THE WOCSI JOURNAL OF MEDICAL SCIENCE

WOUND & OSTOMY CARE SOCIETY OF INDIA

Effects of Mindfulness Meditation Program on Adjustment Problem Faced By Nursing Students

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Abstract:
Adolescence is the most important period in one's life. It has affection andexcitement, the mind is pious and pure, and free of all wickedness. The adolescentis still teen and lacks maturity of thought and experiences. He/she is not aware ofwhat is proper and what is improper and therefore is danger of going in the wrongpath. To evaluate the effectiveness of mindful meditation on adjustment problem among nursing students. To find out the association between level of adjustment problem and their selected demographic variables. The problem of adjustment is vitalproblem of the modern world. This problem is a matter of such widespread concerns that books, magazines, scientific journals etc. dealing with adjustment problems are appearing more frequently. Although derived from a relatively small number of studies, these results suggest that Mindfulness based stress reduction may help a broad range of individuals to cope with their clinical and nonclinical problems.

Keyword : Mindfulness, Meditation, Adjustment, Mindfulness based stress reduction, Stress

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Received: 27/06/2024 Accepted: 28/06/2024 Published: 30/06/2024

Introduction:

The present society is an ever Changing society and with the passage of time; the needs of human beings are growing day by day. The individuals today are facing contradictions and hence facing difficulty in adjustment with environment. Being a social animal, man needs society and to remain in society he has to adjust with the values of society. [1-2] Without social adjustment man cannot live happily. Man lives by himself in the changing circumstances of the society. An individual feels a sort of emotional tension, uneasiness and restlessness when he does not or cannot adjust himself with social environment. An individual feels a sort of emotional tension, uneasiness and restlessness when he does not or cannot adjust himself with social environment. Good (1959) states that adjustment is the process of adopting modes of behavior suitable to the environment or the changes in the environment. Unless a person is not able to adjust himself to the environment, he/ she cannot develop his/her

wholesome personality.[3] Lack of experience, fear of making mistakes, discomfort at being evaluated by faculty members, worrying about giving patients the wrong information or medication and concern about possibly harming a patient are just a few of the stressors for the beginning student nurse. [4] The researches shows that the stress among nursing students is high and the investigator herself has undergone a lot of emotional stress during the 1st year of Bsc Nursing course due to new environment, parental separation, work load and new peer groups. [5]Mindfulness meditation has been proven effective for reducing stress. Recently healthcare providers of multiple disciplines are overwhelmingly turning to the practice of mindfulness meditation as a useful tool in building a self-care routine. [5-6] Meditation has several benefits such as deeper level of relaxation, builds self- confidence, helps to control own thought, Improve learning ability and memory, increase emotional stability, increase productivity, develop will power, react more quickly and more effectively to a stressful event, more sociable behavior, increases listening skills and empathy, helps make more accurate judgments, greater tolerance, more balanced personality, develops emotional maturity experience an inner sense of "assurance or knowingness", increases the synchronicity in your life. [7-8]

Mindful meditation

Mindful meditation refers to focusing on physical sensation, such as movement or breath and on the thoughts in order to increase awareness and enhance living in the moment to the fullest extent possible. [9]

Adjust : An adjustment is a change in a person's behavior or thinking. [10]

Stress: In this study stress refers to the response of the first year B. Sc. nursing students to situations that disrupt their physical, physiological, intellectual, emotional, and social aspects as measured by a stress scale.[11]

Methodology

The methodology of research indicates the general pattern of organizing the procedure for gathering valid and valuable data for the purpose of investigation. The methodology of this study includes the research approach, research design, setting of the study, population sample and sampling technique, development of tool, data collection procedure and plan for data analysis. An experimental study was conducted to determine the level of adjustment and effectiveness of mindful meditation on students with adjustment problem who were studying in first year B.Sc Nursing in College at Komarapalayam. The research design was one group pre-test post-test experimental design. The sample size was 40. Purposive sampling technique was used to select the students. The aim of the study was to determine the level of adjustment problem and to find out the effectiveness of mindful meditation among students who are studying in first year . The analysis was done in three sections as follows,

Section I : Demographic variables of students.

Section II: Effectiveness of mindful meditation in reducing adjustment problem.

Section III: Association between the demographic variables with level of adjustment.

The gathered data was tabulated, grouped and analyzed. Biostatisticial methods (chi square and correlation) were used for analysis.

MAJOR STUDY FINDINGS

FINDINGS: 1

Pre-test reveals that 4(10%) having no adjustment problem, 4(10%) having mild level of adjustment problem, and 32(80%) having severe adjustment problem. Post-test reveals that 32(80%) having no stress and adjustment problem, 8(15%) having mild level of adjustment problem, assessed by using college adjustment scale.

FINDINGS: 2

Comparison of mean and standard deviation score of level of adjustment and effectiveness of mindful meditation among students during pretest and postest. In the students pretest mean level of adjustment problem was 11.8 with the standard deviation of 5.12 and posttest mean level of problems score was 2.75 with the standard deviation of 1.67. The mean difference between the pretest and posttest value was 9.05. The paired 't' test value of 11.13. In the students a statistically significant value at $p<0.05$. It is interpreted that mindful meditation reduced the level of stress and adjustment.

FINDINGS : 3

Association of the demographic variables with the level of adjustment problems among students. The chi square test shown that there was no significant association between the selected demographic variables of age, sex, religion, type of family, education qualification of mother, occupation of mother and father, monthly family income, source of information regarding mindful meditation, and there was significant association between the educational qualification of father , residential area, previous knowledge regarding mindful meditation.

Discussion

Table 1: Illustrate the distribution of demographic variables of 40 students, which includes 29(72.5%)students were between the age group of 16 to 18 years, 19 (22.5%)students were between the age group of 19 to 20 years, and 2(5%)students were above 22 to 25 years. Regarding sex of the students, 33(82.5%) were female and 7(17.5%) were male students. Regarding hostel staying in the students, 39(97.5%) students were staying in hostel and 1(2.5%) students were day scholar. Regarding religion of the students, 36(90%) students were Hindu and 4(10%) students were Christian. Regarding residential area of the students, 27(67.5%) students were from rural, and 13(32.5%) students were from urban. Regarding the type of family of the students, 28(70. %) students were from nuclear family, and 12(30%) students were from joint family. Regarding educational qualification of the student's father, 4(10%) people were uneducated, 5(12.5%) persons were S.S.L.C, and 21 (52.5%) persons were higher secondary level, 10 (25%) people's graduates. Regarding occupation of the student's father, 4(10%) persons were self- employee, 13(32.5%) persons were daily in wages, 20(50%) persons were working private and 3(7.5%) persons were working in government. None were unemployed. Regarding educational qualification of the student's mother, 7(17.5%) women were uneducated, 20(50%) women were S.S.L.C, 10 (25%) women were higher secondary level, 3(7.5%) women were graduates. Regarding occupation of the student's mother, 21(52.5%) women were home maker, 1(2.5%) woman self-employed, 8(20%) women working in daily wages, 5(12.5%) women were working in private and 5(12.5%) women were working in government. Regarding the monthly income of the family, 13(32.5%) persons were having the monthly income of Rs 5001 to 10000/- and 12(30%) persons were having 10001 to 2000/-, 15(37.5%) persons were having above 20000 monthly income. Considering the previous knowledge regarding mindful meditation in the students, 15(37.5%) students were having previous knowledge,

and 25(62.5%) students had no previous knowledge. Considering the source of information regarding mindful meditation in the students, 2(5%) students got information from family members, and 3(7.5%) students got information from friends, 10(25%) students were received information from mass media.ment, and by 2025, that number is expected to rise to 400 million. 10.4 million cases of tuberculosis (TB) and 1.4 million recorded deaths worldwide occurred in 2015[1]. Worldwide, acute and chronic respiratory illnesses are a major cause of morbidity and mortality; this is especially true in developing nations. India has a disproportionately high incidence of chronic respiratory illnesses (CRDs), according to reports on the global burden of disease (GBD)[2-3]. The most prevalent diagnoses were for respiratory tract infections (RTIs), chronic obstructive pulmonary disease (COPD), asthma (29.8%), and tuberculosis (8.7%).[4] Additional animal testing will be done during the drug development process to determine the dosage needed to produce outcomes that are clinically significant and to assess the drug's safety. Trials on humans will follow if these trials prove effective[5]. While there is no known cure for COPD or asthma, both conditions can be controlled using inhaled bronchodilators, which inhale aerosolized medicine into the lungs. Bronchodilators can be inhaled using a variety of inhaler devices, such as nebulizers, dry powder inhalers, soft mist inhalers, and metered-dose inhalers (MDIs).[6] However, it's critical to adhere to a healthy routine and take medication on time. Seventy percent of asthmatics who do so typically outgrow their long-term illness. Therefore, in order to give inhaled medication, a nurse must be fully knowledgeable about and skilled in using the device used to manage asthma. With the right medication and thorough patient education, the nurses support the patient in leading an active and healthy life. The present study was conducted with aim to assess the effectiveness of planned health teaching programme on knowledge and practice regarding use of metered dose inhaler among the asthmatic patients.

Methodology

The descriptive evaluative approach was used because the present study was aimed at development of planned health teaching programme on knowledge and practice score regarding use of metered dose inhaler among the asthmatic patients. In the present study the investigator selected one group pre test – post test design. The investigator observed the group prior to the intervention of planned health teaching programme (pre-test), the same group was given planned health teaching programme by using Power Point Presentation and after seven days the group was observed again (post-test). Non-Probability, convenience sampling technique was used to select the participants for present study. In this study, sample comprised of 60 asthmatic patients. The planned health teaching programme was prepared on knowledge and practices regarding use of metered dose inhaler at selected hospitals of Indore. The data was collected with help of dempographic profile, structured knowledge questionnaire and observation checklist.

Procedure for data collection

Administrative permission was procured obtained from the Medical Superintend of Geeta Bhawan Hospitals. The individual consent was taken from selected samples. The actual data was collected from 20th April to 05th May. At the beginning of session was introduced by investigator. They were explained about the purpose of the study and assured about confidentiality of the information between the investigator and the respondent only. Their willingness was sought for. The investigator himself administered the structured questionnaire schedule for the pre-test. Practice regarding use of metered dose inhaler was assessed with the help of checklist along with pre-test. Planned teaching was given to this study group by keeping language simple. After seventh day of the post test was conducted by investigator and practice regarding use of metered dose inhaler was also assessed at the same time. Time taken for post-test was approximately 20 minutes.

Results

Table-1: Description of samples according to demographic profile. N=60

S.No.	Characteristic of samples	Frequency	Percentage (%)
Age in Years	10 to 20	4	6.7
	21 to 30	4	6.7
	31 to 40	10	16.7
	Above 41	42	70.0
Gender	Male	21	35.0
	Female	39	65.0
Education	Up to 10^{th} Std	22	36.7
	Up to 12^{th} std	16	26.7
	Graduation.	15	25.0
	Post-Graduation	7	11.7
Occupation	Student	5	8.3
	Service	19	31.7
	Business	32	53.3
	Laborer	0	0
	Unemployed	4	6.7
Monthly Family income	Below Rs 5000/-	0	0
	Rs 5001 -10000/-	4	6.7
	Rs 10001- 15000/-	19	31.7

	Above Rs 15001/-	37	61.7
Diagnosis	Bronchial asthma	27	45.0
	COPD	8	13.3
	Bronchitis	23	38.3
	Breathlessness	2	3.3
Duration of illness in year	Up to 2 year	42	70.0
	2 to 4 year	10	16.7
	4 to 6 year	6	10.0
	6 to 8 year	2	3.3
Types of MDI	Metered dose inhaler with spacer	14	23.3
	Metered dose inhaler without spacer	46	76.7

Table-1 showed that age 41 yrs were in high majority i.e. 70%, the patient from the age group of 31 to 40 yrs were 16.7%. In terms of gender, 65% samples were females and 35% samples were males. As per educational status, 36.7% samples studied up to 10^{th} std, 26.7% samples studied up to 12^{th} std, graduates were 25.0% and post graduates were 11.7%. According to occupation, 53.3% Samples had business as their occupation, 31.7% as service men and 8.3% as students. As per diagnosis, 45.0% samples diagnosed with bronchial asthma, 38.3% samples diagnosed with bronchitis, 13.3% samples diagnosed with COPD and 3.3 samples diagnosed with breathlessness. In terms of duration of illness, 70% samples had duration of illness from 0 to 2 year, then 16.7% samples had duration of illness 2 to 4 year, 10.0% samples had duration of illness 4 to 6 year and 3.3% samples had duration of illness 6 to 8 year. As per use of inhaler, 76.7% samples used type

of metered dose inhaler without spacer. And 23.3% samples used metered dose inhaler with space.

Table-2: Distribution of overall knowledge score in frequency and percentage of the samples.

N=60

Levels of knowledge	**PRE-TEST**		**POST-TEST**	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Poor (0-10)	12	20%	0	0%
Good (11-14)	47	78.3%	1	1.7%
Excellent (15-20)	1	1.7%	59	98.3%

The findings highlighted that maximum percentages of patient (78.3%) were having good knowledge scores (Table-2). The planned teaching showed remarkable improvement in post test knowledge score 98.3% of sample shows knowledge score in the range of 15-20. The above table showed that the pre teaching phase 48.3% samples showed poor practices followed by 51.7% have good practices. While in posttest, 100% of samples have good practice (Table-3). The above findings revealed that in pre-teaching phase knowledge mean scores was 11.82 and post-teaching phase knowledge mean scores was 16.80. The results indicated that there was a significant difference ($p<0.00001$) in knowledge scores after teaching intervention regarding use of metered dose in inhaler. Table-5 explored that in pre-teaching phase practice mean scores was 8.35 and post-teaching phase practice mean scores was 11.10. The results indicated that there was a significant difference ($p<0.0001$) in practice scores after teaching intervention regarding use of metered dose in inhaler.

Levels of practice	Pre-Test		Post-Test	
	Frequency	Percentage	Frequency	Percentage
Poor (0-4)	29	48.3%	0	0%
Good (5-8)	31	51.7%	100	100%
Excellent (9-12)	0	0%	0	0%

Table-3: Distribution of level of practice in frequency and percentage of the samples. **N=60**

Table-4: Compartive difference between pre test & post test knowledge scores. **N=60**

Knowledge score	Mean	Std. Deviation	t-value	p-value
Pre test scores	11.82	1.359	25.333	<0.00001
Post test scores	16.80	1.176		

Table- 5: Comparison between pre test & post test practice scores. N=60

Practice score	Mean	Std. Deviation	t-value	p-value
Pre test	8.35	1.338	15.110	<0.0001
Post test	11.10	.730		

Table-6: Association between pretest knowledge score, practice score and demographic variables. **(N=60)**

Demographic variables	Chi-square	Knowledge Score	Practice Score
Age	Chi-sq. value	16.285	3.643
	p-value	0.573	0.725
	Significant	NS	NS

Gender	Chi-sq. value	13.827	0.624
	p-value	0.032	0.732
	Significant	S	NS
Education	Chi-sq. value	21.171	3.015
	p-value	0.271	0.807
	Significant	S	NS
Occupation	Chi-sq. value	12.979	4.365
	p-value	0.793	0.627
	Significant	NS	NS
Income	Chi-sq. value	8.576	1.675
	p-value	0.739	0.795
	Significant	NS	NS
MDI Used	Chi-sq. value	6.61	3.677
	p-value	0.358	0.159
	Significant	S	S
Diagnosis	Chi-sq. value	18.921	8.9
	p-value	0.397	0.179
	Significant	S	S
Duration Illness	Chi-sq. value	13.52	5.683
	p-value	0.76	0.46
	Significant	NS	S
MDI Type	Chi-sq. value	5.96	2.405
	p-value	0.428	0.3
	Significant	S	S

The findings in table-6 communicated show that there is no significant relationship between age, occupation, family monthly income, duration of illness and significant relationship between gender, education, MDI used, diagnosis, MDI type on the existing knowledge of asthmatic patient regarding use of metered dose inhaler. The study show that there is no significant relationship between age, gender, education, occupation, family monthly income and significant relationship between MDI used, diagnosis, duration of illness, MDI type on the existing practices of asthmatic patient regarding use of metered dose inhaler.

Discussion

The present study was done to evaluate effectiveness of the teaching programme on knowledge and practice regarding use of metered dose inhaler among the asthmatic patients. The results highlighted that during the pre-test phase, 78.03% of asthmatic patient had a good knowledge. A study by Tadele A et al (2021)[7] revealed that 66.9% participants had good knowledge of asthma and inhalational techniques. In contrast to our resech findings, Anjusha M et al (2019)[8] explored that 5% had good knowledge, 82.2% had moderate knowledge, and 12.8% had poor knowledge regarding metered-dose inhaler use. The present study also assessed the practices of the participants towards MDI uses. The findings highlighted that during pre intervention observation, majority of the samples (48.03%) had an adequate practices. In this context, a study by Maepa HM et al (2019)[9] over 50% of participants did not demonstrate MDI technique to patients, or check their patients' technique at every hospital-related visit. Anjusha M et al (2019)[8] explored 8.9% had good practice, 54.5% had moderate practice, and 36.6% had poor practice of metered-dose inhaler use. In contrast to our resech findings, Tadele A et al (2021)[7] revealed that 65.1% patients had effective practice on metered-dose inhaler use techniques. Sharma S et al (2017)[10] explored that the knowledge of inhalational therapy was satisfactory while the demonstration of inhaler techniques to patients was moderate. These findings were also in support of our research work. Additionally, the present study highlighted that planned teaching was significantly effective ($P<0.001$) in increasing the knowledge and practices of participants regarding use of metered dose inhaler. A research by Tom JK et al (2018)[11] highlighted that educational training regarding MDI use was significantly effective ($P<0.001$) in increasing the knowledge and practices of participants. A similar study is done by Kishore PV et al (2003)[12] stated that MDI awareness and use among healthcare professionals was poor before the intervention. The intervention was substantially effective in improving the technique. Anjali M et al (2021)[13] and Kumar S et al (2021)[14], Kukreti A et al (2023)[15] also revealed that teaching program was effective on knowelge and practices.

Conclusion

The findings of the study showed that the knowledge and practices regarding use of metered dose inhaler were limited among the participants but knolwge nd practices were improved through planned health teaching programme. This study has

shown that the knowledge and practices regarding use of metered dose inhaler is quite good, which can be updated through in-service education. The planned health teaching programme on use of metered dose inhaler was found to be effective in increasing the knowledge and practices of asthmatic patients. This study has also proved that planned health teaching programme improves their knowledge and practices will help to minimize the health problems. And help to asthmatic patient improve their knowledge and practices regarding use of MDI. The teaching program may be adopted by healthcare profesiinals to enhance the knowledge and practices towards MDI uses.

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Knowledge And Practices Regarding Use Of Metered Dose Inhaler (MDI) Among Asthmatic Patients

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ABSTRACT

Introduction: Asthma is thought to impact 334 million people globally at the moment, and by 2025, that number is expected to rise to 400 million. 10.4 million cases of tuberculosis (TB) and 1.4 million recorded deaths worldwide occurred in 2015. Worldwide, acute and chronic respiratory illnesses are a major cause of morbidity and mortality; this is especially true in developing nations. The present study was conducted with aim to assess the effectiveness of planned health teaching programme on knowledge and practice regarding use of metered dose inhaler among the asthmatic patients.

Methodology: In the study, quantitative approach and one group pretest post test design were selected. Non-Probability, convenience sampling technique was used to select the participants for present study. In this study, sample comprised of 60 asthmatic patients.

Results: The findings of the study showed that the knowledge and practices regarding use of metered dose inhaler were limited among the participants but knolwge nd practices were improved through planned health teaching programme. The planned health teaching programme on use of metered dose inhaler was found to be effective ($p<0.001$) in increasing the knowledge and practices of asthmatic patients.

Conclusion: This study has also proved that planned health teaching programme improves their knowledge and practices will help to minimize the health problems. The teaching program may be adopted by healthcare profesiinals to enhance the knowledge and practices towards MDI uses.

Keywords: Knowledge, Practices, Metered dose inhaler (MDI), Asthmatic patients, Teaching program

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Received: 19/05/2024 Accepted: 23/05/2024 Published: 30/06/2024

Introduction

The world's largest cause of illness and mortality, respiratory diseases place a heavy strain on global health. The top four respiratory illnesses among the top ten main causes of death globally are tuberculosis, lung cancer, lower respiratory tract infections, and chronic obstructive pulmonary disease (COPD). According to estimates from the Forum of International Respiratory Societies, 3 million fatalities annually are attributed to moderate-to-severe COPD, making it the third most common cause of death globally, affecting 65 million individuals. Asthma is thought to impact 334 million people globally at the

moment, and by 2025, that number is expected to rise to 400 million. 10.4 million cases of tuberculosis (TB) and 1.4 million recorded deaths worldwide occurred in 2015[1]. Worldwide, acute and chronic respiratory illnesses are a major cause of morbidity and mortality; this is especially true in developing nations. India has a disproportionately high incidence of chronic respiratory illnesses (CRDs), according to reports on the global burden of disease (GBD)[2-3]. The most prevalent diagnoses were for respiratory tract infections (RTIs), chronic obstructive pulmonary disease (COPD), asthma (29.8%), and tuberculosis (8.7%).[4] Additional animal testing will be done during the drug development process to determine the dosage needed to produce outcomes that are clinically significant and to assess the drug's safety. Trials on humans will follow if these trials prove effective[5]. While there is no known cure for COPD or asthma, both conditions can be controlled using inhaled bronchodilators, which inhale aerosolized medicine into the lungs. Bronchodilators can be inhaled using a variety of inhaler devices, such as nebulizers, dry powder inhalers, soft mist inhalers, and metered-dose inhalers (MDIs).[6] However, it's critical to adhere to a healthy routine and take medication on time. Seventy percent of asthmatics who do so typically outgrow their long-term illness. Therefore, in order to give inhaled medication, a nurse must be fully knowledgeable about and skilled in using the device used to manage asthma. With the right medication and thorough patient education, the nurses support the patient in leading an active and healthy life. The present study was conducted with aim to assess the effectiveness of planned health teaching programme on knowledge and practice regarding use of metered dose inhaler among the asthmatic patients.

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Results

Table-1: Description of samples according to demographic profile. N=60

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	Up to 12^{th} std	16	26.7
	Graduation.	15	25.0
	Post-Graduation	7	11.7
Occupation	Student	5	8.3
	Service	19	31.7
	Business	32	53.3
	Laborer	0	0

	Unemployed	4	6.7
Monthly Family income	Below Rs 5000/-	0	0
	Rs 5001 -10000/-	4	6.7
	Rs 10001- 15000/-	19	31.7
	Above Rs 15001/-	37	61.7
Diagnosis	Bronchial asthma	27	45.0
	COPD	8	13.3
	Bronchitis	23	38.3
	Breathlessness	2	3.3
Duration of illness in year	Up to 2 year	42	70.0
	2 to 4 year	10	16.7
	4 to 6 year	6	10.0
	6 to 8 year	2	3.3
Types of MDI	Metered dose inhaler with spacer	14	23.3
	Metered dose inhaler without spacer	46	76.7

Table-1 showed that age 41 yrs were in high majority i.e. 70%, the patient from the age group of 31 to 40 yrs were 16.7%. In terms of gender, 65% samples were females and 35% samples were males. As per educational status, 36.7% samples studied up to 10^{th} std, 26.7% samples studied up to 12^{th} std, graduates were 25.0% and post graduates were 11.7%. According to occupation, 53.3% Samples had business as their occupation, 31.7% as service men and 8.3% as students. As per diagnosis, 45.0% samples diagnosed with bronchial asthma, 38.3% samples diagnosed with bronchitis, 13.3% samples diagnosed with COPD and 3.3 samples diagnosed with breathlessness. In terms of duration of illness, 70% samples had duration of illness from 0 to 2 year, then 16.7% samples had duration of illness 2 to 4 year, 10.0% samples had duration of illness 4 to 6 year and 3.3% samples had duration of illness 6 to 8

year. As per use of inhaler, 76.7% samples used type of metered dose inhaler without spacer. And 23.3% samples used metered dose inhaler with space.

Table-2: Distribution of overall knowledge score in frequency and percentage of the samples. **N=60**

Levels of Knowledge	PRE-TEST		POST-TEST	
	Frequency	Percentage	Frequency	Percentage
Poor (0-10)	12	20%	0	0%
Good (11-14)	47	78.3%	1	1.7%
Excellent (15-20)	1	1.7%	59	98.3%

The findings highlighted that maximum percentages of patient (78.3%) were having good knowledge scores (Table-2). The planned teaching showed remarkable improvement in post test knowledge score 98.3% of sample shows knowledge score in the range of 15-20. The above table showed that the pre teaching phase 48.3% samples showed poor practices followed by 51.7% have good practices. While in posttest, 100% of samples have good practice (Table-3). The above findings revealed that in pre-teaching phase knowledge mean scores was 11.82 and post-teaching phase knowledge mean scores was 16.80. The results indicated that there was a significant difference ($p<0.00001$) in knowledge scores after teaching intervention regarding use of metered dose in inhaler. Table-5 explored that in pre-teaching phase practice mean scores was 8.35 and post-teaching phase practice mean scores was 11.10. The results indicated that there was a significant difference ($p<0.0001$) in practice scores after teaching intervention regarding use of metered dose in inhaler.

Table-3: Distribution of level of practice in frequency and percentage of the samples. **N=60**

Levels of practice	**Pre-Test**		**Post-Test**	
	Frequency	Percentage	Frequency	Percentage
Poor (0-4)	29	48.3%	0	0%
Good (5-8)	31	51.7%	100	100%
Excellent (9-12)	0	0%	0	0%

Table-4: Compartive difference between pre test & post test knowledge scores.**N=60**

Knowledge score	**Mean**	**Std. Deviation**	**t-value**	**p-value**
Pre test scores	11.82	1.359	25.333	<0.00001
Post test scores	16.80	1.176		

Table- 5: Comparison between pre test & post test practice scores. **N**=60

Practice score	**Mean**	**Std. Deviation**	**t-value**	**p-value**
Pre test	8.35	1.338	15.110	<0.0001
Post test	11.10	.730		

Table-6: Association between pretest knowledge score, practice score and demographic variables. **(N=60)**

Demographic variables	Chi-square	Knowledge Score	Practice Score
Age	Chi-sq. value	16.285	3.643
	p-value	0.573	0.725
	Significant	NS	NS
Gender	Chi-sq. value	13.827	0.624
	p-value	0.032	0.732
	Significant	S	NS
Education	Chi-sq. value	21.171	3.015
	p-value	0.271	0.807
	Significant	S	NS
Occupation	Chi-sq. value	12.979	4.365
	p-value	0.793	0.627
	Significant	NS	NS
Income	Chi-sq. value	8.576	1.675
	p-value	0.739	0.795
	Significant	NS	NS

MDI Used	Chi-sq. value	6.61	3.677
	p-value	0.358	0.159
	Significant	S	S
Diagnosis	Chi-sq. value	18.921	8.9
	p-value	0.397	0.179
	Significant	S	S
Duration Illness	Chi-sq. value	13.52	5.683
	p-value	0.76	0.46
	Significant	NS	S
MDI Type	Chi-sq. value	5.96	2.405
	p-value	0.428	0.3
	Significant	S	S

The findings in table-6 communicated show that there is no significant relationship between age, occupation, family monthly income, duration of illness and significant relationship between gender, education, MDI used, diagnosis, MDI type on the existing knowledge of asthmatic patient regarding use of metered dose inhaler. The study show that there is no significant relationship between age, gender, education, occupation, family monthly income and significant relationship between MDI used, diagnosis, duration of illness, MDI type on the existing practices of asthmatic patient regarding use of metered dose inhaler.

Discussion

The present study was done to evaluate effectiveness of the teaching programme on knowledge and practice regarding use of metered dose inhaler among the asthmatic patients. The results highlighted that during the pre-test phase,

78.03% of asthmatic patient had a good knowledge. A study by Tadele A et al (2021)[7] revealed that 66.9% participants had good knowledge of asthma and inhalational techniques. In contrast to our resech findings, Anjusha M et al (2019)[8] explored that 5% had good knowledge, 82.2% had moderate knowledge, and 12.8% had poor knowledge study by Maepa HM et al (2019)[9] over 50% of participants did not demonstrate MDI technique to patients, or check their patients' technique at every hospital-related visit. Anjusha M et al (2019)[8] explored 8.9% had good practice, 54.5% had moderate practice, and 36.6% had poor practice of metered-dose inhaler use. In contrast to our resech findings, Tadele A et al (2021)[7] revealed that 65.1% patients had effective practice on metered-dose inhaler use techniques. Sharma S et al (2017)[10] explored that the knowledge of inhalational therapy was satisfactory while the demonstration of inhaler techniques to patients was moderate. These findings were also in support of our research work. Additionally, the present study highlighted that planned teaching was significantly effective (P<0.001) in increasing the knowledge and practices of participants regarding use of metered dose inhaler. A research by Tom JK et al (2018)[11] highlighted that educational training regarding MDI use was significantly effective (P<0.001) in increasing the knowledge and practices of participants. A similar study is done by Kishore PV et al (2003)[12] stated that MDI awareness and use among healthcare professionals was poor before the intervention. The intervention was substantially effective in improving the technique. Anjali M et al (2021)[13] and Kumar S et al (2021)[14], Kukreti A et al (2023)[15] also revealed that teaching program was effective on knowelge and practices.

regarding metered-dose inhaler use. The present study also assessed the practices of the participants towards MDI uses. The findings highlighted that during pre intervention observation, majority of the samples (48.03%) had an adequate practices. In this context, a

Conclusion

The findings of the study showed that the knowledge and practices regarding use of metered dose inhaler were limited among the participants but knolwge nd practices were improved through planned health teaching programme. This study has shown that the knowledge and practices regarding use of metered dose inhaler is quite good, which can be updated through in-service education. The planned health teaching programme on use of metered dose inhaler was found to be effective in increasing the knowledge and practices of asthmatic patients. This study has also proved that planned health teaching programme improves their knowledge and practices will help to minimize the health problems. And help to asthmatic patient improve their knowledge and practices regarding use of MDI. The teaching program may be adopted by healthcare profesiinals to enhance the knowledge and practices towards MDI uses.

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Scope and Challenges of CAR-T Cell Therapy: An Evidence-Based Analysis

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Abstract:

Several local and systemic treatments have been established in the past year, but because the disease situation is heterogeneous, their results have been restricted. Research on therapeutic ways to enhance outcomes is ongoing in oncology. To improve patient outcomes, several immunotherapies and targeted treatments are being explored. A huge percentage of people die from cancer each year. Targeted therapies, like as trastuzumab and imatinib, start becoming available in the first decade of the twenty-first century. These medications locate and eradicate cancer cells by focusing on molecular alterations that are particularly present in cancer cells. Chimeric antigen receptor (CAR)-T therapy is an innovative immunotherapy that has demonstrated a remarkable and long-lasting therapeutic response. Artificial fusion molecules with genetic encoding, known as CARs, could reprogramme peripheral blood polyclonal T-cells to target a specific cell surface target. These uniquely designed compounds enable specifically targeted antibody steered T-cell activation by combining the binding domains from tumor targeting antibodies with T-cell signaling domains.

Keywords : CAR-T Cell Therapy, Oncology, Target Chemotheraphy

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Received: 18/06/2024 Accepted: 24/06/2024 Published: 30/06/2024

Introduction:

Many malignancies are currently treated with dozens of targeted medicines as routine care[1]. Immunotherapy, or treatments that harness and enhance a patient's immune system's ability to combat malignancies, has quickly become the "fifth pillar" of cancer care in the last ten years. Some patients with advanced cancer have proven that immune system-boosting medications can reduce or even completely remove malignancies[1]. In India, in October 2023 the Central Drugs Standard Control agency has approved actaly-cel (actalycabtagene autoleucel for the treatment of leukemia and relapsed or refractory B-cell lymphomas[2]. Though, on June 4, 2021, at the Bone Marrow Transplant unit at ACTREC, Tata Memorial Center in Mumbai, the first trial case for this therapy has already been taken. This was the first case of CAR-T cell therapy (a kind of gene therapy) in India and was the result of collaboration between TMH, the IIT Mumbai team, and cancer care India. The procedure entails several intricate processes, such as taking the patient's T cells out, creating a CAR that targets the cancer, cultivating the CAR T-cells in the laboratory, and then re-infusing them into the patient. This procedure can take two to eight weeks and is quite costly[3]. It is more appealing to proceed with this therapy because of its advantages, which include HLA-independent antigen recognition, activity in both CD4+ and CD8+ T-cells, target antigens

including carbohydrates, proteins, and glycolipids, quick generation of tumor-specific T-cells, low risk of autoimmunity or GVHD, and the fact that it is a living drug that only requires a single infusion[4-5].

CAR T-cells:

Targeting the specific antigen of cancer cells to trigger an immune response against those cells, CAR T-cells are highly skilled at evading the tumor surveillance mechanism, which is characterized by low immunogenicity, antigen modulation, immune suppression by tumor cells T regulatory cells, lymphocytic apoptosis, and defects in the mechanism of MHC-1 production that render cancer cells "invisible" to CD8 cells[4,6]. Cancer cells can be killed by targeting immunity against cancer cells and stimulating the immune system against antigens unique to malignancy. It might involve immune checkpoint blockage and adoptive cell transfer, which can stimulate the immune system non-specifically in CAR-T cell therapy. This marks a turning point in cancer treatment and a move toward customized care. However, it also has a lot of drawbacks in terms of treatment price and clinical efficacy [3], which make for third-world nations with little resources increasingly difficult[1] to go with this treatment. In terms of clinicalefficacy, solid tumors (which account for 70% of pediatric tumors and 90% of adult tumors) and hematological malignancies other **Scopes of CAR-T cell therapyAn effective treatment for B-cell malignancies:** Numerous studies demonstrate how effective this medication is for B-cell malignancies. The most notable of these is the 90% full remission rate in B cell acute lymphoblastic leukemia (B-ALL) treated with anti-CD19 CAR-T cells [7].

Acceptance for CAR-T therapy: Over time, acceptability of CAR-T therapy has improved. This specialized therapy is now more widely accepted. In certain regions, it is clearly established as a drug of last resort, or a second line of treatment. This treatment may be taken into consideration in the early stages of treatment for some medical disorders, such as high-risk lymphoma. Patients will benefit from a

than B cells are not well treated by this therapy. Apart from developed countries, this region of the world struggles with money, sophisticated technology, a skilled labor force to create and implement these treatments, and a dearth clear, appropriate regulations. In terms of clinical efficacy, solid tumors (which account for 70% of pediatric tumors and 90% of adult tumors) and hematological malignancies other than B cells are not well treated by this therapy. Apart from these countries, this region of the world struggles with money, sophisticated technology, a skilled labor force to create and implement these treatments, and a dearth of clear, appropriate regulations. Clinical drawbacks of CAR-T cell treatment include, but are not limited to, the following: limited tumor penetration, and antigen escape, severe toxicities that could be fatal, and host and tumor microenvironment[6]. Cytokine-Release Syndrome (CRS), neurological toxicity, B-cell aphasia, tumor lysis syndrome, and allergy are the most frequent side effects of CAR-T cell therapy[5-6]. A breakthrough in the treatment of cancer, CAR-T cell therapy is still in its infancy. While this has partially redirected the researchers' focus to tailored therapy, it has also raised several extremely challenging and perplexing problems. This article will give a thorough summary of the status of CAR-T-cell therapies, outlining their application, current difficulties, and anticipated advancements in the future.

CAR rather than receiving further rounds of conventional chemotherapy in this way[8].

CAR-T cell therapy beyond cancer treatment: outside the realm of cancer care although there are currently few CAR-T-cell treatments in the market, chimeric antigen receptor (CAR)-T-cell therapies have shown impressive success in the treatment of hematologic malignancies. Moreover, CAR-T cells have demonstrated encouraging potential for broadening their therapeutic uses to a variety of conditions, such as solid tumors, autoimmune (antisynthetase syndrome, systemic lupus erythematosus, and liver fibrosis), fibrotic diseases (HIV, Hep B & C, and Human Cytomegalovirus), and infectious diseases[5].

Challenges with CAR-T cell therapy : CAR-T cell therapy is considered a breakthrough in the cancer treatment, but there are lots of challenges which are considered as major hurdles to adopt it as a promising alternative to conventional therapy and some of these are as following:

Antigen escape: A single antigen expressed by cancer cells is the target of CAR-T cells, yet these cells typically exhibit partial or complete loss of target antigen expression. The only cells that can attack cancer cells are CAR-t cells when enough antigens are present [9].

Severe adverse events: Although the treatment has demonstrated encouraging outcomes in the treatment of hematological malignancies, its potentially fatal side effects, including cytokine-release syndrome (CRS) and immunological effector cell-associated neurotoxicity syndrome (ICANS), are a cause for concern[9-10]. Anaphylaxis, tumor lysis syndrome, and B-cell aphasia are among the other most often reported adverse effects.

Target antigen heterogeneity: Antigen heterogeneity, or the variation in antigen expression on the cells within a particular tumor, is a key drawback of CAR-T cell treatment for solid tumors. The degree to which these processes take place will probably be important in determining the antigen expression thresholds that will be utilized to identify people who qualify [11]. Unfortunately, it is unclear how much of a tumor must express the target antigen for treatment to be effective.

High cost of manufacturing autologous CAR-T cells: These cells are extremely expensive to produce, and the cost increases significantly in cases of severe CRS (cytokine-release syndrome). Furthermore, the production turnaround time for autologous CAR T cells ranges from 21 to 35 days[10]. Patients may need bridging therapy during this waiting period, and in certain situations, they pass away from quickly progressing illnesses without reaping the benefits of CAR-T cell therapy. It is likely that T cells from ill donors become exhausted and become less active than T cells from donors who are in good health[10].

Ineffectiveness against solid tumors: Solid tumors account for around 30% of cancers in children and 90% of malignancies in adults. Although this treatment has led to previously unheard-of outcomes for hematological malignancies, the results are much less striking when it comes to solid tumors. Studies have indicated that immunosuppressive tumor microenvironment (TME) and lack of tumor-exclusive target are the causes of the same[1,9-10,12].

Safety switch and controllable CAR: Patient safety is of utmost importance as gene and cell therapies progress. One of the potential risks is therapy-induced tumorigenesis, whereby the insertion of therapeutic genes may cause insertional mutagenesis or activate oncogenes that regulate tumor growth. Furthermore, because it is a living drug, the body may retain it for an extended period. Since some healthy cells normally express the target antigens of CAR-T cells, the long-term survival of these cells may endanger public health by specifically targeting healthy cells[10]. The addition of a safety switch and regulated CAR can lessen these kinds of detrimental consequences, but this is a challenging task.

Future prospectives : Much effort is being put into improving this therapy's feasibility, effectiveness, and cost-effectiveness. The following are some of the breakthroughs, theoretical underpinnings, and outcomes of clinical trials:

Cost-effectiveness: Researchers are working on off-the-shelf (allogenic) CAR T-cell treatment, which will speed up the manufacturing process and reduce the cost and increase the accessibility of this therapy[11]. There is potential for in vivo methods such implantable scaffolds (m-RNA based technology) to increase the accessibility and lower the cost of CAR T-cell therapy[1,3].

Shortened manufacturing time: Research is ongoing, and even a pre-clinical study has demonstrated that T-cells isolated from peripheral blood can be used to generate functional CAR-T cells in less than 24 hours without the need for T cell activation[3].

Improved efficacy and spectrum of treatment: Many novel strategies, such as combining CAR T-cell therapy with mRNA vaccines and oncolytic viruses, "armored" CARS (which can navigate challenging microenvironments by secreting specific cytokines and other molecules), and reconditioning the tumor microenvironment, are being investigated to increase the effectiveness of CAR T-cell therapy in solid tumors[3,10]. CAR-T therapy can be utilized in combination with immunological checkpoint inhibitors, chemotherapy, radiation, and oncolytic viruses for safety and efficacy as indicated[5].

Preventing severe adverse events: According to certain research findings, treating cancer patients with CAR T-cell treatment when their tumor burden is minimal and metastases are early can minimize serious side effects[10]. In addition, a safety switch or adjustable CAR can fulfill this function by rapidly exhausting or shutting off in the event of a potentially fatal toxicity. CAR T cells can be eliminated once the cancer has been cured to prevent long-term negative effects from the destruction of healthy tissues that express targets.

Enhance specificity of CAR-T cell therapy: Engineering T cells to produce dual CARs, which detect two or more different antigens present on the same cancer cell, is one method to improve the specificity of CAR T cell treatment. This strategy can minimize damage to healthy cells that express CAR-T antigens while specifically targeting and eliminating only cancer cells that exhibit both antigens[9]. Anticancer efficacy can be established in solid tumors with controllable toxicity, even if the target is expressed in certain normal tissues. The fact that high antigen density is necessary for CAR T cells to achieve complete effector function. Trials are underway to determine whether administering numerous doses of CAR-T cells improves the response to cancer and lessens symptoms associated with cancer[1].

The next generation of CAR-T cells: In order to get around the drawbacks of the CAR-T cell therapies that are already in the market, like high toxicity and poor efficacy, researchers have created a number of next-generation CAR-T designs. [13-14].

More than just CAR-T cells/Future perspective: The surprising success of CAR-T cell therapy has motivated researchers to investigate the possibility of therapeutically manipulating natural killer (NK) cells, macrophages, and neutrophils, among other immune cells[15]. Additionally, research is being conducted on additional immune. cells, such as tumor-infiltrating lymphocytes (TILs), which use immune cells that have infiltrated the surrounding tissue of the tumor. Unlike CARs, which use segments of synthetic antibodies that can only target particular antigens on the surface of cells, specially engineered T-cells (TCRs) use naturally occurring receptors that can also recognize antigens inside tumor cells[1].

Conclusion:

A new era in medicine has begun with the use of chimeric antigen receptor T-cells (CAR-T cells) for treatment. It is perhaps the largest invention of this era. Through the modification of the patient's immune system to identify and then combat cancer cells, CAR-T cell therapy is transforming the way tumors are treated. A step toward customized treatments is CAR-T cell therapy. When no further treatment is required, its success rate for a long-lasting remission range from 30% to 40%. These cells usually take 30 to 90 minutes to infuse. Clinical trials with CAR-T cells have demonstrated remarkable remission rates of up to 93% in cases of severe blood cancer, specifically B-cell carcinomas. Patients undergoing CAR-T cell therapy remain in the hospital for a minimum of seven days following their treatment. Although CAR T-cell therapy lacks efficacy in solid tumors and is complicated and expensive to manufacture, it may offer some patients a long-term remission from blood malignancies. The success of CAR T cell therapy in the future will depend on ongoing research into solid tumor formation, off-the-shelf CAR T cell therapy, safety, cost, and non-cancer disorders. The development of CAR T cell treatment emphasizes the value of ongoing funding for innovation and scientific research. Future advancements in the treatment of cancer

and other illnesses are expected given the broad.However, recent advancements in the field provide patients optimism for increased accessibility and effectiveness in treating a wider range of cancer types as well as other illnesses.

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A Study To Assess The Level of Practice, Knowledge and Associated Factors Regarding Newborn Care Practices Among Postnatal Mothers

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Abstract:

Essential newborn care is a set of comprehensive recommendations designed by the World Health Organization to improve the newborn's health through intervention before conception, during pregnancy, soon after birth, and the postnatal period. Globally 4 million newborns die every year before they reach the age of 1 month. Assessing the knowledge of postnatal mothers regarding the care of newborns is a crucial aspect of promoting infant health and well-being. Conducting a study at District Hospital Meerut, Uttar Pradesh, would provide valuable insights into the understanding and practices of these mothers in caring for their newborns. The study could involve surveys or interviews with postnatal mothers to understand their knowledge of essential aspects of newborn care, such as breastfeeding, hygiene practices, recognizing signs of illness, and ensuring proper nutrition. By assessing their knowledge levels and identifying any gaps or misconceptions, healthcare providers can design targeted interventions to promote better infant care practices. Additionally, incorporating educational sessions or workshops for postnatal mothers based on the study findings could help improve their understanding and confidence in caring for their newborns.

Keywords : Newborn, Postnatal Mother, Nursing Mother

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Received: 21/06/2024 Accepted: 24/06/2024 Published: 30/06/2024

Introduction:

Essential newborn care is a set of comprehensive recommendations designed by the World Health Organization (WHO) to improve the newborn's health through intervention soon after birth and in the postnatal period[1]. Newborn care includes thermal care (drying and wrapping the newborn immediately after delivery and delaying the newborn's first bath for at least 6 h or several days to reduce hypothermia risk), clean delivery, and cord care (cutting and tying off the umbilical cord with a sterilized instrument and thread). Newborn care also includes breastfeeding initiation within the first hour of birth, immunization,

eye care, recognition of danger signs, care of the preterm/low birth weight infant, and management of newborn illnesses[2]. WHO mentioned several interventions which make newborns healthy. Crucial interventions mentioned for essential newborn care practices are clean cord care, thermal protection, early and exclusive breastfeeding, delay bathing, care for the low birth weight newborn, and management of newborn[3]. Newborn care is of immense importance for the survival and proper development and healthy life of a baby. It is strongly influenced by home care practices instituted by the mother and maternal and newborn care services at health facilities[4-5]. The proportion of child deaths in the neonatal period has increased in WHO Regions over the last years. The leading cause of death is prematurity. Proper care during pregnancy and delivery is essential for the health of both the mother and the baby. Skilled care during pregnancy, childbirth, and postpartum are essential interventions in reducing maternal and neonatal morbidity and mortality. Globally 4 million newborns die every year before they reach the age of 1 month. Out of them, 1.5 million newborns die in four countries of South Asia. Approximately 3.4 million newborns die within the first week of the life of these deaths; 66% occur during the first 24 h. Late death, that is, after 24 h, occurs in the remaining 34%, which may be prevented if mothers have good knowledge about newborn care, including danger signs of newborns[6-7]. Global estimates suggest that more than two-thirds of newborns could be saved through existing maternal and child health programs[8].

Methodology

Institutional-based cross-sectional Descriptive study was used for study in the Uttar Pradesh region. Uttar Pradesh is largest state of India. The city is located in Western Uttar Pradesh. According to the 2011 census, the Meerut Urban Agglomeration (Meerut UA) has a population of around 1.42 million. The sex ratio in Meerut UA is 897, lower than the state average of 908; while the child sex ratio is 895, lower than the state average of 899. 12.99% of the population is under 6 years of age. The overall literacy rate is 88.29%, higher than the state average of 69.72%. The study was conducted in famous district hospital in meerut.

Sample size estimation and sampling technique

The study included the study that the investigator identified those mothers who meet the eligibility criteria and postnatal mothers of neonates born alive and who gave written informed consent. Data were collected by after having written informed consent from the study participants structured questionnaires who filled inclusion criteria and were questionnaires, and 60 postnatal mother attendants were involved in the study. The study was conducted on the postnatal mothers having infant up to 28 days. The data collection instrument was developed after a critical review of the literature. The questionnaire was first prepared in English, then translated into Hindi for consistency and simplicity during administration. The questionnaire included sociodemographic characteristics, antenatal care, and delivery history of the women and mother's knowledge of the WHO essential newborn care practices. Based on the expected content found in this tool, final adjustments were made after the pretest was carried out to fit our local situation. We used a validated questionnaire for the gathering of data

Disscussion

TABLE- 1: Coding, Frequency and percentage distribution of the postnatal mothers according to demographic variables

S. No	Demographic Variables	Coding	Frequency	Percentage
1.	AGE Below 20 years 20 -27 years 28- 34 years 35 years and above	1 2 3 4	7 44 6 3	11.67% 73.33% 10% 5%
2.	RESIDENCE Urban Rural	1 2	31 29	51.67% 48.33%
3.	RELIGION Hindu Muslim Christian Others	1 2 3 4	57 3 0 0	95% 5% 0% 0%
4.	LITERACY STATUS Illiterate Primary education Secondary school High school Others	1 2 3 4 5	11 16 8 17 8	18.33% 26.67% 13.67% 28.33% 13.67%
5	OCCUPATION Private job Government job Agriculture	1 2 3	13 3 9	21.67% 5% 15%

	Others	4	35	58.33%
6.	PARITY Primiparous Multiparous	1 2	35 25	58.33% 41.67%
7.	MONTHLY FAMILY INCOME Less than 15,000 15,000 to 30,000 30,000 to 60,000 More than 60,000	1 2 3 4	16 29 8 7	26.67% 48.33% 13.33% 11.67%
8	TYPE OF FAMILY Nuclear Joint	1 2	15 45	25% 75%

The data presented in Table-1 shows that 07 (11.67%) of postnatal mothers were in the age group of less than 20 years, followed by the age group 20 to 27 years which constituted 44(73.33%), the age group of 28 to 34 years constituted 06 (10%) and 03(5%)were in the age group above 35 years. Majority of postnatal mothers 31 (51.67%) were living in urban area and 29(48.33%) postnatal mothers were living in rural area. Majority of postnatal mothers 57(95%) were Hindu by religion and 03(5%) postnatal mothers were Muslim by religion. As per education status of postnatal mothers 11(18.33%) were illiterate, 16(26.67%) postnatal mothers had primary education, 08(13.67%) postnatal mothers had secondary education, 17 (28.33%) postnatal mothers had higher secondary education, 08 (13.67%) had completed and 15(25%) postnatal mothers were living in nuclear family. their graduation. As per the occupation of the postnatal mothers, majority of mothers 35(58.33%) were homemaker, 13 (21.67%) postnatal mothers had private job, 03(5%) postnatal mothers government job, 09(15%) postnatal mothers had agriculture as an occupation. The data shows that 35(58.33%) postnatal mothers were primiparous and 25 (41.67%) postnatal mothers were multiparous. As per the monthly family income, 16(26.67%) had total monthly family income Rs. <15,000, 29(48.33%) had Rs. 15,000 to 30,000 monthly family income, 08(13.33%) had Rs. 30,000 to 60,000 monthly family income, and 07(11.67%) had Rs. >60,000 monthly family income. As per the type of family of postnatal mothers, majority of postnatal mothers 45(75%) were living in joint family

Knowledge regarding care of newborn among postnatal mothers

This section describes the findings related to knowledge of postnatal mothers regarding care of newborn through self-structured questionnaire. The

knowledge score were describe and analyzed by using descriptive method and findings will be interpretated by using Excellent – (>75% marks), Good – (61-75% marks), Average- (41-60% marks), Poor- (<40% marks).The self- structured questionnaire consists of 35 questions each of carrying 1 marks. In this coding was given according to their answers, if the answer was correct than 1 mark was given and if wrong answer was given than there was 0 mark. In this section frequency and percentage was described according to the coding or the answer of the postnatal mothers. The data in this section illustrate the frequency and percentage distribution of knowledge regarding care of new born .Maximum i.e. 60 % postnatal mothers had excellent knowledge regarding care of new born. The mean value for this frequency is also calculated i.e.26.783 and standard deviation i.e. 3.9234. So the level of knowledge of the postnatal mothers is excellent. Overall 36 (60%) postnatal mothers had excellent knowledge regarding care of newborn ,17(28.33%) postnatal mothers had good knowledge regarding care of new born, 7(11.67%) postnatal mothers had average knowledge regarding care of newborn ,no postnatal mothers had poor knowledge regarding care of newborn.

Result:

In this study, almost mothers had good newborn care practice and it was very low when compared with other studies done in the country. Mothers' educational status, mothers who had health education on hygiene, and knowledge of mothers on newborn care practice were independent predictors of newborn care practice.

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Chronic Wound Management In Home Care In Slums of Delhi With Delayed Wound Healing

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ABSTRACT

Introduction: Many individuals suffer from chronic or complex wounds that can be very difficult to heal and cause severe pain and hardship. In the absence of any evidence based local information on the topic, this study explored the lived experiences of Home Care in slums of Delhi patients with delayed wound healing using physiological, psychological, socio-cultural, developmental and spiritual perspectives.

Methods: A qualitative descriptive study design with a purposive sampling method was used to select five patients, two males and three females (aged 30 years old to 58 years old) from a regional hospital in Home Care in slums of Delhi, who were recruited into the study. They each had a single chronic ulcer on an extremity. Following ethical approval and informed consent, individual interviews were conducted and thematic analyses were done on the data.

Results: Diabetes mellitus and infection were the etiologic factors in their delayed wound healing. All of the participants experienced social isolation, low self-esteem, “frustration”, job loss/loss of man hours, financial dependence and impaired physical mobility. They desired improved communication with healthcare personnel, more supportive and caring attitudes from family and caregivers; as well as enhanced learning experiences to acquire the self-care skills needed for all aspects of diabetes control and wound care.

Conclusions: The patients’ lived experiences and stated needs should be noted by all caring health professionals. Future interventions and care plans should address all the perspectives experienced and described by these patients.

Key Words: Chronic disease, Delayed wound healing, Diabetes, Home Care, Slums of Delhi, Lived experiences, Self-care skills, Social isolation

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Received: 20/06/2024 Accepted: 24/06/2024 Published: 30/06/2024

INTRODUCTION

Most persons will experience some type of wound in their lifetime. Many will suffer from chronic or complex wounds that can be very difficult to heal and cause severe pain and hardship.[1] While the healing of wounds is uneventful for most persons, there is a growing cohort of clients that suffer from delayed wound healing with profound impact on the sufferer and healthcare provider.[2,3] The term delayed wound healing is healing that takes longer than anticipated given appropriate therapy. The Wound Heal- ing Society defined a chronic wound as one that has failed to proceed through an orderly and timely repair process to pro- duce anatomic and functional integrity.[4] The label chronic or delayed was applied to wounds in which compromised healing was anticipated, usually because of complex under- lying pathologies such as diabetes mellitus, vascular disease, malignancy, malnutrition, or morbid obesity.[5–8] Other fac- tors which adversely affected wound healing included drug use, hypoxia, the presence of another wound, nutritional problems and tissue necrosis. Diabetes delays wound heal- ing by diminishing sensation and arterial inflow; protein calorie malnutrition and deficiencies of vitamin A, C and zinc also impair the normal wound healing mechanism.[9] Older adults are more prone to delayed wound healing be- cause the protective layers of the skin diminish with age, placing them at greater risk of injury.[10] Advanced age is as- sociated with an increase in prevalence of multiple causative factors, including cardiovascular disease, diabetes mellitus and simple wear and tear.[11] Extremity ulcers, including ve- nous, arterial and neuropathic (diabetic) ulcers and pressure related wounds account for serious morbidity especially in adults.[12] Patients with chronic wounds often require assistance in performing daily tasks and activities such as walking and bathing and the inactivity can lead to further comorbidities such as obesity associated with a sedentary lifestyle. The impact of the resulting loss of self-esteem, continued pain and possible depression can be difficult to quantify.[1] A chronic wound can control life as the individuals may have to cope with specialized devices or beds, lack of mobility, dressing changes, drainage, odor, clothing limitations and sleep deprivation.[13] Wet shoes and stockings and the ac- companying odor often interfere with normal social or family interactions.[14] A non-healing wound may prevent continued employment with attendant psychological and economic ramifications and may contribute to time lost from work, job loss and adverse effects on finances.[15] Patients often experience extreme fear, anger, depression and a negative self-image.[16] Clients with delayed wound healing may suffer neglect which can lead to malnutrition and further morbidity and higher mortality rates such as that associated with the diabetic foot.[17] While pain emerged as the most profound experience of chronic leg ulceration, leakage and smell also caused a great deal of distress especially as they were often associated with repeated infections. Irregular dressing of an exuding wound may further delay healing as an overly wet wound may dam- age the wound bed and surrounding skin.[18] Odor or malodor was often the result of a multiplication of and colonization by microorganisms in a heavily exuding wound.[19] The incidence of chronic wounds in the USA was expected to rise significantly to an estimated five to seven million per annum.[10] In India, the prevalence of chronic wounds was estimated at 4.5 per 1,000 population whereas, in China, the incidence of leg ulcers in surgical hospitalized patients was 1.5% to 20.3%.[20–22] More than 75,000 legs were amputated in Mexico for diabetic neuropathy during the year 2000.[23] A study of 300 diabetic patients in Cameroon recorded an incidence of 26.6% for foot ulceration.[24] In Zimbabwe, pressure ulcers were more common among patients with ac- quired immune deficiency syndrome (AIDS).[25] However, in India, they were associated with systemic conditions includ- ing diabetes, atherosclerosis, tuberculosis and leprosy.[21] As in other developing nations, the problem of chronic wounds in India was exacerbated by

demographic factors such as low literacy rates, poor access to healthcare, inadequate clinical power and poor healthcare infrastructure.[26] The prevalence of active foot ulcer varies from approximately 1% in certain European and North American studies to more than 11% in some African countries. The incidence of chronic wounds varies with reported rates of 0.2% to 1% of the population in developed countries having a venous ulcer, 0.5% having pressure ulcers and up to 15% of persons with diabetes may develop a wound.[11] In the USA, estimates suggested that as much as $12 billion USD was spent yearly to treat chronic leg wounds and pressure ulcers.[27] Within Australia, the cost of inpatient care of chronic wounds was estimated at $8,734.00 AUD per admission.[2] Australia's national health expenditure on wounds such as ulceration of the legs was estimated at $365-$654 million AUD.[2]

AIM AND OBJECTIVES

The aim of this study was to explore the lived experiences of patients in Home Care in slums of Delhi with delayed wound healing. It will describe some of the challenges that Home Care in slums of Delhi encounter during the prolonged wound healing process for the greater understanding of nurses and other healthcare providers. The objectives of the study were to describe the client's perception of the factors that may have led to delayed wound healing, the psychological outlook of patients with delayed wound healing and determine any socio-cultural effects of delayed wound healing on patients.

Theoretical underpinnings of the study

This descriptive qualitative inquiry was deemed necessary after reflecting on Betty Neuman's systems model of nursing[28] in caring for clients requiring chronic care. The model purports nurses promote stability of the client system by accurately assessing possible effects of environmental stressors. It identifies five variables contained in all client systems including physiological, psychological, socio-cultural, developmental and spiritual.[29] These variables were used to develop a framework for understanding the issue at hand. Polit and Beck (2012) describes phenomenology as a method by which nurse researchers gain insight into the clients' lived experiences.[30] Phenomenology, though ideal was avoided; heeding the pitfall of labelling the study as either "Heideggerian or Husserlian" phenomenology without fully understanding "the underpinnings and philosophical assumptions".[31–33] In contrast, this qualitative descriptive study draws from naturalistic inquiry and purports a commitment to studying the clients experience with chronic wounds in its natural state with interpretations of low-inference and of general consensus among researchers.[32]

METHODS

Research design

A qualitative descriptive design which incorporated eclectic qualitative methods of various textures, tones, and hues was used for this study which was conducted at Home Care in slums of Delhi. Adult patients with a chronic wound (present for longer than eight weeks) admitted to the any of the three surgical wards at the hospital were eligible for recruitment for this study. Twelve in-patients who met the inclusion criteria were engaged. The clients were all of Asian ethnicity and each had a single chronic ulcer on an extremity. The homogenous strategy of the purposive sampling method was used to select five consenting patients who were judged to be willing to share their experiences, typical of the population and particularly knowledgeable about the issues for the study.[34] A minimum of five participants was recommended for qualitative inquiries.[30]

Data collection

Following informed consent, a pretested semi-structured, open-ended, in-depth interview guide was used to conduct private individual interviews with the respondents regarding their lived experiences with delayed wound healing. Questions were asked with follow-ups to elicit information on patients'

experiences and verbal and nonverbal cues were also noted. Interviews were continued until saturation of themes was obtained.[35] The interviews did not exceed one hour and on two occasions a second interview was needed to achieve saturation of the data. Validity and reliability were achieved by bracketing the re- searchers' views, building rapport and encouraging candor, listening intently while preparing to ask the next question, keeping on track and handling personal emotions.[30,33] The interview guide was pretested using two patients from the Home Care in slums of Delhi, who met the sampling criteria. This ensured its appropriateness and the extent to which it comprehensively captured the lived experiences of the patients.[30]

Data analysis

Transcription of data obtained from the interviews was conducted followed by contents analyses. The analysis process began with preexisting coding systems which were modified as the themes emerged. To ensure accuracy, the researchers returned several times to the original tape recording and transcripts to validate findings and to incorporate any new data into the emerging themes. All researchers achieved consensus on the final conclusion of the analysis. All information was kept confidential. Patients with altered consciousness and or any condition which prevented them from giving informed consent were excluded from the study.

RESULTS OF THE STUDY

In this section the demographic characteristics of the clients are described and findings are presented based on the objectives of the study and the emerging themes.

Demographic characteristics of respondents

Five participants: two males and three females were interviewed. The youngest respondent was 30 years old and the eldest was 58 years old. Three of the respondents were married, two were single and all had one to three children as dependents. All participants had a means of livelihood prior to their prolonged hospitalization. One was an electrician, one a small scale farmer and three were self employed and operated small restaurants or retail stores (see Table 1). Four had single ulcers on the lower extremity and one had a single ulcer on an upper limb. Themes were identified on the etiologic, psychological and sociocultural effects of delayed wound healing. Specific themes also emerged on the developmental (physical and economic) and spiritual effects of the problem. Client's perspective on causes of illness. All of the participants had been diagnosed with diabetes mellitus for periods of 5-15 years, had fungal infections, gan- grene and trauma as predisposing factors to their chronic extremity ulcer formation. "They told me it was fungus that was on my foot but they did not tell me what type of fungus it was. I know I had diabetes, it is now three years since the first amputation". "They say I am not controlling the diabetes and I got the wound when I fell down". "I was washing some clothes and after that, I felt my finger started burning, I went to the doctor who gave me antibiotics and pain killer but it did not help". The above statements when probed, revealed a lack of knowledge on the part of the participants despite the duration of their diabetes mellitus. The participant who was told he had a "fungus" had a below knee amputation three years before and was cautioned about the possibility of amputation of the other leg.

Interaction with health system

The informants expressed their frustration with healthcare providers, especially physicians, who were apparently held responsible for inadequate client education and poor communication. Although the anger and frustration were directed mostly to the attending physicians, modern day nursing was considered by the informants to be more than just "wound dressing". Therefore, in the absence of information from physicians, the level of advocacy

and teaching on the part of the nurses were also considered by the informants to be inadequate. All of the respondents knew that the delay in the wound healing was due to their underlying diabetes. The emerging theme was infection with the respondents mentioning diabetes, "whitlow", gangrene, fungus and trauma.

Withdrawal : The respondents verbalized feelings of depression and trying to "cage in" and not wanting to be in the presence of friends, family and other visitors. They expressed the feelings of wanting to be by themselves. "Sometimes I want to be left alone". "Sometimes I get so sad and don't want anybody to visit me".

Social isolation : Social isolation also stood out as one of the themes as re- spondents said they experienced being "despised" by friends, family and the general public. "When the leg got the fungus, so many people did not want to come around me". "Some- times they tell me they smell the wound. Even if they don't tell me, I notice the way they make their faces when they come around me".

Sleep pattern disturbance : Respondents expressed changes in their sleeping pattern which they attributed to variable issues such as pain, psycho- logical trauma and general discomfort. "Sometimes it affects how I sleep; I feel the pain and think about it a lot". "I don't sleep well, I am always very uncomfortable".

Activities of daily living and ability to earn a living (developmental)

Job loss/Loss of man hours : All the respondents had different occupations or businesses before the ailment, but expressed the inability to continue working or having to hire extra hands to assist them in the execution of their businesses. "I get work where I have to go to certain locations but I can't do that anymore". "My husband and I did the business but since I am in hospital we hired somebody to assist and have to share the income to pay the person".

Financial dependence/strain : Respondents stated that they became financially dependent on their relatives and friends after their illness. Some ver- balized having to do that against their will or character and some who had savings had depleted them with the long hos- pitalization experience. "When I want something, majority of times I have to be calling my relatives and friends and sometimes they don't have it to give me and I am not used to that". "Now I have to depend on people to assist me and I have to be satisfied with whatever I receive". "When I have to buy medication, when the hospital pharmacy does not have it, it is very hard". "It is draining my savings because I keep spending but not making money".

Impaired mobility Respondents stated that the chronic nature of their wounds had taken a toll on their ability to move about even before they were hospitalized. "I am always here; this wound has prevented me to even go out to look for a new job". "I couldn't get up and wash my clothes". "It took me 45 min- utes to rake the leaves in my yard but since this wound, before admission I would use almost two hours to do the same thing and when I finish, I feel as if I have done an entire day's work".

Self-care deficit

The chronic condition had a profound impact on much of the respondents' activities of daily living as they all admitted having lost the ability to do one thing or the other. "I can only tidy myself but can't bathe". "I can't bathe myself or even comb my hair". "Before admission, I could not take care of my home anymore" and spiritual aspects of their lives (Box 2). The respon- dents were 30 to 58 years old and were younger than those in the study of Goldberg and Beitz (2010) who reported the lived experiences of clients, who were older than 65 years.[11] Infection emerged as the main theme when participants were asked how they viewed the causes of their unhealed wounds. All the participants had a history of diabetes mellitus of five to 15 years duration, yet they did not primarily attribute their delayed wound healing to diabetes but

to “infection”. Poor circulation in the limbs of a diabetic patient slows the healing process. Diabetes impairs wound healing by diminishing sensation and arterial inflow.[9] Infection can lead to an affected limb being amputated as some of the participants had already experienced. This regional hospital had an average of 41 lower limb amputations in diabetics for each of the years from 2005 to 2010.[36] The patients blamed the physicians and to a lesser extent, the nurses for allowing their wound infection to progress. This suggested a deficit in communication and a need to improve the quality of the diabetes education offered to assist clients in foot protection, better self-care and control of their diabetes. The psychological impact of delayed wound healing contributed to their low self-esteem, anger and frustration which were the common themes in this study. Each participant stated that at “one point or the other” they preferred to be left alone and not be visited by anybody. Depression among clients with chronic wounds has also been previously reported.[1,37] There is evidence to suggest that psychological distress such as depression can modulate the healing of chronic wounds. Psychological distress was a greater predictor of lengthened wound healing than demographic and medical factors.[38] This was supported the work of Williams et al., (2011) in which diabetic Veterans Administration clients in the US with higher depressive scores were 33% more likely to have ampu- tations than did their counterparts.[37] While Macdonald and Ryan (2010) acknowledged difficulties in the quantification of depression, the team concluded it was certainly real in patients with chronic wounds; highlighting the importance of the use of a holistic model such as Neuman’s System Model in the care of these clients.[1,28] Sleep pattern disturbance was a major theme noted among all participants. They expressed feelings of pain, discomfort and the odor from the wounds. A chronic wound can control a person’s life in many ways including sleep deprivation.[13] The common symptoms of chronic ulceration often included pain, exudates, and odor which were frequently associated with poor sleep.[39] Participants in this study experienced reduced support from family and friends and social isolation Spiritual life Decreased Enthusiasm. All the respondents verbalized a decrease in their ability to participate in church activities. There was an inference of resignation and waiting for God’s time in the healing process. “I feel spiritually down but God has never failed me; though I am not able to worship as I used to”. “Right now, I feel down and struggle to pray at times”. This study was guided by the person paradigm of the Betty Neuman’s systems model which proposes the human being as a client system which is layered multidimensional.[28] Figure 1 shows a model constructed based on the lived experience of clients with chronic wounds in the Home Care in slums of Delhi setting. The client’s perception of the causes of the illness and inter-actions with the health system are new constructs included in the model. The respondents’ lived experiences of delayed wound healing included themes on the cause of the wound and the psychological, socio-cultural, developmental (economic and phys both overtly and covertly, as some admitted that they were told by friends and relatives that the wound was odoriferous while others would show this by their facial expression. They all admitted that they had a lower turnover of visitors and friends than before they had the wound. Phillips et al. (1994) reported that 58% of their respondents found that caring for their ulcer was burdensome and this had a strong correlation with social isolation.[15] Participants reported a decrease in their religious activity and communication with their creator in the form of prayer. This was a true reflection of other emerging themes of depression, withdrawal, anger and frustration described by Hopkins (2001), who reported that chronic wounds impacted the psycholog ical health of patients particularly if it also affected their ability to perform everyday tasks.[16] While pain emerged as the most profound experience of chronic ulceration, leakage and smell also caused a great deal of distress.[40] Self-care deficit, job loss and loss of man hours were also experienced by the participants. They stated that they were not able to cater for their simple self-care needs such as washing, bathing and

even taking care of their "yards". Some reported having to give up on their previous jobs especially those that required long travel to sites while some had to hire assistants in their businesses. In short, financial constraints were a major fallout from their condition. Macdonald and Ryan (2010) reported that prolonged periods of disability in chronic wounds caused pain and discomfort.[1] This could control a person's life as they may have to cope with clothing limitations, specialized devices or beds and lack of mobility. Leg ulcers correlated with loss of time from work, job loss and adverse effects on finances.[15] In the USA, chronic leg wounds accounted for the estimated loss of two million work days per year.[41]

Figure 1. Adaptation of Betty Neuman's Systems Model (person paradigm) reflecting the lived experiences of Home Care in slums of Delhi patients with delayed wound healing.

CONCLUSION

The findings of this study indicated that delayed wound heal- ing disrupted the participants' lives psychologically, socio culturally, economically, physically and spiritually. Psycho- logically it manifested as low self-esteem, anger and frustration; socio culturally as withdrawal, social isolation and reduced support from family and friends; economically as loss of job and man hours leading to financial dependence. Physically it was manifested as impaired mobility and self- care deficit and spiritually as decreased enthusiasm and practice of religious obligations. The patients desired improved communication with healthcare personnel, more supportive and caring attitudes, and enhanced learning experiences to acquire the self-care skills needed for all aspects of diabetes control and wound care.

Limitations

The researchers acknowledge the limitations of reporting the lived experiences of Home Care in slums of Delhi. We note the limitations of descriptive qualitative studies and the possibility of failure to achieve saturation of the data given that some participants were interviewed only once. However,the study explored the effect of some important lived expe- riences of the five affected patients, using Betty Neuman's Systems Theory concepts of the client.[28]

Recommendations

Appropriate education of patients living with chronic wounds and their family members is an important element in the recovery process and must be given high priority by healthcare providers. Wound-related education leads to improved quality of life of clients, continuity of care, shortened hospital stays, and reduced costs.[42] Given the sociocultural difficulties identified among the group, social services and other members of the health team must facilitate the strengthening of client's social support system. Finally, encouraging a caring and understanding attitude on the part of all caregivers appears to be indicated among the study populations as major barriers to effective wound care continues to be the lack of interest, enthusiasm, and knowledge shown by many clinicians and general practitioners.[42] Further research is required using several Home Care in slums of Delhi possibly using the patient reported outcome measures (PROM) and health related quality of life

(HRQOL) approaches to quantify and better understand the impact of chronic extremity skin ulcers on Home Care in slums of Delhi patients to inform nursing interventions.[43]

CONFLICTS OF INTEREST DISCLOSURE

The authors declared no conflicts.

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