfied reacts to the clinical treatment considerably better than one who is not. Thus, using patient happiness as the standard for nutritional services is considered as a key component of improving the health care system, along with the growth of other sectors. In order to ascertain how satisfied patients are with the contractual and at-house dietary services offered to them in Chandigarh hospitals, the current study was carried out.

Keywords

Diet, Food, Hospitals, Patients, Dietary services, Satisfaction

Introduction

Food is essential for managing several conditions and raising the satisfactory level. Patients receive excellent food counseling and medical nutrition therapy from the department of dietetics and nutrition. The foods you are allowed to eat while in the hospital are chosen by the dietitian in consultation with the treating physician. Unless the doctor or dietician advises differently, it is advised that patients only consume the foods that have been prescribed by the dietician. It contributes significantly to the enjoyment of patients, visitors, and hospital personnel and has a positive impact on the treatment and speedy recovery of patients.

Nutritional food that is provided in sufficient quantity and variety, at the right time, and with sufficient nutritional quality can significantly speed up patients' recovery from illness or injury [1]. However, if the meal is not suitable for the patient's condition, is of poor quality, tastes terrible, or is prepared improperly, it may have a negative effect on the client and, more importantly, may harm the hospital's reputation. This is one of the services that, except the medical center itself, has drawn the most negative feedback. The hospital management needs to keep a closer eye on quality control to make sure it is constantly upheld. The hospital food service department and the restaurant food service department are very similar, with a few variances. Every hospital must provide one of two different

types of diet kitchens to accommodate patients who need special or modified diets [2]. The first is a dedicated diet kitchen that caters to patients with unique dietary needs. Within the main kitchen is a separate diet kitchen, which is the second feature. The way food is served in the cafeteria is another illustration. Most hospitals have an automatic cash and carry system in place [3]. The meal options and the way the meals are delivered are the only two key distinctions between the two programs. Patients are typically not given the chance to choose their own meals when they are admitted to the hospital. Trays or hot food carriers are frequently utilized to bring meals to patients' rooms, and in this case, cyclic menus are typically used. While in the rooms, visitors and patient attendants are not given food. The layout and physical facilities of the food service department are crucial to providing the best cuisine at a price that complies with hospital policy. They have a significant impact on the hospital's regular meal service.

Literature Review

The literature discussed in the passage underscores the critical importance of patient satisfaction in the healthcare industry, with a particular focus on the significance of hospital food services.

Patient happiness is identified as a top priority for medical practitioners, acknowledged for various reasons [4]. The passage draws attention to the role of food in hospitals, emphasizing that it plays a crucial part in an integrated program to enhance nutritional care, a perspective supported by the Scottish Government in 2008. Adequate food, beverage, and nutritional care in hospitals are deemed essential to address nutritional risk, promote well-being, and optimize the overall clinical treatment of patients. Providing well-balanced meals to patients in hospital settings, recognizes that food service is integral to their recovery process [5]. Moreover, hospital food service can serve as a strategic tool to gain a competitive edge in the highly competitive healthcare industry [6].

The quality of hospital food service is emphasized as a critical indicator of healthcare quality in the eyes of patients and their families. Hospital nutrition in modern therapy across medical fields, encompassing various dietary approaches, includes "normal" diets based on current nutrition research, dietetic foods, and artificial nutrition [7]. The dietary department's primary goal is to support optimal nutritional consumption, health, and overall quality of life for patients. Patient satisfaction is highlighted as the most significant factor influencing a patient's perception of the healthcare they received, a perspective supported by several studies [3].

Patient satisfaction is a crucial proxy for evaluating the effectiveness of medical practice [8]. Patients increasingly desire participation in their healthcare management and expect a higher level of commitment and care from their healthcare providers. This shift in patient expectations has prompted healthcare providers to update their marketing approaches and place a greater emphasis on customer satisfaction and experience [9]. Patients now seek more control over their healthcare, a trend influenced by the patient-centered healthcare reform [10].

Satisfaction with healthcare services is noted as a fundamental measure of overall service quality [11]. Understanding patient satisfaction requires a thorough analysis of factors that influence it [12]. Assessing patient satisfaction with hospital food services, as proposed by Jonsson et al. [13], has become a popular method to gauge whether patients' meal expectations are met. Most patients are satisfied with the professional services provided by their doctors, although they tend to evaluate the cleanliness of healthcare facilities critically [14].

The passage highlights the critical role of high-quality hospital food services in supplying energy and nutrients to hospitalized patients, with Safarian et al. [15] emphasizing that all patients complete their nutritional requirements through consuming hospital meals. Lund and Obrien [16] stress the significance of safe and high-quality meals in a patient's overall recovery care. Osman et al. [17] underscore the importance of maintaining a consistent meal plan in hospitals to accommodate the varying nutritional needs of patients while minimizing disruptions.

Patient satisfaction is viewed as a vital statistic in evaluating the overall quality of healthcare services, influencing the timely, efficient, and patient-centered delivery of high-quality healthcare services and products [18]. Individuals who are satisfied with their hospital nutritional services are more likely to share their positive experiences, potentially benefiting healthcare organizations by attracting new patients [19].

Research by Petrescu et al. [20] highlights that the perception of food quality is influenced by factors such as meal taste, diversity, flavor, meat and vegetable texture, and the perception of eating a nutritious meal. Additionally, various studies have identified a correlation between enhancing the patient experience and improving treatment outcomes [21].

The passage concludes by noting that patients have adopted a more consumer-oriented role in their healthcare decisions, and hospitals and healthcare organizations must ensure that patients are not only satisfied with their treatment but also with how they are treated as individuals. Food services in hospitals are recognized as a critical component of this equation. As a result, some hospitals are exploring outdoor services or in-house catering to enhance customer satisfaction levels. The forthcoming study aims to shed light on both service approaches, assess their quality levels, and determine customer satisfaction, ultimately striving to provide a comparative analysis of in-house and outsourced catering services.

Objectives of the Study

The primary objective of the study was to compare the level of satisfaction of patients with regards to contractual and in-house dietary services provided to them in different hospitals in Chandigarh region.

Methodology

This study was conducted in the premises of Tricity, including Chandigarh, Mohali, and Panchkula, in which 3 private hospitals were selected. A one sample t-test was applied on 20 dietary services provided to the patients at differ-

ent hospitals. The analyses and the results of the test applied along with its interpretation are presented below. The study was based on primary data and the data collection was done through the survey questionnaire with close ended questions. The questionnaire was framed in Hindi and English language with dietary services as research variables along with the questions that were framed to determine the level of satisfaction of patients with food items. The target population for the study involved house patients admitted in different wards of the hospitals. The sampling technique applied was a convenience sampling technique. This was carried out on a first come first serve basis as only those participants were taken into consideration who were willing to participate in the survey.

The survey questionnaire was distributed to 113 patients in total. It was found that 23 out of 113 completed questionnaires had been mistaken when they were all checked for missing data, incompleteness, or inaccurate completion. Such questionnaires were not used in the study to assure the accuracy and significance of the findings. So, a final sample size of 90 was used and after organizing was entered into IBM SPSS software version 26 for subsequent analysis. The tests applied were one sample t-test paired t-test, and GAP analysis.

Results and Discussion

To achieve the research objective, hypothesis H_0 i.e., "There is no significant difference between the in-house and contractual dietary services" was formulated and tested. A paired t-test and a GAP analysis were conducted to ascertain the differences in the mean patient perception of the in-house and contractual dietary services that were offered to them at hospitals to test the aforementioned hypothesis. Table 1 below presents descriptive statistics, including mean, standard deviation, and standard error mean, together with the outcomes of the paired sample t-test, along with the mean patient perception of the nutritional services.

The average score for the dietary services in figure 1 below shows that, with regard to the contractual dietary services provided by the hospital in Chandigarh, the dietary services with a significantly high mean were "Food was served calmly" (4.1111), "Appearance of food was good" (4.1111), and "Food served at the appropriate temperature" (4.0667); the dietary services with a relatively medium mean score were "Allergy to specific foods considered" (3.9333); and "Satisfied with the time of the food service" (3.8556). Similar to this, the dietary services with the lowest mean scores were "Short haircut of the food server" (3.3333), "Aroma of food was good" (3.4222), "Beard shaved of the food server" (3.3556), "Quantity of food was enough" (3.3555), and "Nails trimmed short of the food server" (3.2444).

Similarly, figure 2 above showing the average score for the nutritional services makes it clear that, in terms of the in-house dietary services, "Quantity of food was enough", "Taste of the meal was good", "Aroma of food was good", and "Satisfied with cleanliness of cutlery" all had significantly high means scores. "Food server looked neat" (4.0889), "Food server was wearing a cap" (4.0889), "Food server was wearing gloves while serving food" (4.0889), "Food served at the

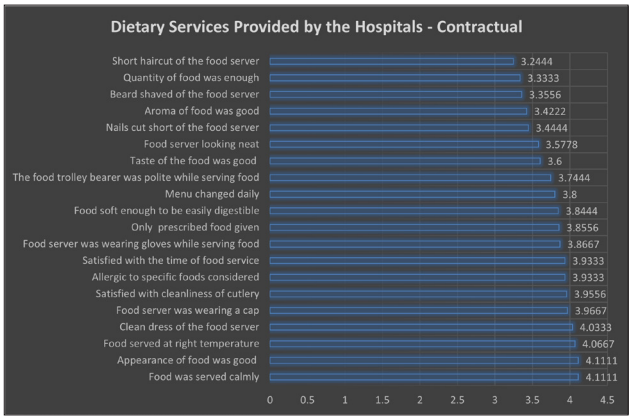

Figure 1: Mean scores of contractual dietary services provided by the hospitals.

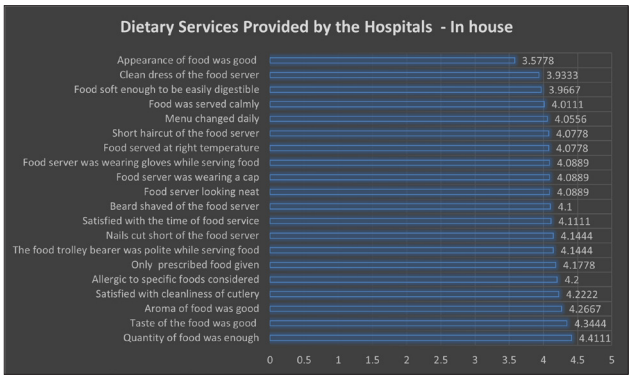

Figure 2: Mean scores of in-house dietary services provided by the hospitals.

proper temperature" (4.0778), and "Short haircut of the food server" earned relatively middling mean scores for dietary services (4.0778). Similar to this, the two dietary services with the lowest mean scores were" Clean dress of the food server" (3.9333) and "Appearance of food was good" (3.5778).

To determine the differences between the in-house and contractual dietary services, GAP analysis was done. It is done by subtracting the mean values of in-house dietary services and contractual dietary services provided to the patients admitted in hospitals in Chandigarh. The GAP analysis from table 1 above showed that for majority of the responses the mean score of in-house dietary services was high as compared to the contractual dietary services. This concludes that most of the patients have higher positive perception about the in-house dietary services as compared to the contractual dietary services provided at hospitals in Chandigarh. The difference between the in-house dietary services and contractual dietary services is clearly visible from figure 3 above. The data displayed in table 1 above describe the paired differences with regards to the statistical inferences of the test applied. The data shows that the p value of 7 out of 20 dietary services was not statistically significant i.e., $p > 0.05$ which means that there was no significant difference in these 7 in-house and contractual dietary services. These 7 dietary services were "Food served at right temperature" ($t(89) = -0.085$, $(p = 0.932)$); "Food soft enough to be easily digestible" ($t(89) = -0.807$, $(p = 0.422)$); "Satisfied with the time of food service" ($t(89) = -1.552$, $(p = 0.124)$); "Food

Table 1: Paired samples statistics for difference between the in-house and contractual dietary services.

Pairs	Dietary services	Mean	N	Paired differences			t	df	p value
				Mean	SD	SEM			
P1	Taste of the food was good	3.6	90	-0.74	1	0.11	-6.4	89	0
	Taste of the food was good	4.3							
P2	Appearance of food was good	4.1	90	0.53	1.39	0.14	3.6	89	0
	Appearance of food was good	3.5							
P3	Quantity of food was enough	3.3	90	-1.07	1.32	0.139	-7.7	89	0
	Quantity of food was enough	4.4							
P4	Aroma of food was good	3.4	90	-0.844	1.16	0.122	-6.9	89	0
	Aroma of food was good	4.2							
P5	Food served at right temperature	4	90	-0.011	1.24	0.13	-0.085	89	0.932
	Food served at right temperature	4							
P6	Food soft enough to be easily digestible	3.8	90	-0.122	1.43	0.15	-0.807	89	0.422
	Food soft enough to be easily digestible	3.9							
P7	Only prescribed food given	3.8	90	-0.322	1.178	0.124	-2.59	89	0.011
	Only prescribed food given	4.1							
P8	Menu changed daily	3.8	90	-0.255	1.17	0.123	-2.06	89	0.042
	Menu changed daily	4							
P9	Allergic to specific foods considered	3.9	90	-0.266	1.13	0.12	-2.22	89	0.029
	Allergic to specific foods considered	4.2							
P10	Satisfied with the time of food service	3.9	90	-0.177	1.08	0.114	-1.55	89	0.124
	Satisfied with the time of food service	4.1							
P11	Satisfied with cleanliness of cutlery	3.9	90	-0.266	1.26	0.132	-2	89	0.048
	Satisfied with cleanliness of cutlery	4.2							
P12	The food trolley bearer was polite while serving food	3.7	90	-0.4	1.07	0.11	-3.51	89	0.001
	The food trolley bearer was polite while serving food	4.1							
P13	Food was served calmly	4.1	90	0.1	1.32	0.13	0.716	89	0.476
	Food was served calmly	4							
P14	Food server looking neat	3.5	90	-0.511	1.23	0.13	-3.91	89	0
	Food server looking neat	4							
P15	Clean dress of the food server	4	90	0.1	1.16	0.12	0.817	89	0.416
	Clean dress of the food server	3.9							
P16	Beard shaved of the food server	3.3	90	-0.744	1.34	0.14	-5.24	89	0
	Beard shaved of the food server	4.1							

P17	Short haircut of the food server	3.2	90	-0.833	1.33	0.14	-5.92	89	0
	Short haircut of the food server	4.07							
P18	Food server was wearing a cap	3.9	90	-0.122	1.21	0.128	-0.953	89	0.343
	Food server was wearing a cap	4							
P19	Food server was wearing gloves while serving food	3.8	90	-0.222	1.09	0.115	-1.91	89	0.058
	Food server was wearing gloves while serving food	4							
P20	Nails cut short of the food server	3.4	90	-0.7	1.17	0.123	-5.65	89	0
	Nails cut short of the food server	4.1							

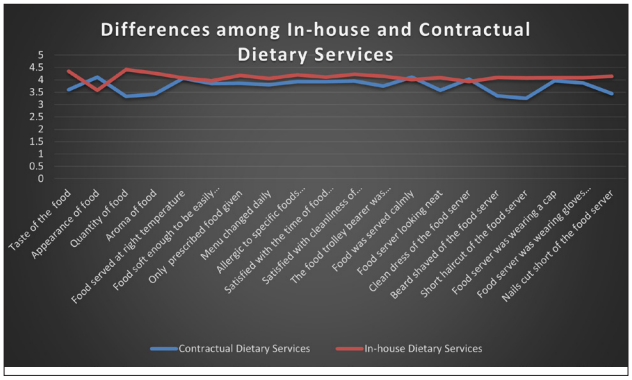

Figure 3: Differences between in-house and contractual dietary services provided at hospitals.

was served calmly" (t (89) = 0.716, (p = 0.476)); "Clean dress of the food server" (t (89) = 0.817, (p = 0.416)); "Food server was wearing a cap" (t (89) = -0.953, (p = 0.343)) and "Food server was wearing gloves while serving food" (t (89) = -1.918, (p = 0.058)). Hence it is evident from the results of the test statistics that for 13 dietary services out of 20 our null hypothesis "There is no significant difference between the government in-house and contractual dietary services" is rejected and for the remaining 7 dietary services our null hypothesis is accepted.

It was found that for most of the dietary services the mean score of the responses of the patients were higher for in-house dietary services. This shows that the in-house services were better than the contractual services. This finding further negates the misconception that the services provided at the government hospitals are not good. The results of the tests applied clearly postulate that for 7 out of 20 dietary services there was no significant difference in 7 in-house and contractual dietary services. This means for these seven dietary services the patients were satisfied from both sources of food supply. Hence it can be asserted that the standards of these dietary services are equal in in-house and contractual operations.

Conclusion

The objective of the study was to determine the differences between the in-house and contractual dietary services provided to the patients in the hospitals of Chandigarh. To achieve this objective, hypothesis H_0 i.e., "There is no significant difference between the in-house and contractual dietary services" was formulated and tested. To test this above-mentioned hypothesis, a Paired t-test was performed and GAP analysis was done to determine the difference in the mean of perception of patients regarding the in-house and contractual dietary services provided to them in hospitals. The GAP analysis concluded that for most of the responses the mean score of in-house dietary services was high as compared to the contractual dietary services. This concludes that most of the patients have a higher positive perception about the in-house dietary services as compared to the contractual dietary services provided to them at hospitals. Furthermore, the results of the paired t-test concluded that the p value of 7 out of 20 dietary services was not statistically significant i.e., $p > 0.05$ which means that there was no significant difference in these 12 governments in-house and contractual dietary services. These 7 dietary services were "Food served at right temperature"; "Food soft enough to be easily digestible"; "Satisfied with the time of food service"; "Food was served calmly"; "Clean dress of the food server"; "Food server was wearing a cap"; and "Food server was wearing gloves while serving food." The null hypothesis, "There is no significant difference between the in-house and contractual dietary services," was thus rejected for 13 out of the 20 dietary services, while it was accepted for the other 7 dietary services. Since most contractual and in-house dietary services showed a substantial difference, it was theoretically concluded that there was a considerable difference between the in-house and contractual dietary services provided to patients at hospitals in Chandigarh.

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None.

Conflict of Interest

None.

References

1. Batbaatar E, Dorjdagva J, Luvsannyam A, Savino, MM, Amenta P. 2017. Determinants of patient satisfaction: a systematic review. *Perspect Public Health* 137(2): 89-101. https://doi.org/10.1177/1757913916634136
2. Dall'Oglio I, Nicolò R, DiCiommo V, Bianchi N, Ciliento G, et al. 2015. A systematic review of hospital food service patient satisfaction studies. *J Acad Nutr Diet* 115(4): 567-584. https://doi.org/10.1016/j.jand.2014.11.013
3. McCray S, Maunder, KL, Norris R, Moir J, MacKenzie-Shalders K. 2018. Bedside menu ordering system increases energy and protein intake while decreasing plate waste and food costs in hospital patients. *Clin Nutr ESPEN* 26: 66-71. https://doi.org/10.1016/j.clnesp.2018.04.012
4. Patient Satisfaction – Why It Matters and How To Improve It. [https://www.practicebuilders.com/blog/patient-satisfaction-why-it-matters-and-how-to-improve-it/] [Accessed on March 06, 2024]
5. Aminuddin NF, Vijayakumaran RK, Razak SA. 2018. Patient satisfaction with hospital foodservice and its impact on plate waste in public hospitals in East Malaysia. *Hosp Pract Res* 3(3): 90-97. https://doi.org/10.15171/hpr.2018.20
6. Nguyen MC, Gabbe SG, Kemper KJ, Mahan JD, Cheavens JS, et al. 2020. Training on mind-body skills: feasibility and effects on physician mindfulness, compassion, and associated effects on stress, burnout and clinical outcomes. *J Posit Psychol* 15(2): 194-207. https://doi.org/10.1080/17439760.2019.1578892
7. Imtiaz A, Choudhury MUA, Ferdous Z, Sultana H, Rahman MM, et al. 2020. Management of dietary services in secondary level hospitals. *Asian J Med Heal* 18(1): 48-57. https://doi.org/10.9734/AJMAH/2020/v18i130179
8. Ng JH, Luk BH. 2019. Patient satisfaction: concept analysis in the healthcare context. *Patient Educ Couns* 102(4): 790-796. https://doi.org/10.1016/j.pec.2018.11.013
9. Yi JR, Son EJ, Lyu ES. 2010. Perception and satisfaction on nutrition counseling service for patients consuming a therapeutic diet at hospitals in Busan. *J Korean Soc Food Sci Nutr* 39(9): 1305-131. https://doi.org/10.3746/jkfn.2010.39.9.1305
10. Sharma SK, Kamra PK. 2013. Patient satisfaction with nursing care in public and private hospitals. *Nurs Midwifery Res J* 9(3): 130-41. https://doi.org/10.1177/0974150X20130306
11. Ottrey E, Porter J. 2017. Exploring patients' experience of hospital meal- ordering systems. *Nurs Stand* 31(50): 41-51. https://doi.org/10.7748/ns.2017.e10435
12. Azeman AR, Adenan H. 2018. Patient's satisfaction towards private hospital's food service in Melaka. *J Hosp Netw* 1(1): 32-36.
13. Jonsson AS, Nyberg M, Jonsson IM, Öström Å. 2021.Olderpatients' perspectives on mealtimes in hospitals: a scoping review of qualitative studies. *Scand J Caring Sci* 35(2): 390-404._https://doi.org/10.1111/scs.12866
14. Banks M, Hannan-Jones M, Ross L, Buckley A, Ellick J, et al. 2017. Measuring the quality of hospital food services: development and reliability of a meal quality audit tool. *Nutr Diet* 74(2): 147-157. https://doi.org/10.1111/1747-0080.12341
15. Safarian M, Vafisani F, Alinezhad-Namaghi M, Asadi Z, Seyyedhamzeh S. 2018. Patient satisfaction with hospital food in the hospitals affiliated to Mashhad university of medical sciences, Iran. *J Nutr Fasting Health* 6(4): 191-197.
16. Lund BM, O'Brien SJ. 2011. The occurrence and prevention of foodborne disease in vulnerable people. *Foodborne Pathog Dis* 8(9): 961-973. https://doi.org/10.1089/fpd.2011.0860
17. Osman NS, Nor NM, Sharif MSM, Hamid SBA, Rahamat S. 2021. Hospital food service strategies to improve food intakes among inpatients: a systematic review. *Nutrients* 13(10): 3649. https://doi.org/10.3390/nu13103649
18. Ferreira DC, Vieira I, Pedro MI, Caldas P, Varela, M. 2023. Patient satisfaction with healthcare services and the techniques used for its assessment: a systematic literature review and a bibliometric analysis. *Healthcare* 11(5): 639. https://doi.org/10.3390/healthcare11050639
19. Manzoor F, Wei L, Hussain A, Asif M, Shah SIA. 2019. Patient satisfaction with health care services; an application of physician's behavior as a moderator. *Int J Environ Res Public Health* 16(18): 3318. https://doi.org/10.3390/ijerph16183318
20. Petrescu DC, Vermeir I, Petrescu-Mag RM. 2019. Consumer understanding of food quality, healthiness, and environmental impact: a cross-national perspective. *Int J Environ Res Public Health* 17(1): 169. https://doi.org/10.3390/ijerph17010169
21. Burgener A. 2020. Enhancing communication to improve patient safety and to increase patient satisfaction. *Health Care Manage* 39(3): 128-132. https://doi.org/10.1097/HCM.0000000000000298