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Impact of Time Optimization Intervention on Work Execution and Burnout among Nurses Working at Intensive Care Unit

Impacto de la Intervención de Optimización del Tiempo en la Ejecución del Trabajo y el Burnout entre las Enfermeras que Trabajan en la Unidad de Cuidados Intensivos

Angelin Santhakumari H[1] ✉, Manjula Annamalai[1] ✉, Porkodi Arjunan[1] ✉, Adithya. A. Venkat[1] ✉

[1]Sri Ramachandra Institute of Higher Education and Research. Chennai, Tamil Nadu, India.

ABSTRACT

Introduction: time optimization techniques are essential tools that have to make self-governance in order to complete any task on given time universally. The intensive care nurses (ICN) face many challenges at work due to fluid environment.
Purpose: time optimization benefits good work execution by reducing burnout among ICN.
Method: multicenter quantitative experimental one group pre-test- Post-test design. Questionnaires were answered by ICNs(self-report) and also bythe shift incharge, and ICU incharge about the ICNs on work execution and Burnout, before and after nurse-guided time optimization video teaching.
Results: participants were from two blocks (n =50). Nurse-guided time optimization showed fair work execution and burnout dropped from very high to average burnout. There was a weak positive correlation between work execution and burnout. Good compliance with time optimization sheet was found among ICNs.
Conclusions and Contributions to the Field: time optimization and burnout were common problems in ICU. Nurse-guided time optimization intervention was an effective strategy in bridging the gap between the planning and execution of nursing care. However, burnout depends on various factors like long hours, stressful environment and family burden apart from time optimization. Continuous practice of these interventions with time optimization sheet will develop the nurse to become proficient in rendering quality care to critically ill patients.

Keywords: Time Optimization; Work Execution; Burnout.

RESUMEN

Introduccion: las técnicas de optimización del tiempo son herramientas esenciales que deben autogobernarse para completar cualquier tarea en un tiempo determinado de forma universal. Los enfermeros de cuidados intensivos (CIE) se enfrentan a muchos retos en el trabajo debido a un entorno fluido.
Propósito: La optimización del tiempo beneficia la buena ejecución del trabajo reduciendo el agotamiento entre los NCI.
Método: diseño experimental cuantitativo multicéntrico de un grupo, preprueba y posprueba. Los CIE respondieron a cuestionarios (autoinforme) y también el jefe de turno y el jefe de la UCI sobre la ejecución del trabajo y el agotamiento de los CIE, antes y después de la enseñanza en vídeo de la optimización del tiempo guiada por enfermeras.
Resultados: los participantes procedían de dos bloques (n = 50). La optimización del tiempo guiada por enfermeras mostró una buena ejecución del trabajo y el burnout descendió de muy alto a medio. Hubo una correlación positiva débil entre la ejecución del trabajo y el burnout. Se observó un buen cumplimiento de la hoja de optimización del tiempo entre los CIE.

Conclusiones y contribuciones al campo: la optimización del tiempo y el burnout fueron problemas comunes en la UCI. La intervención de optimización del tiempo guiada por la enfermera fue una estrategia eficaz para salvar la distancia entre la planificación y la ejecución de los cuidados de enfermería. Sin embargo, el agotamiento depende de varios factores, como las largas horas de trabajo, el entorno estresante y la carga familiar, además de la optimización del tiempo. La práctica continuada de estas intervenciones con la hoja de optimización del tiempo desarrollará a la enfermera para que sea competente en la prestación de cuidados de calidad a pacientes en estado crítico.

Palabras clave: Optimización del Tiempo; Ejecución del Trabajo; Burnout.

INTRODUCTION

Effective time optimization is crucial for nurses to achieve organizational goals, improve efficiency, performance, and mitigate burnout.[1] Time management (TM) in an intensive care unit (ICU) is especially challenging due to the dynamic and variable nature of care provided to critically ill patients. ICU nurses provide highly skilled care to the most severely ill or injured patients, often requiring split-second decisions when a patient's status changes.[2,3]

Nurse-to-patient ratios significantly influence patient outcomes, including in-hospital mortality.[4] ICU nurses care for patients on ventilators and various life-saving machines, administering medications, monitoring progress, performing diagnostic or therapeutic procedures, and responding to emergencies. Their physical work involves extensive standing and dynamic movement, with higher physical workloads during day shifts compared to night shifts.[5] However, nurses often spend considerable time on non-direct patient care activities, leading to fatigue and diminished goal-setting abilities.[6]

Burnout is a severe issue in healthcare, affecting nearly all healthcare workers, particularly ICU nurses who experience high levels of burnout within their first three years of work.[7,8] Symptoms of burnout include cognitive impairment, emotional disturbances, and physical symptoms such as fatigue, insomnia, and hypertension.[9] A strong correlation exists between workload and burnout,[10] with significant cases reported among nurses in northern Uganda and those assigned to COVID-19 isolation rooms.[11,12] Burnout adversely impacts not only nurses but also patients, organizations, and society as a whole.[13,14]

Time optimization training can help nurses prioritize tasks more effectively, potentially alleviating burnout. Such training has been shown to improve time management skills, reduce work-family conflict, and enhance nursing care quality.[15,16,17,18,19] Effective time optimization involves assigning specific time slots to activities based on their importance, making the best use of the limited time available.[20]

National and international studies highlight the prevalence of burnout among nurses, with significant cases reported in China and India, particularly among those lacking ICU training.[21,22] This study aims to provide a video on nurse-guided time optimization techniques along with a 15-day practice time planner intervention to examine its effects on work execution and burnout among ICU nurses.

METHOD

Research Design

The current study employed a qualitative research approach using a pre-experimental one-group pre-test and post-test design.

Research Duration

The data were collected from 1/05/2022- 1/06/2022.

Inclusion and Exclusion Criteria

The study included ICU nurses including both male and female who are involved in direct patient care at ICU, with diploma, B.Sc (N) and M.Sc (N) as their education and various designation like junior staff nurse and senior staff. Participants who were not willing to participate, with less than 6 months experience and from other units acting as float nurse were excluded from the study

Sample Collection

Purposive sampling was used to recruit participants consisting of intensive care nurses.. The ICU nurses, 2 incharge nurses (to get data about the ICU nurses) working in ICU from Sri Ramachandra medical center and Sri Ramachandra Hospital, Chennai were approached in person while they were on duty in ICU and requested them to participate in the study. From 50 ICU nurses and 2 incharges (each separately about 50 ICU nurses) were collected on demographic variables, time optimization on work execution and Burnout assessment.

Time planner practice sheet was marked by the ICU nurses. It consists of vertical columns with time interval, nursing care and 15 days practice columns. The time planner was prepared by the researcher. The nurses were requested mark the days of compliance or noncompliance

The questionnaire was provided to nurses and requested to submit after completing it. Shift incharge and ICU incharge nurses were the 2 incharge nurses who were given pre-test and post-test questionnaires to evaluate the 50 ICN simultaneously on work execution and burnout. The pre-test was conducted before the intervention. The video of Nurse-guided time optimization intervention was given for 7 minutes as intervention followed by discussion, total for 15 minutes for the 50 nurses.

Nurse-guided time optimization intervention - with 15 techniques consisting of time to rest, routinization, goal setting, fixing time estimates, start cognitive stalking, documentation, delegate work, remove distractions, gather all supplies for procedure, group activities together, setting daily priorities, making lists, time wasters, time estimates and group dynamics. Each session includes 8-10 nurses, for group discussion. The time taken for the intervention is 15 minutes and the nurses are handed over time planner to practice for 15 days. Reinforcement is done once weekly for two weeks.

The Post-test data collection was done after 15 days of intervention. 15 days' time planner sheet also was collected to analyze compliance of the time planner.

Ethical Considerations

Ethical permission was obtained from The Intuitional Ethics Committee, Sri Ramachandra Institution of Higher Education and Research (CSP/21/SEP/99/48). The study was conducted on a voluntary basis.

Data Analysis

The data analysis was performed using the statistical Package for social sciences Inc., Chicago, IL, USA) Version 25.

Descriptive statistics analysis was conducted using frequency, percentage, mean and standard deviation to find the distribution of demographic variables. Paired 't' test was used to find the mean difference between pre-test and post-test scores on work execution and burnout among Intensive Care Nurses.

Interferential statistics analysis included the Pearson correlation coefficient to find the relationship between work execution and burnout among ICU nurses and ANOVA to associate work execution and burnout with selective demographic variables of Intensive Care Nurses.

RESULTS

Distribution of Demographic variables among nurses working in ICU

ICN included in the study had frequency and percentage with majority, 37 (66,7 %) participants were in the age group of 21-26 years and 39 (78 %) of them were females. Majority, 44(88 %) of them had education up to B.Sc. Nursing, 27(54 %) of them had 1.1 to 5 years of experience. Majority, 46(92 %) had no previous time optimization training, 39(78 %) of them were single in marital status from nuclear family, 32 (64 %), with no children 42 (84 %), with parents as their support 40 (80 %). Majority, 30 (60 %) residing in hostel, 37(74 %) who travels less than 5 kilometers. Majority, 36 (72 %) residing in urban areas, 34 (68 %) travelling to hospital by walking. Majority, 20 (40 %) of their monthly family income was ranging from Rs 13 161 to Rs 19 758. Majority, 17 (34 %) of them had 5 to 6 hours of sleep: Majority, 46(92 %) family members had no habits of smoking and alcohol and 41(82 %) of the family members were dependent on the participants.

Comparison of time optimization intervention on work execution and burnout among nurses working in ICU

Level of work execution	Time of Study	Self - Report		Shift incharge		ICU incharge	
		n	%	n	%	n	%
15-30 -Poor practice	Pre-test	1	2	37	74	21	42
	Post-test	0	0	0	0	0	0
31-45- Fair practice	Pre-test	22	44	11	22	28	56
	Post-test	1	2	6	12	2	4
46-75-Good practice	Pre-test	27	54	2	4	1	2
	Post-test	49	98	44	88	48	96

Table 1 Frequency and percentage distribution of level of time optimization intervention on work execution of nurses working in ICU before and after intervention (N= 50)

Table 1 shows frequency and percentage distribution of level of time optimization intervention on work execution of nurses working in ICU before and after intervention. The data showed the pre-test-to-post-test level of work execution was assessed in three ways; through a self-report, and through reports from two Incharge nurses.

The level of poor practice from pretest to posttest among self-report given by nurses were1(2 %) to 0(0 %). Among shift incharge the score shifted from 37(74 %) to 0(0 %). In ICU incharge level the score moved to 21(42 %) to 0(0 %).

The level of fair practice from pretest to posttest among self-report given by nurses were 22(44 %) to 1(2 %).Among shift incharge the score shifted from 11(22 %) to 6(12 %)and ICU incharge level the score moved to 28(56 %) to 2(4 %).

The level of good practice from pretest to posttest among self-report given by nurses were 27(54 %) to 49(98 %).Among shift incharge the score shifted from 2(4 %) to 44(88 %) and ICU incharge level the score moved to 1(2 %) to 48(96 %)

Table 2 Comparison of Pre-test and post-test mean score work execution scores among nurses Self – report, shift incharge and ICU incharge working in ICU before and after intervention (N=50)

Participants	Time of study	Work Execution			Mean Difference	t & p value
		n	Mean	SD		
Self-Report	Pre-test	50	48,2	10,8	9,7	6,16
	Post-test	50	58,0	4,3		0,001***
Shift incharge	Pre-test	50	27,6	7,8	25,1	17,88
	Post-test	50	52,0	6,6		0,001***
ICU incharge	Pre-test	50	32,5	5,2	20,8	26,07
	Post-test	50	53,4	4,9		0,001***
*** p<0,001						

Table 2 shows the comparison of pre-test and post-test on work execution among nurses working at Intensive Care Unit. Paired t-test was computed to find out the significant mean differences. It revealed that there was a statistically significant mean difference noted in the mean work execution between pre-test and post-test among nurses self – reported, shift incharge, incharge and ICU incharge working at Intensive Care Unit at p <0,001. It shows that nurse guided time optimization intervention was an effective intervention in improving the work execution among nurses working at Intensive Care Unit p <0,001.

Table 3 Frequency and percentage distribution of level of Burnout among nurses - self report, shift incharge and ICU incharge working in ICUbefore and after intervention (N=50)

Level of burnout	Time of study	Self - Report		Shift incharge		ICU incharge	
		n	%	n	%	n	%
Low	Pre-test	0	0	0	0	0	0
	Post-test	0	0	0	0	0	0
Average	Pre-test	39	78	50	100	47	94
	Post-test	50	100	49	98	49	98
High	Pre-test	10	20	0	0	3	6
	Post-test	0	0	1	2	1	2
Very High	Pre-test	1	2	0	0	0	0
	Post-test	0	0	0	0	0	0

Table 3 shows the frequency and percentage distribution of level of Burnout among nurses - self report, shift incharge and ICU incharge working in ICU before and after intervention. The data showed the pre-test-to-post-test level of burnout and was assessed in three ways; through a self-report, and through reports from two Incharge nurses.

Among self-report given by the nurses during pretest 1(2 %) had very high level of burnout, 10(20 %) had high level of burnout and 39(78 %) had average level of burnout. None of the nurses have low level burnout. Where as in posttest all the 50(100 %) nurses had average level of burnout.

The shift incharge report about nurses, in pretest none had very high and high level of burnout and 50(100 %) had average level of burnout. None of the nurses have low level burnout. Where as in posttest 1(2 %) nurses had high burnout and 49(98 %) had average level of burnout.

The ICU incharge report about nurses, pretest none had very high burnout, 3(6 %) had high level of burnout, and 47(94 %) had average level of burnout. None of the nurses have low level burnout. Where as in posttest 1(2 %) nurses had high burnout and 49(98 %) had average level of burnout.

Table 4 Mean and standard deviation of burnout score among nurses - self report, shift incharge and ICU incharge working in ICU before and after intervention (N = 50)					
Participants	**Time of Study**	**Burnout**			
		Mean	**SD**	**Min**	**Max**
Self-Report	Pre test	103,38	24,53	54	161
	Post-test	68,12	5,99	57	82
Shift incharge	Pre-test	60,64	21,32	43	113
	Post-test	63,6	5,66	50	78
ICU incharge	Pre-test	111,18	7,88	96	127
	Post-test	69,14	5,06	60	79

Table 4 shows that the mean burnout score from pre-test to post-test of self-report score of the nurses was 103,38±24,53 to 68,12±5,99, the mean burnout Score given by Shift incharge of the participants was 60,64±21,32 to 63,6±5,66, the mean burnout Score given by ICU incharge of the participants was 111,18±7,88 to 69,14±5,06.

Table 5 Mean and standard deviation of core symptoms burnout score among nurses - self report, shift incharge and ICU incharge working in ICU before and after intervention (N = 50)													
		Pre-test						**Post test**					
s.no	**Core symptoms**	**Self-report**		**Shift incharge**		**ICU incharge**		**Self-report**		**Shift incharge**		**ICU incharge**	
		M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
a.	Exhaustion	28,0	6,1	14,6	5,4	27,9	3,7	17,2	2,4	15,4	2,0	15,9	3,0
b.	Mental distance	28,0	6,1	9,1	3,5	17,7	2,4	11,1	1,8	10,1	1,9	9,7	2,6
c.	Cognitive Impairment	15,9	5,5	10,1	3,7	17,2	2,9	10,9	1,9	9,4	1,5	9,7	2,2
d.	Emotional Impairment	14,8	5,0	9,1	4,1	16,8	2,5	10,4	1,6	10,6	1,8	8,5	1,8

Table 5 Mean and standard deviation of core symptoms burnout score among nurses - self report, shift incharge and ICU incharge working in ICU before and after intervention.

The mean burnout score among nurses pretest and posttest were self-report, exhaustion 28,0±6,1 and 17,2±2,4, mental distance 28,0±6,1 and 11,1±1,8, Cognitive improvement 15,9±5,5 and 10,9±1,9, emotional Impairment 14,8±5,0 and 10,4±1,6.

According to Shift incharge, the pre-test and post-test core symptom burnoutscores mean scores and standard deviation were exhaustion 14,6±5,4 and 15,4±2,0, mental distance 9,1±3,5 and 10,1±1,9, cognitive improvement 10,1±3,7 and 9,4±1,5 and emotional Impairment 9,1±4,1 and 10,6±1,8.

According to ICU incharge, the pre-test and post-test core symptom burnout scores mean and standard deviation were in exhaustion 27,9±3,7 and 15,9 ±3,0, mental distance 17,7±2,4 and 9,7±2,6, Cognitive impairment 17,2±2,9 and 9,7±2,2 and emotional Impairment 16,8 ±2,5 and 8,5±1,8.

Table 6 shows mean and standard deviation of secondary symptoms burnout score among nurses - self report, shift incharge and ICU incharge working in ICU before and after intervention. The mean burnout score among nurses pretest and posttest were self-report score of psychological complaints were 15,4±5,0 and 9,7±1,6, and psychosomatic complaints 12,52±3,6 and 8,5±1,6. Shift incharge score for psychological complaints were 9,0±2,7 and 9,7±1,8, and psychosomatic complaints 8,5±3,2 and 8,3±1,6. ICU incharge score for psychological complaints were 16,5±2,6 and 7,3±1,6, and psychosomatic complaints were14,8±2,9 and 6,6±1,3.

Table 6 Mean and standard deviation of secondary symptoms burnout score among nurses - self report, shift incharge and ICU incharge working in ICU before and after intervention

s.no	Secondary symptoms	Pre-test						Post test					
		Self-report		Shift incharge		ICU incharge		Self-report		Shift incharge		ICU incharge	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
a.	psychological complaints	15,4	5,0	9,0	2,7	16,5	2,6	9,7	1,6	9,7	1,8	7,3	1,6
b.	Psychosomatic complaints	12,5	3,6	8,5	3,2	14,8	2,9	8,5	1,6	8,3	1,6	6,6	1,3

Table 7 Comparison of Pre-test and post-test burnout self-report mean score among nurses working in ICU before and after intervention (N=50)

Variables	Time Points	Variables			Mean Difference	Paired t-test & p value
		n	Mean	SD		
Exhaustion Score-Self Report	Pre-test	50	28,0	6,1	10,7	t=11,4 0,001(S)
	Post-test	50	17,2	2,4		
Mental distance- Score-Self Report	Pre-test	50	28,0	6,1	16,9	t=18,8 0,001(S)
	Post-test	50	11,1	1,8		
Cognitive Impairment - Score-Self Report	Pre-test	50	15,9	5,5	4,9	t=5,7 0,001(S)
	Post-test	50	10,9	1,9		
Emotional Impairment Score-Self Report	Pre-test	50	14,8	5,0	4,3	t=5,9 0,001(S)
	Post-test	50	10,4	1,6		
Psychological complaints Score-Self Report	Pre-test	50	15,4	5,0	5,6	t=7,1 0,001(S)
	Post-test	50	9,7	1,6		
Psychosomatic complaints Score-Self Report	Pre-test	50	12,5	3,6	4,0	t=7,1 0,001(S)
	Post-test	50	8,5	1,6		

(p<0,05-Significant level, S: Significant)

Table 7 shows the comparison of Pre-test and post-test burnout self-report mean score among nurses working in ICU before and after intervention. Paired t-test was computed to find out the significant mean differences. It revealed that there was a statistically significant mean difference noted in the mean burnout scores between pre-test and post-test among nurses working at Intensive Care Unit. It shows that nurse - guided time optimization intervention was an effective intervention in reducing the burnout among nurses working at Intensive Care Unit.

Table 8 shows the comparison of Pre-test and post-test burnout shift incharge mean score among nurses working in ICU before and after intervention. Paired t-test was computed to find out the significant mean differences. It revealed that there was a statistically significant mean difference noted in the mean burnout scores between pre-test and post-test from Shift incharge working at Intensive Care Unit. It shows that nurse - guided time optimization intervention was an effective intervention reducing the burnout from Shift incharge working at Intensive Care Unit.

Table 9 shows the comparison of Pre-test and post-test burnout ICU incharge mean score among nurses working in ICU before and after intervention. Paired t-test was computed to find out the significant mean differences. It revealed that there was a statistically significant mean difference noted in the mean burnout scores between pre-test and post-test obtained from ICU incharge working at Intensive Care Unit. It shows that nurse - guided time optimization intervention was an effective intervention in improving reducing the burnout from ICU incharge working at Intensive Care Unit.

Table 10 shows the frequency and percentage distribution of time planner compliance among nurses working in ICU for 15 days after intervention. 49(98 %) had good compliance of time planner, 1(2 %) had fair compliance of time planner and none had poor compliance of time planner.

Table 8 Comparison of Pre-test and post-test burnout shift incharge mean score among working in ICU before and after intervention (N=50)

| Variables	Time Points	Variables			Mean Difference	Paired t-test& p value
		n	Mean	SD		
Exhaustion Score-Shift incharge Report	Pre-test	50	14,6	5,4	7,4	t=1,0 0,31(NS)
	Post-test	50	15,4	2,0		
Mental distance- Score- Shift incharge Report	Pre-test	50	9,1	3,5	0,9	t=2,2 0,02(S)
	Post-test	50	10,1	1,9		
Cognitive Impairment - Score- Shift incharge Report	Pre-test	50	10,1	3,7	0,7	t=1,1 0,26(NS)
	Post-test	50	9,4	1,5		
Emotional Impairment Score- Shift incharge Report	Pre-test	50	9,1	4,1	1,4	t=2,2 0,03(S)
	Post-test	50	10,6	1,8		
Psychological complaints Score- Shift incharge Report	Pre-test	50	9,0	2,7	0,7	t=1,3 0,18(NS)
	Post-test	50	9,7	1,8		
Psychosomatic complaints Score- Shift incharge Report	Pre-test	50	8,5	3,2	0,2	t=0,4 0,65(NS)
	Post-test	50	8,3	1,6		

(p<0,05-Significant level, S: Significant)
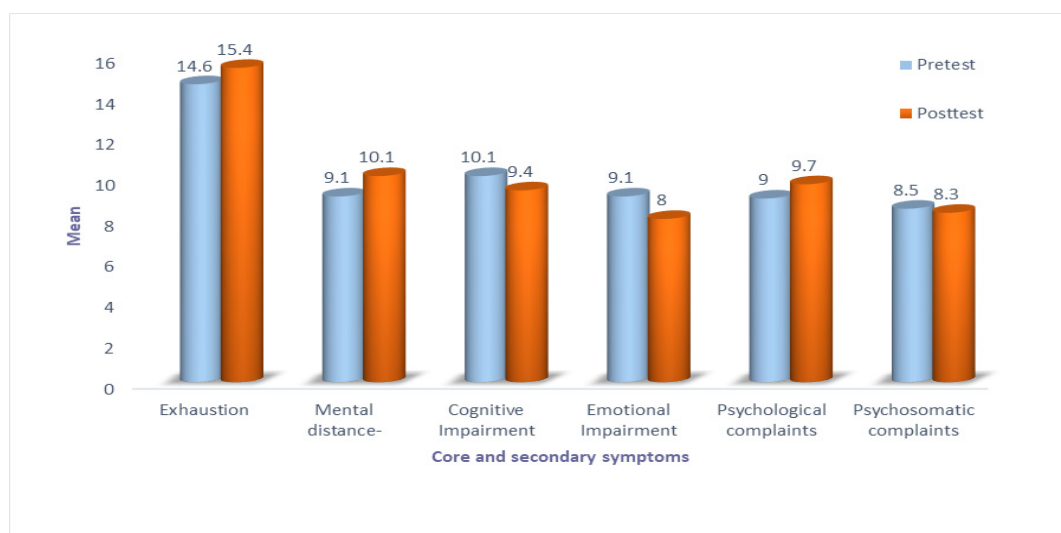
Figure 1. Comparison of Pre-test and post-test burnout shift incharge report mean score among nurses working in ICU before and after intervention
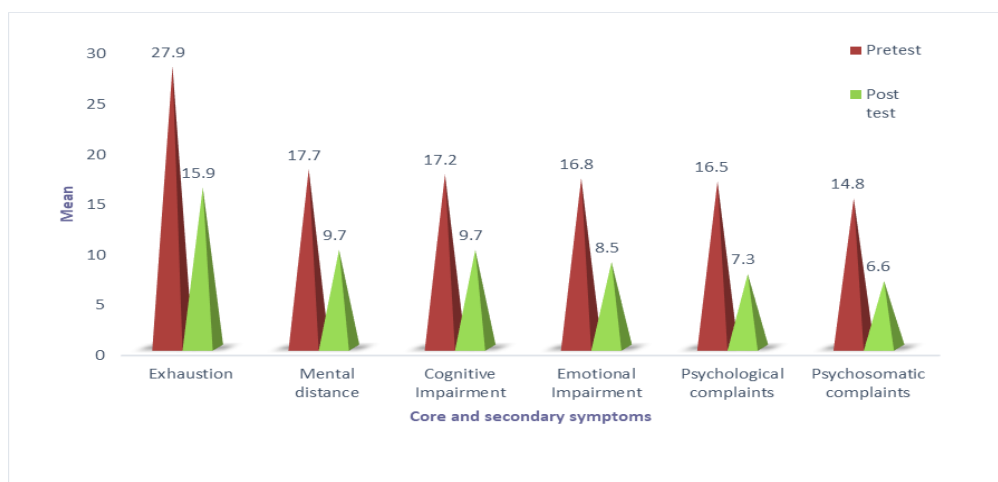
Figure 2. Comparison of Pre-test and post-test burnout ICU incharge mean score among nurses working in ICU before and after intervention

Table 9 Comparison of Pre-test and post-test burnout ICU incharge mean score among nurses working in ICU before and after intervention (N=50)

Variables	Time Points	Variables			Mean Difference	Paired t-test & p value
		n	Mean	SD		
Exhaustion Score- ICU incharge Report	Pre-test	50	27,9	3,7	11,9	t=17,1 0,001(S)
	Post-test	50	15,9	3,0		
Mental distance- Score- ICU incharge Report	Pre-test	50	17,7	2,4	7,9	t=14,1 0,001(S)
	Post-test	50	9,7	2,6		
Cognitive Impairment - Score- ICU incharge Report	Pre-test	50	17,2	2,9	7,5	t=13,7 0,001(S)
	Post-test	50	9,7	2,2		
Emotional Impairment Score- ICU incharge Report	Pre-test	50	16,8	2,5	8,2	t=19,4 0,001(S)
	Post-test	50	8,5	1,8		
Psychological complaints Score- ICU incharge Report	Pre-test	50	16,5	2,6	9,2	t=24,2 0,001(S)
	Post-test	50	7,3	1,6		
Psychosomatic complaints Score- ICU incharge Report	Pre-test	50	14,8	2,9	8,1	t=18,1 0,001(S)
	Post-test	50	6,6	1,3		

(p<0,05-Significant level, S: Significant)

Table 10 Frequency and percentage distribution of time planner compliance among nurses working in ICU for 15 days after intervention (N=50)

Number of days compliance	n	%
15	36	72
14	10	20
13	3	6
12	1	2

Correlation of work execution and burnout scores among nurses working in ICU

Table 11 Correlation between work execution and burnout among nurses working at Intensive Care Unitamong nurses working in ICU before and after intervention (N=50)

Variables	Time Points	r	p
Work Execution Score and Burnout scores	Pre-test	0,18	0,19 (NS)
Work Execution Score-Self Report Burnout scores	Post-test	0,10	0,48(NS)
NS-Non-Significant			

Table 11 shows thecorrelation between work execution and burnout among nurses working at Intensive care unit among nurses working in ICU before and after intervention. Pearson correlation coefficient was performed to find the significant correlation between work execution and burnout among nurses working at Intensive Care Unit. The results revealed that there was a weak positive (r=0,18) non-significant (p>0,05) correlation found between work execution and burnout among nurses working at Intensive Care Unit at pre-test and post-test.

Association of work execution and burnout variables among nurses working in ICU.

The association between the work execution scores (Post-test) with selected demographic variables of the nurses working at Intensive Care Unit. One-way ANOVA was computed to find the significant association. It revealed that there was no significant association found between work execution scores (Post-test) with selected demographic variables of the nurses working at Intensive Care Unit except for previous training, hours of sleep and family income. (p<0,05).

The association between the burnout scores (Post-test) with selected demographic variables of the nurses working at the Intensive Care Unit. One-way ANOVA was computed to find the significant association. It revealed that there was no significant association found between burnout scores (Post-test) with selected background variables of the nurses working at the Intensive Care Unit except for designation and place of stay (p<0,05).

DISCUSSION

The findings of this study highlight the effectiveness of a nurse-guided time optimization video intervention on improving work execution and reducing burnout among ICU nurses. The intervention demonstrated a positive impact on both self-assessed work execution and evaluations by two in-charge nurses (shift in-charge and ICU in-charge). Notably, 39 (78 %) of the participating nurses had no prior training in time optimization techniques and were aged between 21-26 years.

The intervention led to significant improvements in work execution, with nurses transitioning from poor to good practices.[23] This suggests that regular educational programs focusing on time optimization can enhance nurses' performance, affirming the value of such training. Compliance with the time planner was high, with 98 % of participants showing good adherence after consistent reinforcement of time optimization techniques.

While there was a marginal decrease in burnout following the intervention, the reduction was not substantial. Both self-reports and ICU in-charge assessments indicated only a slight decline in burnout levels. Similar findings were observed Khamisa, N. et al. [24] which reported emotional exhaustion among nurses. Unequal resource distribution may contribute significantly to burnout.

The correlation between work execution and burnout was weakly positive (r=0,18) and not statistically significant (p>0,05). This contrasts with findings from Phillips (2020), which identified a correlation between workload perception and burnout. Other factors contributing to burnout may include inadequate staffing, long shifts, moral distress[25] over-dedication, lack of respect, unequal work distribution, micromanagement, emphasis on mistakes over achievements, lack of recognition, slow promotions, low salary, lack of support, financial stress, denial of casual leave, insufficient family support, lack of breaks, compassion fatigue, an unhelpful work environment, insufficient supplies, frequent interruptions, and low self-esteem.

Addressing these factors is crucial for mitigating burnout. Strategies such as true collaboration, adequate breaks, relaxation practices to build resilience, embracing diversity, seeking career growth opportunities through higher education and skill acquisition, coping strategies, and empowerment can help nurses manage job stress more effectively.[26] By addressing the root causes of burnout, healthcare organizations can foster a more supportive and sustainable work environment for nurses.

CONCLUSION

The study concluded that the nurse guided time optimization intervention was an effective strategy in bridging the gap between planning and execution of nursing care. The nurses feel ease to practice and evaluate their work done at the end of the day. Continuous practice of these interventions will develop the nurse to become proficient in rendering quality care to the critically ill patients.

BIBLIOGRAPHIC REFERENCES

1. Ebrahimi, H., Hosseinzadeh, R., Tefreshi, M. Z., & Hosseinzadeh, S. (2014). Time management behaviors of head nurses and staff nurses employed in Tehran Social Security Hospitals, Iran in 2011. Iranian journal of nursing and midwifery research, 19(2), 193-198.

2. Papali, M., Bosch, N. A., Duin, L. J., et al. (2019). Critical care resource management in low- and middle-income countries. Critical Care Clinics, 35(1), 31-44. https://doi.org/10.1016/j.ccc.2018.08.002

3. Jami, L. (2022). Time management in intensive care units: Strategies for nurses. Journal of Nursing Management, 30(3), 679-688. https://doi.org/10.1111/jonm.13345.

4. Driscoll, A., Grant, M. J., Carroll, D., Dalton, S., Deaton, C., Jones, I., … & Astin, F. (2018). The effect of nurse-to-patient ratios on nurse-sensitive patient outcomes in acute specialist units: a systematic review and meta-analysis. European journal of cardiovascular nursing, 17(1), 6-22.

5. Fiona, Y., Anantha, N., Lisa, M., Kim, W., Anna, K., & Melody, S. (2020). Describing objectively measured intensive care nurses' physical work activity behavioural patterns during a 12-hr shift

6. da Silva Diniz, S. O., Costa, E. M., Ferreira, I. P., da Silva, P. S., & Tonini, T. (2021). Gerenciamento do tempo no processo de trabalho dos enfermeiros em Unidade de Terapia Intensiva [Time management in the work process of nurses in the intensive care unit][Gestión del tiempo en el proceso de trabajo de enfermeros de la unidad de cuidados intensivos]. Revista Enfermagem UERJ, 29, e61926-e61926.

7. Friganović, A., Selič, P., & Ilić, B. (2019). Stress and burnout syndrome and their associations with coping and job satisfaction in critical care nurses: a literature review. Psychiatria Danubina, 31(suppl. 1), 21-31.

8. Rudman, A., Gustavsson, P., & Hultell, D. (2020). A prospective study of nurses' intentions to leave the profession during their first three years of practice in Sweden. International Journal of Nursing Studies, 51(4), 612-624. https://doi.org/10.1016/j.ijnurstu.2013.09.012

9. Witte WS & H De. Burnout Assessment Tool. 2019; Available from: https://burnoutassessmenttool.be/wp-content/uploads/2020/08/BAT-English.pdf

10. Gueritault-Chalvin, V., Kalichman, S. C., Demi, A., & Peterson, J. L. (2000). Work-related stress and occupational burnout in AIDS caregivers: test of a coping model with nurses providing AIDS care. AIDS care, 12(2), 149-161.

11. Udho, S., & Kabunga, A. (2022). Burnout and associated factors among hospital-based nurses in Northern Uganda: a cross-sectional survey. BioMed Research International, 2022.

12. Kurniawan, S. J., Putra, K. R., & Hartawan, I. G. A. G. U. (2022). Prevalence of burnout symptoms in nurses assigned to COVID-19 isolation rooms. Jurnal Administrasi, 18(2), 145-154

13. Fountouki, A., & Theofanidis, D. (2022). Professional burnout: models explaining the phenomena in nursing. Int J Caring Sci, 15, 1587-1597.

14. Ceballos-Vásquez, P., Rolo-González, G., Hérnandez-Fernaud, E., Díaz-Cabrera, D., Paravic-Klijn, T., & Burgos-Moreno, M. (2015). Factores psicosociales y Carga mental de trabajo: una realidad percibida por enfermeras/os en Unidades Críticas. Revista Latino-Americana de Enfermagem, 23, 315-322.

15. Vizeshfar, F., Rakhshan, M., Shirazi, F., & Dokoohaki, R. (2022). The effect of time management education on critical care nurses' prioritization: a randomized clinical trial. Acute and Critical Care, 37(2), 202.

16. Bampoori, S., Ghaljeh, M., & Navidian, A. (2019). The effect of time management training on stress and burnout of nurses in educational hospitals of Zahedan University of Medical Sciences 2018. Sadra Medical Journal, 7(4), 401-412.

17. Rasooli, P., Khankeh, H. R., Khoshknab, M. F., & Rahgozar, M. A. H. D. I. (2009). Effect of Time Management Training on Work-Family Conflict among Hospital Nurses. Hayat, 15(3).

18. Ravari, A. K., Farokhzadian, J., Nematollahi, M., Miri, S., & Foroughameri, G. (2020). The effectiveness of a time management workshop on job stress of nurses working in emergency departments: an experimental study. Journal of Emergency Nursing, 46(4), 548-e1.

19. Tofighi, M., Tirgari, B., Ghomian, Z., Safari, M., Bazyar, J., Mohammadi, E., ... & Safarpour, H. (2022). Time management behaviors and emotional intelligence in head nurses in emergency and intensive care units. Creative Nursing, 28(1), 29-35.

20. Juneja, P. (2015). Time Management - Meaning and its Importance. https://managementstudyguide.com/time-management.htm#google_vignette

21. Hu, D., Kong, Y., Li, W., Han, Q., Zhang, X., Zhu, L., ... & Zhu, J. (2020). Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study. EClinicalMedicine, 24, 100424. https://doi.org/10.1016/j.eclinm.2020.100424

22. Kumar, A., Sinha, A., Varma, J. R., Prabhakaran, A. M., Phatak, A. G., & Nimbalkar, S. M. (2021). Burnout and its correlates among nursing staff of intensive care units at a tertiary care center. Journal of family medicine and primary care, 10(1), 443-448.

23. Ziapour, A., Khatony, A., Jafari, F., & Kianipour, N. (2015). Evaluation of time management behaviors and its related factors in the senior nurse managers, Kermanshah-Iran. Global journal of health science, 7(2), 366.

24. Khamisa, N., Oldenburg, B., Peltzer, K., & Ilic, D. (2015). Work related stress, burnout, job satisfaction and general health of nurses. International journal of environmental research and public health, 12(1), 652-666.

25. Karakachian, A., & Colbert, A. (2019). Nurses' moral distress, burnout, and intentions to leave: an integrative review. Journal of Forensic Nursing, 15(3), 133-142.

26. Heeb, J. L., & Haberey-Knuessi, V. (2014). Health professionals facing burnout: what do we know about nursing managers?. Nursing research and practice, 2014.

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AUTHORSHIP CONTRIBUTION
Conceptualization: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan, Dr Adithya. A. Venkat.
Data curation: MS.Angelin Santhakumari H, Dr Manjula Annamalai .
Formal analysis: MS.Angelin Santhakumari H, Dr Manjula Annamalai.
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Research: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan, .
Methodology: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan, Dr Adithya. A. Venkat .
Project management: MS.Angelin Santhakumari H, Dr Manjula Annamalai.
Resources: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan, Dr Adithya. A. Venkat.
Software: MS.Angelin Santhakumari H, Dr Manjula Annamalai .
Supervision: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan, Dr Adithya. A. Venkat.
Validation: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan, Dr Adithya. A. Venkat.
Display: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan.
Drafting- original draft: MS.Angelin Santhakumari H, Dr Manjula Annamalai.
Writing-proofreading and editing: MS.Angelin Santhakumari H, Dr Manjula Annamalai, Dr Porkodi Arjunan.