Frontiers in Health Informatics
ISSN-Online: 2676-7104
www.healthinformaticsjournal.com
2024; Vol 13: Issue 6
Open Access

Family Satisfaction using the family satisfaction in intensive care unit – 24 tool in the multidisciplinary Intensive Care Unit of a teaching hospital

Dr. Varalakshmi Diwakarla[1], Dr. Veera Babu Vadlani[2], Dr. Venu Gopal K[3], Dr. Shaik Arif Pasha·
[1]Consultant, Department of Critical Care Medicine, Pinnacle Hospital, Vishakapatnam.
[2]Associate Professor, Department of Critical Care Medicine, NRI Medical college and Hospital, Guntur.
[3]Assistant Professor, Department of Critical Care Medicine, NRI Medical college and Hospital, Guntur.
[4]Professor and HOD, Department of Critical Care Medicine, NRI Medical college and Hospital, Guntur.

Corresponding author: Dr. Venu Gopal K

Cite this paper as: Dr. Varalakshmi Diwakarla, Dr. Veera Babu Vadlani, Dr. Venu Gopal K, Dr. Shaik Arif Pasha. (2024) Family Satisfaction using the family satisfaction in intensive care unit – 24 tool in the multidisciplinary Intensive Care Unit of a teaching hospital . *Frontiers in Health Informatics, 13* (6), 106-117

Abstract

Introduction: Patient centred care and Family engagement are the norm now. Patient and family satisfaction are key quality indicators. Several validated tools are freely available at the present time. Communication skill is an art and science. It has not been a part of regular training for doctors or nurses, although it is a learned skill and not inherent as perceived commonly. Structured training modules are available but not commonly availed. Quality of care is defined as care which produces the greatest expected improvement in health status. Critical care environments are complex and diverse. Because of the continued challenges and debate on the rationale for selection and supporting evidence for use, no one set of established metrics has been identified for the ICU. Instead, institutions and critical care units have individually chosen metrics and formulated individual quality plans.

Materials and Methods: We planned a prospective before and after study. Study was conducted in the Department of Critical Care Medicine, NRI Medical college and Hospital, Guntur from January 2023 to October 2023. The study plan was formulated. We did a pilot study to confirm feasibility. The Pre intervention data was collected from consecutive patients from January 2023 to March 2023.Intervention programme was held in July 2023. Post intervention data collection was performed from August 2023 to October 2023.

Results: Patient outcomes were categorised as improved, dead or patients who left the hospital against medical advice. In the pre-intervention group, 92 patients improved, 344 died and 14 left against medical advice whereas in the post intervention group, 85 patients improved, 30 died and 25 patients were discharged by family against medical advice. There was no difference pre and post intervention with regard to the first family contact with the ICU team. The Chi-square value was 3.583 with a P-value of 0.310. The mean Apache 2 Score was 18.65 in the pre intervention group and 22.43 in the post intervention group. This difference was statistically significant. Patients were more severely ill in the later group. We further grouped patients into three classes of score.

Conclusions: Our study showed that a structured educational initiative comprising of training in communication skills and conflict management for ICU nurses and doctors increases family satisfaction. Patient factors such as severity of illness and outcome and Family factors such as number of ICU visits and payment mode affect the family satisfaction levels.

Keywords: Family satisfaction, Intensive care unit, Apache 2 Score.

Introduction

Battles are fought in the Intensive Care Unit every day. Sometimes we win, sometimes we lose. On the brutal unforgiving battlefield, it is easy to lose perspective. The fight often becomes personal and lifesaving is primal. [1] Events are sometimes sudden and require urgent and often escalating measures within a short span of time. Patients cannot comprehend and fathom the effort that is going on to save them; even so, their wishes may not be known to the treating team. The treating team is most of the time instituting the best care possible. [3] Unintentionally, Communication sometimes becomes a low priority. Short duration medical jargon filled conversations mostly involving closed end questions by inexperienced personnel are common. Families and patients on the other hand are under possibly the highest stress in their lifetime. [4]

Many of them may have bad first- or second-hand prior experience. Comprehension and analysis of information during acute and chronic stress is poor. The complex ICU environment involving multiple care providers, risky procedures, short decision-making timeline, added to a seemingly apathetic staff including doctors, nurses and other staff may be perceived as hostile by patients and families alike. [5] This complex milieu brews conflict which may range from physical violence inflicted upon medical personnel to emotional conflict causing long term psychological problems in family members and burn out in the treating team. In a survey conducted by Eli Azoulay et al among ICU clinicians, 71% respondents reported perceiving conflict in the week prior to the survey of which 53% were of a severe nature. [6]

Patient centred care and Family engagement are the norm now. Patient and family satisfaction are key quality indicators. Several validated tools are freely available at the present time. [7] Communication skill is an art and science. It has not been a part of regular training for doctors or nurses, although it is a learned skill and not inherent as perceived commonly. Structured training modules are available but not commonly availed. [8]

Quality of care is defined as care which produces the greatest expected improvement in health status. [9] Critical care environments are complex and diverse. Because of the continued challenges and debate on the rationale for selection and supporting evidence for use, no one set of established metrics has been identified for the ICU. Instead, institutions and critical care units have individually chosen metrics and formulated individual quality plans. [10]

A common framework to measure ICU quality comprises three domains of the classical Donabedian model including structure, process and outcome as well as two additional domains which are access to care and patient experience. [11] Structure indicators represent organisation, resources and equipment; process indicators are about the process of care between caregiver and patient, what we do or fail to do for patients and their families; and outcome indicators represent the results that we achieve at the patient level. [12] Access to intensive care is the ability to provide timely and appropriate care. Patient experience in the context of intensive care may not only include patients' experiences but also include family members' observations. [13]

Materials and Methods

We planned a prospective before and after study. Study was conducted in the Department of Critical Care Medicine, NRI Medical college and Hospital, Guntur from January 2023 to October 2023. The study plan was formulated. We did a pilot study to confirm feasibility. The Pre intervention data was collected from consecutive patients from January 2023 to March 2023.Intervention programme was held in July 2023. Post intervention data collection was performed from August 2023 to October 2023.

Daily formal counselling for duration of 5 minutes on an average per patient is done by senior consultant +/- Resident.

Multidisciplinary team counselling is also done on a daily basis by faculty of all the departments involved in patient care.

Need Based counselling is done whenever there is an unexpected change in patient status, a change in plan of care, new information in the form of lab or imaging reports become available or Interventions are mandated

Audio video records of such meetings are maintained. Summary is also handwritten in a register which is countersigned by doctor and family member.

Inclusion Criteria

1. Patients > 18y of age
2. Length of stay in the ICU > 48hours

Exclusion Criteria

1. Refusal of family
2. Family/Respondent < 18y of age.

The FS ICU 24 Questionnaire

We used the validated FS ICU 24 questionnaire. We translated it to Telugu, the local language

The Intervention

Doctors

A two-day training module was created in coordination with Dr Neha Parashar, Clinical Psychologist, Bengaluru. It comprised of a series of lectures on

a. Communication in the ICU (2hours)
b. Understanding grief (30 minutes)
c. Conflict Resolution strategies (2 hours)

Our target audience were ICU doctors including teaching staff, DM, IDCCM and CTCCM students, Post graduates posted at the time in the ICU and internees.

A. Communication in the ICU (2 hours)
B. Understanding grief (30 min)
C. Conflict resolution strategies (1.5 hours)
D. VALUE tool (15 mins)
E. Difficult conversations (10 minutes)
F. Reacting to emotions (10 minutes)
G. Communication games (30 minutes)
H. Role play (15 minutes)

Communication skills

We used the ESICM academy Communication in the ICU e module to structure our program.

The Key elements were as follows

Communication with Patients

- Defining Communication

- Acknowledging both conscious and unconscious patients
- Communication Barriers
- Patient centric approach
- Strategies to deal with difficult patients
- Consent
- Coping strategies

We started by defining communication and describing the endless scope of communication in any ICU and the diversity in terms of type of patients, type of ICU etc. The ICU is a high noise, high stress environment with patients who cannot communicate easily due to multiple factors. We emphasised the need to acknowledge and communicate with both conscious and unconscious patients which helps reduce fear, anxiety and delirium. We discussed barriers to communication with examples such as inability to hear or see or comprehend, language and so on. We described alternative communication tools such as writing pads, communication boards, electronic tools, lip reading, gestures etc. We explained different kinds of difficult patients. We discussed techniques such as empathy, non-judgemental listening, being direct, family involvement etc to cope with difficult patients. We discussed principles of informed consent. We also discussed strategies to help patients at ICU discharge such as information about medication and reassurance.

Communication with families

- Information needs- What family wants
- Family engagement in care and decision making
- Strategies to reach consensus
- Breaking bad news

We started by acknowledging the vital role of family in patient centred care, the need to recognize diversity in families, understanding need of information and the tremendous stress that surrogate decision makers are undergoing. We discussed that comprehension of a large amount of information under stress is challenging for family. We described with examples, techniques for effective communication and building rapport starting with allocation of a quiet comfortable place for the talk, not using medical jargon and numerical data rather using simple terms to describe therapies, organization of information, reflection and summarizing. We reinforced the role of family engagement in daily patient care such as feeding, bathing, pain assessment etc. We discussed consensus building by regular, consistent and timely communication. The role of multidisciplinary team meetings, invitation of extended family and friends in difficult situations was emphasized. We also discussed breaking bad news including a demonstration and participant practice session using the SPIKES [50] technique.

Statistical Analysis

The different items in the questionnaire indicate different scale factors i.e. variables relating to both the dependent variable and the intervening variables are provided on a Likert pattern of 5-point scale. The five response categories together with the numerical values assigned to them for computation purposes are as follows: Excellent (5) Very Good (4), Good (3), Fair (2) and Poor (1). Since most of the sections in the questionnaire used a five-point scale, average scores of 3.5 and around indicate a fairly good on that dimension existing and scores around 3 indicate a moderate tendency degree of that dimension existing.

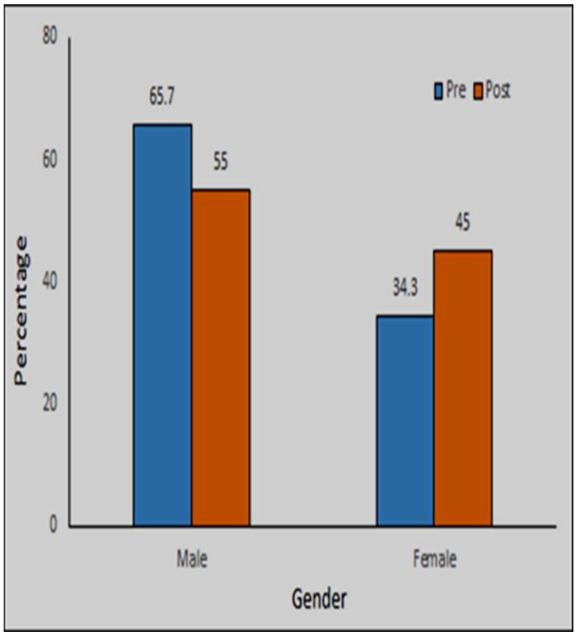
The tabulations and the results for analysis were done with the help of SPSS (Statistical Package for Social Sciences) version 16, MINITAB version-18 and Microsoft Excel for Statistical measurements such as simple percentages, percentage scores, mean values, standard deviations etc. Chi-square test was performed to test the independence of the attributes between intervention and several statements in the questionnaire; In some cases where Chi-square test is not applicable (Cell count < 5) then Fisher's exact test was carried out to check whether there is any association between two attributes i.e., intervention and statements related to the questionnaire; P-values were calculated based on chi-square and fisher's exact p-value to determine the significance levels.

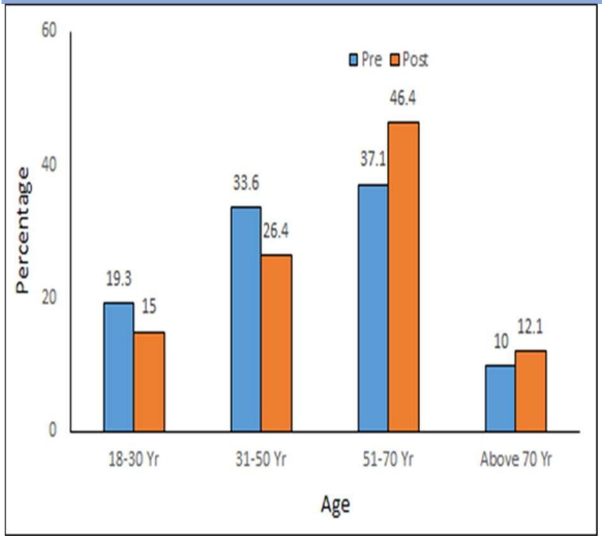
The researcher carried out a student t-test for all the Likert five-point scale for individual questions and also for the three summary scores i.e., Satisfaction with care, Decision making and Total score. For baseline patient data which differed between the pre and post intervention groups, such as Apache-2 Score, Length of stay at hospital, Insurance, patient Payment, Patient income and patient admission, cost of treatment, and number of ICU Visits, we performed subgroup analysis by calculating means and applying Student's t test to compare means between pre and post intervention groups.

Results

There were 92 males and 48 females in the pre intervention group and 77 males and 63 females in the post intervention group. There was no statistical difference with a Chi-square: 3.358 and a P-value of 0.067. The same is shown in Graph 1. The age distribution in the pre and post intervention groups were matched with a Chi-square: 3.675 and a P-value of 0.299and the same is depicted in graph 2.

Graph 1: Gender Distribution among patients in both groups

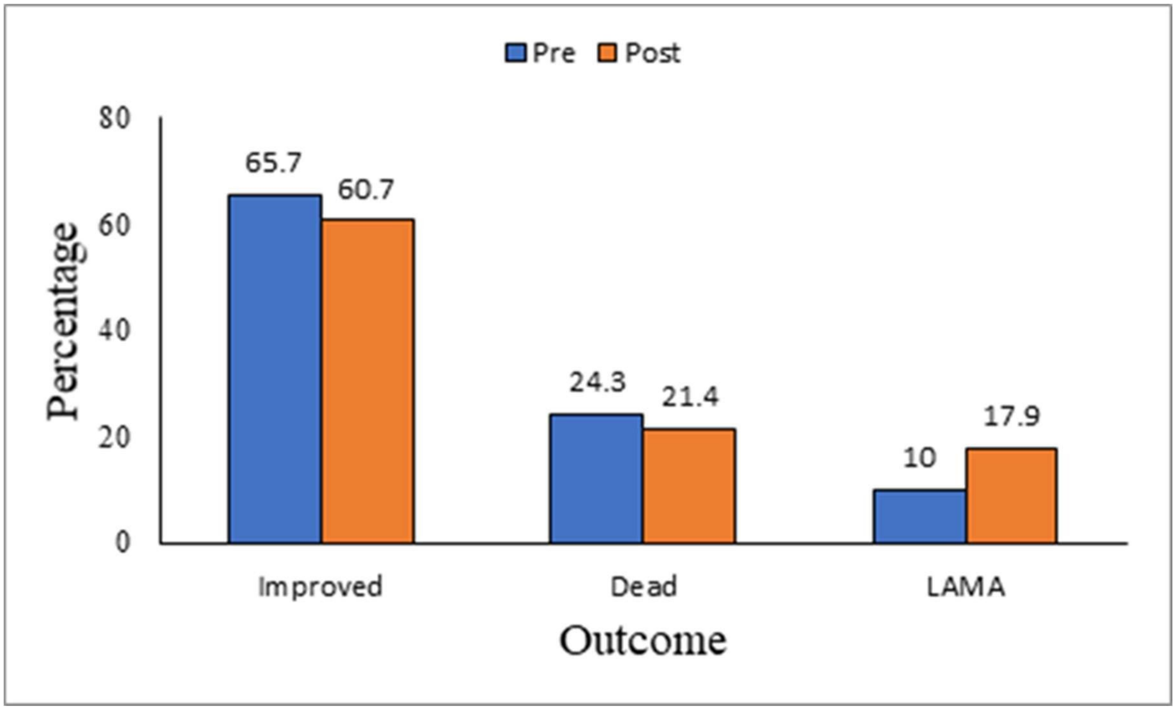




Graph 2: Age Distribution among patients in both groups

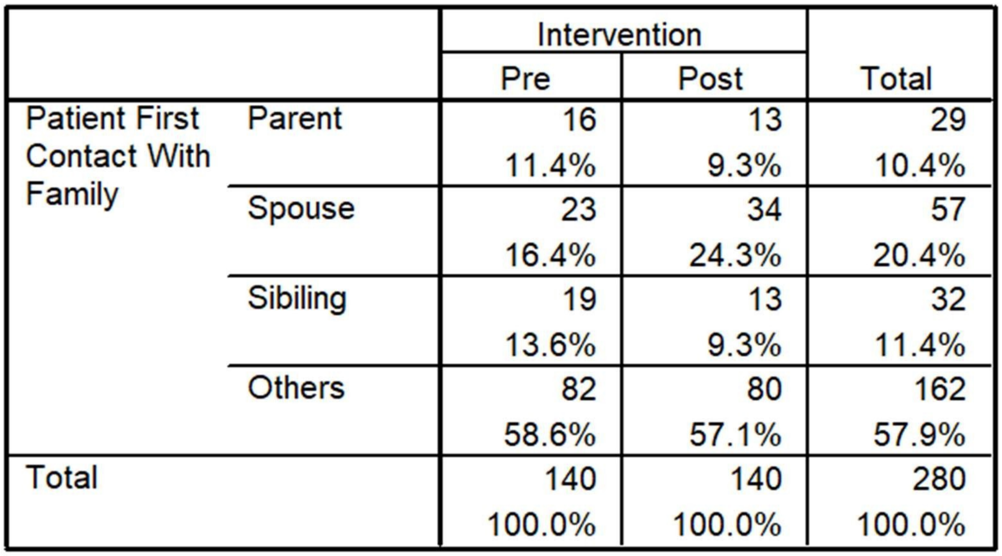
Patient outcomes were categorised as improved, dead or patients who left the hospital against medical advice. In the pre-intervention group, 92 patients improved, 344 died and 14 left against medical advice whereas in the post intervention group, 85 patients improved, 30 died and 25 patients were discharged by family against medical advice. The two groups were matched with a Chi-square: 3.629, P-value: 0.163 and is depicted in graph 3.

Graph 3: Patient Outcomes in both groups



There was no difference pre and post intervention with regard to the first family contact with the ICU team. The Chi-square value was 3.583 with a P-value of 0.310. The same is depicted in Table 2.

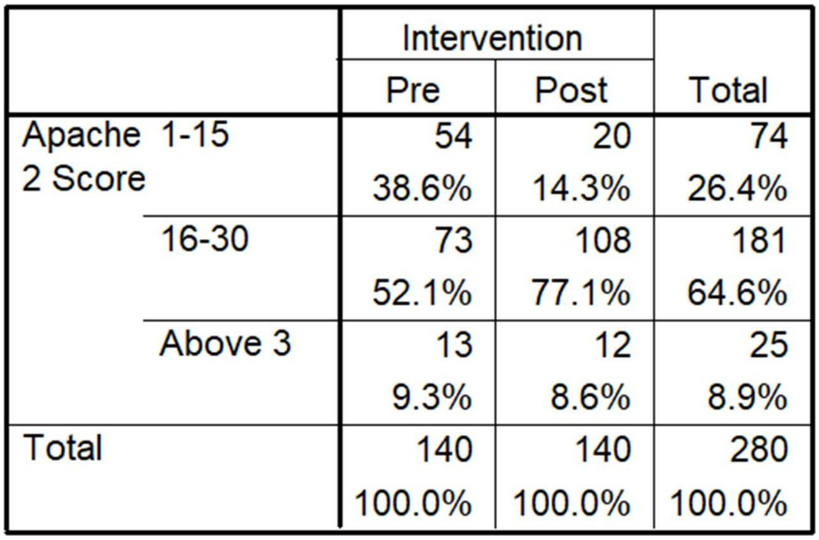
ble 2: Table depicting First family contact with ICU team in pre and post intervention groups



		Intervention		Total
		Pre	Post	
Patient First Contact With Family	Parent	16 11.4%	13 9.3%	29 10.4%
	Spouse	23 16.4%	34 24.3%	57 20.4%
	Sibiling	19 13.6%	13 9.3%	32 11.4%
	Others	82 58.6%	80 57.1%	162 57.9%
Total		140 100.0%	140 100.0%	280 100.0%

The mean Apache 2 Score was 18.65 in the pre intervention group and 22.43 in the post intervention group. This difference was statistically significant. Patients were more severely ill in the later group. We further grouped patients into three classes of score. The Chi-square of 22.430 with a P-value: 0.000. The same is depicted in Table 2 and graph 4.

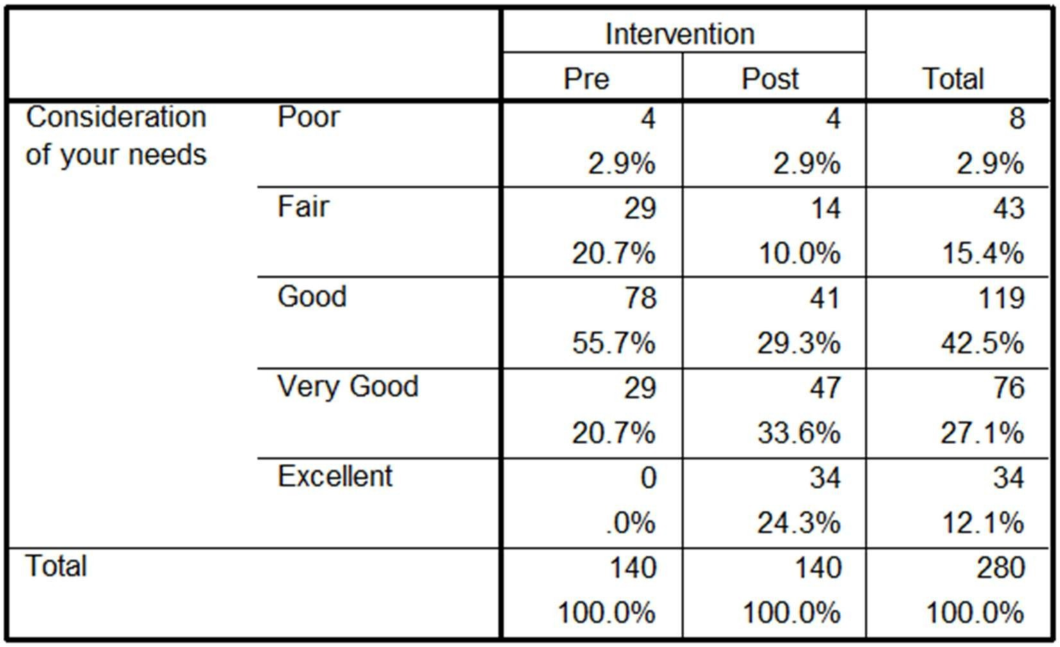
Table 3: Table depicting number of patients Pre and post intervention in three APACHE 2 subgroups



		Intervention		Total
		Pre	Post	
Apache 2 Score	1-15	54 38.6%	20 14.3%	74 26.4%
	16-30	73 52.1%	108 77.1%	181 64.6%
	Above 3	13 9.3%	12 8.6%	25 8.9%
Total		140 100.0%	140 100.0%	280 100.0%

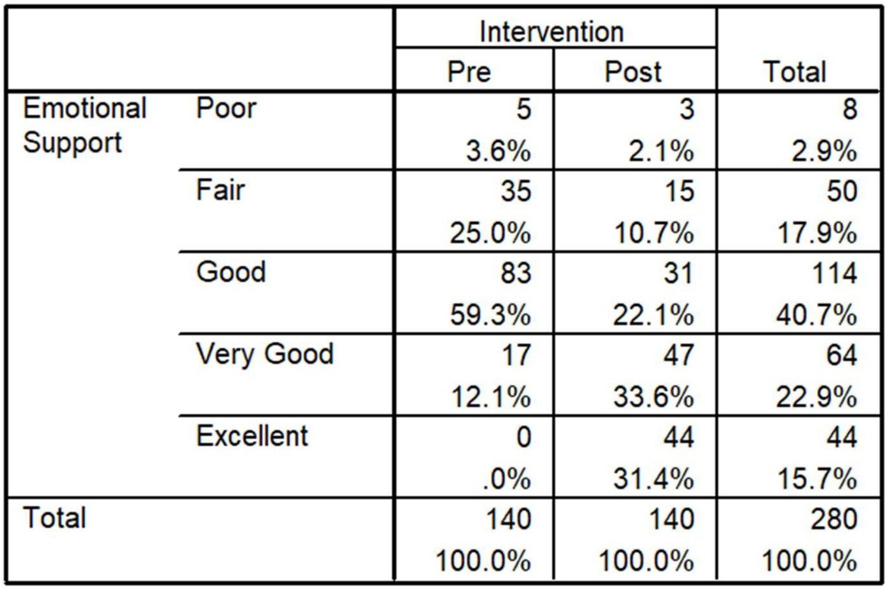
The mean length of Stay was 6.8 days in the pre intervention and 8.43 days in the post intervention group. This difference was statistically significant with a Chi-square: 10.360, P-value: 0.016.This is shown in Table 3.

Table 4: Responses to the question on consideration of needs by ICU staff in both groups



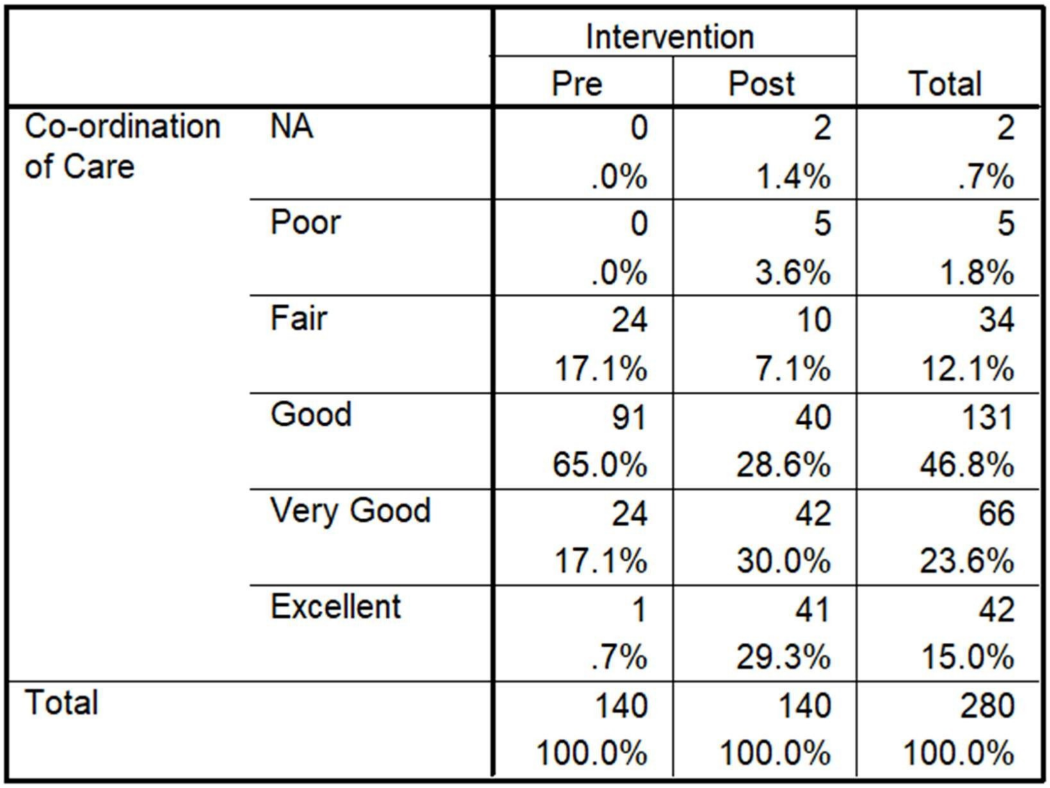
		Intervention		Total
		Pre	Post	
Consideration of your needs	Poor	4	4	8
		2.9%	2.9%	2.9%
	Fair	29	14	43
		20.7%	10.0%	15.4%
	Good	78	41	119
		55.7%	29.3%	42.5%
	Very Good	29	47	76
		20.7%	33.6%	27.1%
	Excellent	0	34	34
		.0%	24.3%	12.1%
Total		140	140	280
		100.0%	100.0%	100.0%

Table 5: Response to question on emotional support



		Intervention		Total
		Pre	Post	
Emotional Support	Poor	5	3	8
		3.6%	2.1%	2.9%
	Fair	35	15	50
		25.0%	10.7%	17.9%
	Good	83	31	114
		59.3%	22.1%	40.7%
	Very Good	17	47	64
		12.1%	33.6%	22.9%
	Excellent	0	44	44
		.0%	31.4%	15.7%
Total		140	140	280
		100.0%	100.0%	100.0%

Table 6: Response to question on perception of Coordination of care



		Intervention		
		Pre	Post	Total
Co-ordination of Care	NA	0	2	2
		.0%	1.4%	.7%
	Poor	0	5	5
		.0%	3.6%	1.8%
	Fair	24	10	34
		17.1%	7.1%	12.1%
	Good	91	40	131
		65.0%	28.6%	46.8%
	Very Good	24	42	66
		17.1%	30.0%	23.6%
	Excellent	1	41	42
		.7%	29.3%	15.0%
Total		140	140	280
		100.0%	100.0%	100.0%

Discussion

We conducted a before and after study, probably the first of its kind in our country to evaluate improvement in family satisfaction based on the FS ICU 24 score with a targeted educational intervention in our ICU. We found overall improvement in family satisfaction.

Alberto Pagnamenta et al [14] in 2016 published a three phase before and after multicentre study in which they collected Pre intervention data over 6 months, performed intervention over a 3 month period and delayed collection of post intervention data by 6 months to look at medium term effects of the intervention from 2011 to 2013. They also collected Pre and Post intervention data at similar times of the year to avoid seasonal bias. We collected data after the first wave of COVID 19 after regular in person family counselling was reinitiated.

Data collection was monitored and we encouraged interns who volunteered to participate to encourage complete filling. Data was collected any time after 48 hours in the ICU. All the information recorded was until the point of data collection. APACHE 2, Length of stay and outcomes were documented separately and later added to the form. In our study data was collected by two internees who volunteered and knew Telugu, Hindi and English for family communication. Other studies have used post discharge postal questionnaires with prepaid return facility and telephonic reminders. [15] In the study by Wysham ET al, [16] nurses and research assistants collected data. None of our ICU staff were involved in data collection. The filled forms were coded and details maintained by our administrative coordinator. Duration was curtailed. Attendance was moderate. A total of 45 nurses attended the programme. Most of them were recent recruits and were not exposed to critical care prior. The lecture on Understanding grief was conducted via a zoom meeting. The didactic lecture was bilingual (Telugu and English) for better understanding. The attendance for the programme for doctors was also moderate. A total of 15 doctors including ICU faculty, training residents and interns attended. Another 2 internees who volunteered collected the data. Our response rate was very good with under 4% refusal. In comparison, family response rates were about 39% in the study by Wysham ET al [16] 2014 and about 75% in the study by Alberto Pagnamenta ET al. [14]

The mean post intervention scores were 70. 86 (Total), 65.84 (SC) and 76.30 (DM). We found an absolute increase of 21.8(%), 19.05(%) and 24.67(%) in the three summary scores respectively. The improvement was statistically significant. In other before and after studies such as Alberto P et al [14] showed improved scores but the differences did not reach statistical difference.

Our response rate was close to 97%. Studies reporting very high satisfaction scores have very low response rates probably reflecting bias. Our data was collected by volunteers not attached to the ICU and therefore probably reflect more honest data. The other reason could possibly be the timing of data collection. Personal touch was minimal with PPEs and other restrictions. Family members were not accustomed to the new norms.

The top 5 highest pre intervention scores were found to be for families having control over patient care, adequacy of time for decision making, skill of doctors, concern and caring by ICU staff, feeling included in the decision making process and support during decision making in the descending order.

In the post intervention group, the top 5 highest scoring items were Family members feeling included in the decision making process, support during decision making, control over care of patients, ICU doctors' skills and understanding of information in a descending order.

The bottom 5 scores in pre and post intervention groups were identified as Atmosphere of waiting room, Family views on comfort of patient in the hours preceding death, feeling of inappropriate timing of death and support and support from team during the last few hours before a patient's death. Communication skills of nursing staff also featured in both groups. All these parameters did show improvement after the intervention but still scored the least.

Stricker et al[17] in their multicentre prospective survey of 996 questionnaires found high overall summary scores of 78 (Total), 79(SC) and 77(DM). In the multivariable multilevel regression analysis, they found greater family satisfaction in more severely ill patients' families. Higher patient nurse ratios and written admission discharge ICU criteria contributed to lower satisfaction. They also plotted performance improvement plots in which they found the items on emotional support, understanding, complete and consistent information and coordination of care had a high impact on overall satisfaction but scored very low.

Richard Wall et al[18] published a multicentre study in which they showed family satisfaction was higher in families of non survivors. In 2007, they conducted another single centre study to identify the factors that resulted in the above outcome. They sent questionnaires to 539 ICU patients' families by post along with a condolence letter if the patient had died and a quality of dying and death questionnaire 4 to 6 weeks after discharge or death. They found that in non survivors, the scores in the family centred aspects of care such as nursing care and courtesy/ respect shown to patient were high and attributed it to the greater amount of time spent at the bedside by nurses and their association with family members.

The FREE [18] study group conducted a prospective cohort study nested within the national clinical audit database in the UK. It was a large study across 20 general adult ICUs. Over one year 2013 to 2014, 6380 patients with upto 4 family members per patient were recruited. They were sent a postal questionnaire three weeks after death or discharge. About 6380 questionnaires were returned and analysed. The investigators reported mean summary scores of 80(total), 83 (SC) and 73(DM). Although the scores were high they found high variation among ICUs.

In our study, the number of ICU visits subgroup analysis showed that among the pre and post intervention groups, the satisfaction score improvement did not show statistical difference in respondents who visited the ICU either one time or 4 times per day. This probably indicates that a liberal ICU visitation policy probably is one factor which increases satisfaction irrespective of all others. This is also reflected in the qualitative analysis in our study where negative comments or suggestions for a more liberal visitation comprised 6 and 7% of the comments in the pre and post intervention groups.

In the study by Jinsoo Min ET al[19] in South Korea, the satisfaction score was affected by outcomes. Survivors' families had higher satisfaction. There was a lower satisfaction score in patients with a high APACHE 2 score as well. The authors discuss the cultural differences in Asia when compared to the western world making discussions about death and treatment limitations much more challenging.

Conclusions

Our study showed that a structured educational initiative comprising of training in communication skills and conflict management for ICU nurses and doctors increases family satisfaction. Patient factors such as severity of illness and outcome and Family factors such as number of ICU visits and payment mode affect the family satisfaction levels.

References

1. Azoulay E, Timsit JF, Sprung CL, et al. Prevalence and factors of intensive care unit conflicts: the conflicus study. *Am J Respir Crit Care Med*. 2009;180(9):853-860. doi:10.1164/rccm.200810-1614OC)
2. Ristagno G., Weil M.H. (2009) History of Critical Care Medicine: The Past, the Present and the Future. In: Gullo A., Lumb P.D., Besso J., Williams G.F. (eds) Intensive and Critical Care Medicine. Springer, Milano. https://doi.org/10.1007/978-88-470-1436-7_1
3. Donabedian A. The quality of care: how can it be assessed? JAMA. 1988;260(12):1743– 8. https://doi.org/10.1001/jama.260.12.1743
4. Warren, Mary(2019).Quality Assurance and Improvement in the Intensive Care Unit.10.1007/978-3-319-74698-2_4-1.
5. Murphy DJ, Ogbu OC, Coopersmith CM. ICU director data using data to assess value, inform local change, and relate to the external world. Chest. 2015;147(4): 1168–78.
6. Kuo DZ, Houtrow AJ, Arango P, Kuhlthau KA, Simmons JM, Neff JM. Family-centred care: current applications and future directions in paediatric health care. *Matern Child Health J*. 2012;16(2):297-305. doi:10.1007/s10995-011-0751-7
7. Davidson JE, Aslakson RA, Long AC, et al. Guidelines for Family-Centred Care in the Neonatal, Paediatric, and Adult ICU. *Crit Care Med*. 2017;45(1):103-128. doi:10.1097/CCM.0000000000002169
8. Kuo DZ, Houtrow AJ, Arango P, Kuhlthau KA, Simmons JM, Neff JM. Family-centred care: current applications and future directions in paediatric health care. *Matern Child Health J*. 2012;16(2):297-305. doi:10.1007/s10995-011-0751-7
9. Kiwanuka, F, Shayan, SJ, Tolulope, AA. Barriers to patient and family-centred care in adult intensive care units: A systematic review. *NursingOpen*.2019; 6:676– 684. https://doi.org/10.1002/nop2.253
10. Pattison NA, White C, Lone NI. Bereavement in critical care: A narrative review and practice exploration of current provision of support services and future challenges. *Journal of the Intensive Care Society*. 2021;22(4):349-356. doi:10.1177/1751143720928898
11. Efstathiou N, Walker W, Metcalfe A, Vanderspank-Wright B. The state of bereavement support in adult intensive care: a systematic review and narrative synthesis. *J Crit Care.* (2019) 50:177–87. doi: 10.1016/j.jcrc.2018.11.026
12. Craven, R.F. and Sharp, B.H. (1972), The Effects of Illness on Family Functions. Nursing Forum, 11: 186-193. https://doi.org/10.1111/j.1744-6198.1972.tb01156.x
13. Olsen EH. The impact of serious illness on the family system. *Postgrad Med*. 1970;47(2):169-174. doi:10.1080/00325481.1970.11697375
14. Pagnamenta A, Bruno R, Gemperli A, et al. Impact of a communication strategy on family satisfaction in the intensive care unit. *Acta Anaesthesiol Scand*. 2016;60(6):800-809. doi:10.1111/aas.12692
15. Venkataraman, Ramesh et al. "Critical care: Are we customer friendly?." *Indian journal of critical care medicine : peer-reviewed, official publication of Indian Society of Critical Care Medicine* vol. 19,9 (2015): 507-12.

doi:10.4103/0972-5229.164796

16. Wysham, Nicholas G et al. "Long-term persistence of quality improvements for an intensive care unit communication initiative using the VALUE strategy." *Journal of critical care* vol. 29,3 (2014): 450-4. doi:10.1016/j.jcrc.2013.12.006

17. Stricker KH, Niemann S, Bugnon S, Wurz J, Rohrer O, Rothen HU. Family satisfaction in the intensive care unit: cross-cultural adaptation of a questionnaire. J Crit Care 2007;22:204–11. 10.1016/j.jcrc.2006.12.008

18. Wright SE, Walmsley E, Harvey SE, et al. Family-Reported Experiences Evaluation (FREE) study: a mixed-methods study to evaluate families' satisfaction with adult critical care services in the NHS. Southampton (UK): NIHR Journals Library; 2015 Dec. (Health Services and Delivery Research, No. 3.45.)

19. Jinsoo et al. "Survey of family satisfaction with intensive care units: A prospective multicenter study." *Medicine* vol. 97,32 (2018): e11809. doi:10.1097/MD.0000000000011809