ASSESSMENT OF CONSUMER PREFERENCES AND TRENDS IN ADVANCED WOUND CARE PRODUCTS: A COMPARATIVE ANALYSIS OF TRADITIONAL VERSUS EMERGING TECHNOLOGIES

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Pharmaceutical Management

By

Tanushree Abhay Pande

Under the Supervision and Guidance of

Dr. Ashok Peepliwal

2024

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COMPLETION CERTIFICATE

This is to certify that Miss. TANUSHREE ABHAY PANDE in partial fulfillment of the requirements for the award of MBA Pharmaceutical Management from the IIHMR University, Jaipur has successfully completed her internship at Fibroheal Woundcare Pvt. Ltd. during 18/03/2024 to 18/06/2024.

Place : Bengaluru
Date : 24-06-2024

Vivek Mishra
Director

DECLARATION BY STUDENT

I hereby declare that this dissertation titled "ASSESSMENT OF CONSUMER PREFERENCES AND TRENDS IN ADVANCED WOUND CARE PRODUCTS: A COMPARATIVE ANALYSIS OF TRADITIONAL VERSUS EMERGING TECHNOLOGIES." Is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Tanushree Abhay Pande

Date: 21/07/2024

IIHMR UNIVERSITY

CERTIFICATE

This is to certify that dissertation titled "ASSESSMENT OF CONSUMER PREFERENCES AND TRENDS IN ADVANCED WOUND CARE PRODUCTS: A COMPARATIVE ANALYSIS OF TRADITIONAL VERSUS EMERGING TECHNOLOGIES." Is a record of the research work undertaken by **Tanushree Abhay Pande** in partial fulfilment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

Dr. Ashok Peepliwal
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Dr. Manthan D Janodia
School Dean
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Date: 02/07/2024

ABSTRACT

Introduction:

Wound care has been a crucial aspect when it comes to post operative care, right from the general household first aid to post surgical care. Including the small injuries at household level during the chores to the post operative dressing, everything is incorporated under the broader umbrella of wound care: Wound care is essential and plays a pivotal role in the recovery of the patient. It includes many principles like Tissue Debridement, exudate management etc. Traditionally different wound care methods were practiced like use of honey, etc. Gradually the need developed to switch on the advanced wound care for the better management and faster relief.

Objectives:

There arose the term " advanced wound care management". This study seeks to identify the awareness regarding the advanced wound care management methods amongst the general public. Some literatures pertaining to wound care were studied and a comparison has been carried out between traditional and advanced wound care management methods amongst the general public. The study discovers the ratio of population who are aware about traditional and advanced wound care.

Wound care is cruicially required in case of chronic non healing wounds. There are many factors affecting the healing process to name a few- Malignant condition, Comorbidities like diabetes etc. The sole difference between Traditionally and advanced wound care method is that advanced wound care techniques actively participates in wound healing while the traditional wound dressings simply covers the wound from the external environment without actually participating in it.

The active participation in wound healing includes acceleration of the wound healing phases like- Inflammation, Proliferation, Granulation, Remodelling.

The cluster of population was made (based on the occupation/ professional similarity) and the set of questionnaires was floated to them. Furthermore various factors were identified which influences the choice of people towards advanced and traditional wound care, which triggers the switch to modern wound care methods.

Methodology

Responses from 64 individuals were collected and data was analysed. From the responses, it was observed that the cluster group from the healthcare/ pharmaceutical background were aware about the modern technoques, but general public was not/ very few.

After receiving the literature, a conclusion was derived on the most suitable woundcare technique.

It was concluded that advanced woundcare is more preferred and suitable for chronic wound healing.

Key Results:

The computed ratio was: 1.46

Traditional woundcare: Advanced woundcare-

Conclusion:

The Traditional wound care has been highly preferred by the doctors in Rural areas dur to high affordability and low cost of treatment, however the Doctors in super speciality hospitals highly prefer advanced wound care techniques for faster wound healing.

The advanced wound care products actively participates in the wound healing process leading to faster results.

Key words: Advanced woundcare, Awareness, Chronic, Debridement.

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ABBREVIATIONS

Abbreviations used	Extended tect
Eg.	Example
PVT. LTD.	Private Limited
WC	Wound care
Fig	Figure

Introduction:

In recent years there has been a significant adavanacement in the wound care sector which lead to the transition from traditional woundcare technique to advanced woundcare method. Present era demands meticulous attention to the medical facilities, woundcare is one of it. Its time to adapt the modern woundcare technolologies like:

Advanced medicated dressing- made up of Silk protein, collagen, hydrogel.[1]

- **Negative pressure woundcare therapy**- This is a vacuum aided therapy mostly suitable for chronic, high exudating wounds.
- **Skin Substitutes**- This is also known as artificial skin for graft site.
- **Dressings incorporated with antimicrobial agents** producing sustained release action.
- **Foam Dressings**- Also known as cushioned dressings, this is an advancement in the traditional woundcare for the highly exudate type of wound.
- **Smart Dressing**- These are similar to smart devices which helps to recognize/ monitor the external environmental condition like temperature, moisture, etc.
- **Hyperbaric oxygen therapy (HBOT)-**
- **Platelet rich plasma therapy**
- **Haemostatic sponge** to arrest bleeding.[1]

While the modern wound care technologies offer various benefits to the patient, on the other hand it is slightly expensive for the patient.

There are many factors which affect the customer choice between traditional and advanced wound care-

- Cost (Difference between traditional and advanced wound care)
- Accessibility to the treatment facilities.
- Effectiveness
- Ease of use/ application
- Peer recommendation
- Patient awareness

- Family culture/ Background
- Wound type/ severity.[2]

The project on “Assessment of consumer preferences and trends in advanced wound care products- A comparative analysis of traditional versus emerging technologies was to study to understand the preferences in the wound care market.

This project has a wide application in the wound care market to analyse the effectiveness of the advanced wound care methods for managing the chronic/ non healing wounds. To understand the consumer preferences towards the advanced wound care world. This study was designed to understand the various new entrants in market, understand their properties etc. A qualitative and quantitative analysis was done, questionnaire was designed and responses were recorded. Based on which analysis was done and ratio was computed between traditional and advanced wound care.[2]

Objectives of Internship:

- To understand the awareness towards traditional and advanced wound care management.
- To understand the consumer preferences towards advanced wound care techniques and it’s adaptability worldwide.
- To compare the properties of traditional versus advanced woundcare and its superiority.
- To recognize the factors influencing the preferences of people towards advanced wound care.

Review of Literature:

Better understanding of the wound healing process has evolved the wound care market significantly which has led to various advancements in this sector.

Brief overview on the traditional wound care methods/ products;

Traditionally/ conventionally there has been use of products like guaze dressing, cotton bandage, antiseptic cream, honey for wound care. The literature highlighted that those products are favoured due to the high affordability and ease of access.

There are many other factors which affect the consumer choice between traditionally and advanced wound care

Some of the highlights in the literature were:

Chronic wound requires proper advanced wound care treatment in order to prevent them from becoming fata. Example- venous ulcer, Diabetic foot ulcer etc.[3]

There is a significant role played by the dressings in the wound care management.

The advanced woundcare are segmented like-

- Hydrogels
- Semipermeable films
- Hydrocolloids
- Composites
- Foam
- Tissue engineered dressing [10]

As an ideal wound dressing must have some properties which include:

- It should be cost effective
- Non- Sticky to the wound
- Actively participates in wound healing
- Breathable
- Water repellent/ proof.

The sole difference between traditional and advanced woundcare dressing is that- traditional wound dressing only protect the wound from contamination, while on the other hand, advanced wound dressing not only protect the wound from external environment but also actively participates in wound healing. [3]

The active participation in wound healing includes accelerating the wound healing stages namely-

- Haemostasis
- Inflammation
- Proliferation
- Remodelling/ Regeneration

The dressings may be adhesive/ non- adhesive depending upon the requirement for secondary dressing. This forms a great role in wound care range. The secondary dressing is required in the non adhesive range whereas in the Adhesive dressing, Secondary dressing is not required. One of the strongest difference is that chronic wounds are unresponsive to traditional treatment and requires advanced treatment.

There are many side factors which affect the wound healing process namely-

- Cancer/ malignant condition
- Diabetic condition
- Comorbidities [4]

There are different grades of these non healing ulcers like-

- Grade 0
- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5 [5]

With a view of adequate healing, some advanced treatments and additional modalities are required which are termed as : " Advanced wound care treatment"

.

These are namely:

- Biological dressings- made of extracellular matrix components.
- Negative Pressure Wound Therapy- This includes applying vacuum pressure on the wound thereby facilitating its healing.
- Hyperbaric Oxygen Therapy: This includes compression chambers which are potential to deliver increased oxygen.
- Platelet Rich plasma- Chronic wound when treated with high platelet rich plasma helps in faster wound healing by attracting non- differentiated cells.
- Intermitted Pneumatic Compression- This is a treatment specially meant for the non- ambulatory patient which triggers the velocity of blood to the heart. This treatment is delivered with the help of inflatable garments which is having one or more air chambers.
- Ozone oxygen therapy- This includes utilization of medical grade ozone which is generated with the help of a special device. The main purpose of this therapy is to increase the oxygen content in the body.
- Advanced wound care significantly offer a promising solution to chronic/ non healing wound.[6]

Research Methodology:

Hypothesis:

For the study on this topic I prepared the following two hypothesis, Which contradicts each other:

The Null Hypothesis states that:

H0: Consumers are having an inclination towards the advanced wound care techniques, a significant reason for which is extensive knowledge about the benefits of Advanced woundcare products.

On the other hand,

The Alternate hypothesis states that,

H1: Consumers are having high preference to the traditional wound care facilities due to the ease of access and high affordability.

Key Research Questions:

- The main objective for undertaking this study is to have a brief knowledge about the following Questions:
- What is the consumer preferences towards the traditional wound care and advanced wound care and how do they differ?
- What are the various factors affecting the consumer preferences towards the wound care products?
- What are the various trends in the wound care market?
- What is the effect of Demographic factors in the wound care preferences which include: education, age, gender, income.

Research Design:

Type of study: This study includes both quantitative and qualitative study designs since information was collected numerically and in a qualitative as well (Consisting of open ended questions).

Purpose of Study:

To understand the consumer preferences towards the traditional and advanced wound care technologies.

Study Setting:

This study will be conducted in Multi speciality Hospitals, Small clinics, Trauma centers, Burn wards etc.

Study Population:

In this study, I targeted the main customers as well as consumers of the Wound care sector which included:

- Healthcare professionals
- Paramedical staff
- Nursing staff
- Patients
- General public
- Care takers

Inclusion criteria:

In order to get a wide range of data I collected information from a diverse population.

The population above 18 years of age was included by me in this study to collect a rational, reliable data.

Research Procedure:

Literature review :

An extensive Literature review was conducted and to identify the core reason behind preferences of Healthcare workers towards the woundcare methods.

Survey Questionnaire:

A questionnaire was prepared consisting of the following questions to analyse the responses:

Qualitative Responses:

1- What do you know about the wound care methods?
2- Which are the products used by yourself in the Wound care management?
3- What difference you have noticed between both dressing technologies
4- How much difference is there in the healing process according to you?

Quantitative Responses:

1- What is the cost of treatment for wound care which you underwent?
2- Which is the most affordable treatment for you?
3- Please mention the following details:
    - Age-
    - Gender-
    - Case-
    - Family income-
    - Base location-
    - Occupation-

Observations:

Qualitative Responses:

1-What do you know about the wound care methods?

Response:	Number of respondents
To protect the wound from external environment.	29
To assist in wound healing	12
To actively participate in wound healing	23

Table 1- Data for wound care methods.

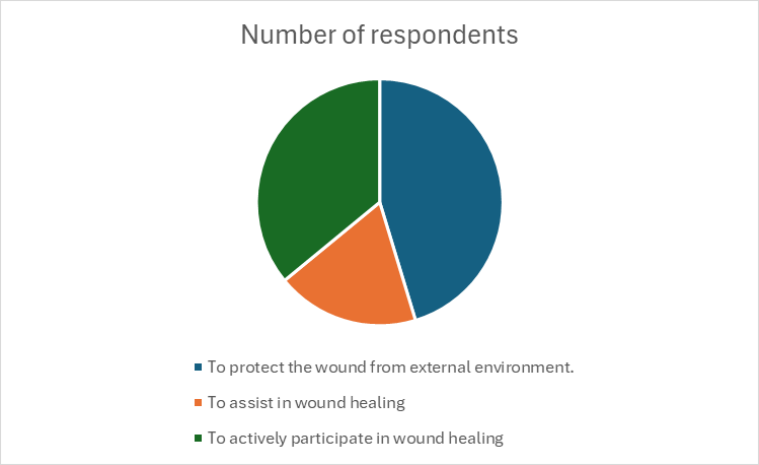


Fig-1 – Wound care methods respondents.

2- Which are the products used by yourself in the Wound care management?

Traditional:

Products used (Traditional)	Number of respondents
Honey	12
Turmeric	10
Gauze dressing	17
Cotton	14
Wound bandages	11

Table 2: Traditionally used products in wound care.

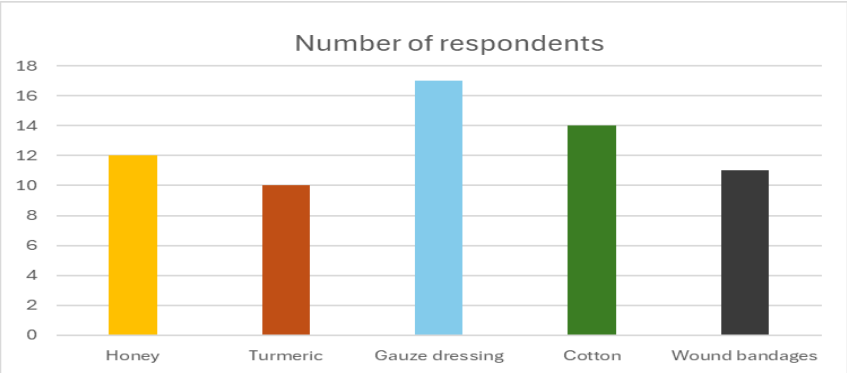


Fig 2: Traditionally used products in wound care.

Advanced:

Products used/ technology	Number of respondents
Silk protien based dressing	6
Collagen based dressing	13
Chitosan based dressing	7
Negative pressure woundcare therapy	3
Alginate	3
Foam	15
Hydrocolloid	17

Table 3: Advanced woundcare products

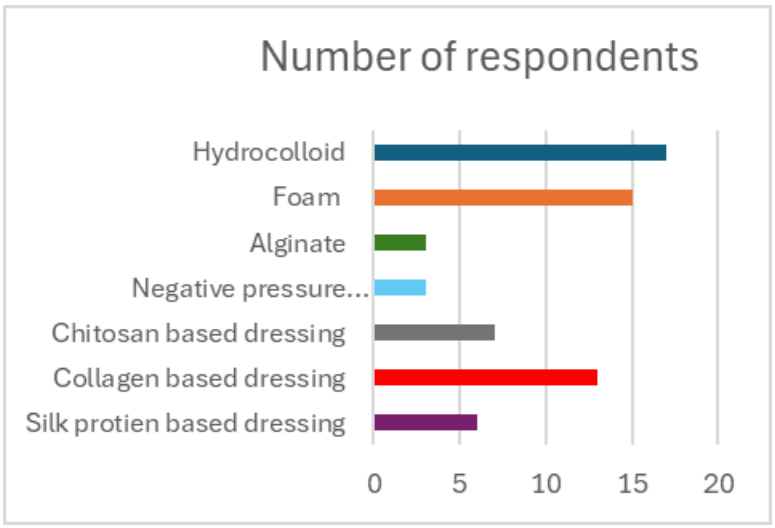


Fig-3- Advanced woundcare products

3- What difference you have noticed between both dressing technologies?

Difference noticed	Number of respondents
Faster healing in advanced technology	6
Ease of access to traditional technolog	30
Minimal invasive- advanced	22
Cost difference	6

Table 4- Difference between traditional and advanced wound care products.

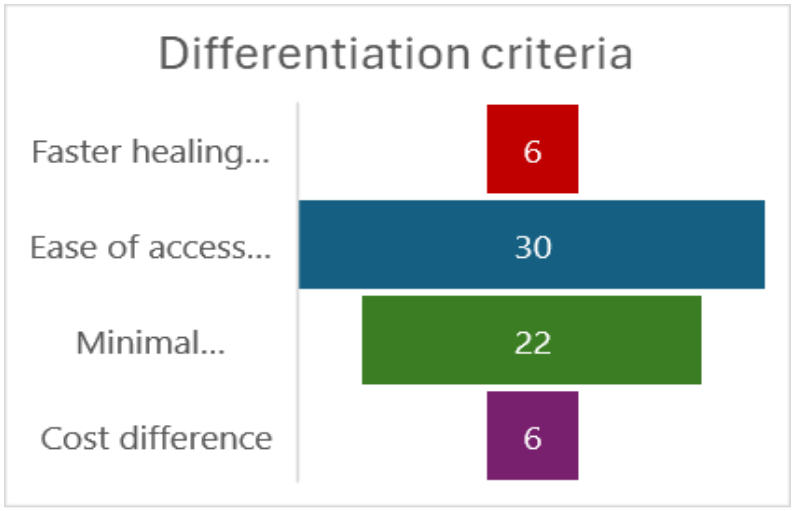


Fig-4- Difference between traditional and advanced wound care products.

4-How much difference is there in the healing process according to you?

Difference in healing process	Number of respondents
Very much difference	22
Slight difference	30
No difference	6
Moderate difference	6

Table 5- Difference in healing process

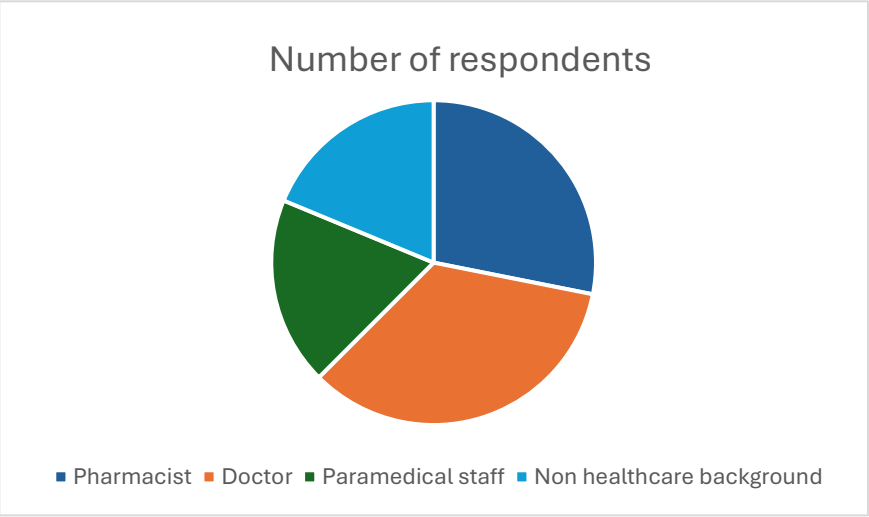


Fig- 5- Difference in healing process

Quantitative Responses:

1- What is the cost of treatment for wound care which you underwent?

Cost of treatment	Number of respondents
less than 500	21
500-10,000	30
10,000- 100000	6
more than 100000	7

Table- 6- cost of treatment

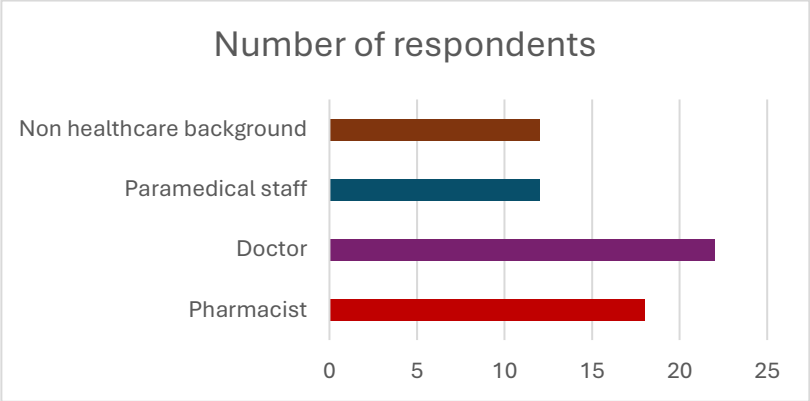


Fig6- cost of treatment

2- Which is the most affordable treatment for you?

Affordable treatment	Number of respondents
Traditional	48
Advanced	16

Table 7: Affordability of treatment

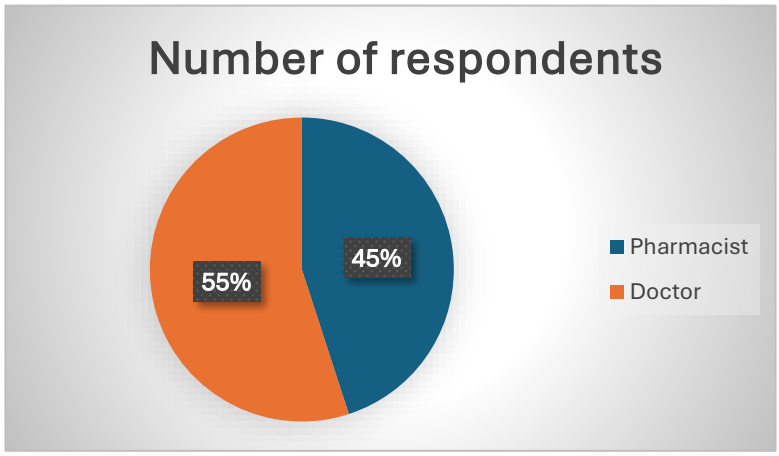


Fig:7: Affordability of treatment

1- Please mention the following details:

- Age-
- Gender-
- Case-
- Family income-
- Base location-
- Occupation-

Age	Number of respondents
less than 18	0
18-30	26
31-50	29
above 50	9

Table 8: Age (Demographic)

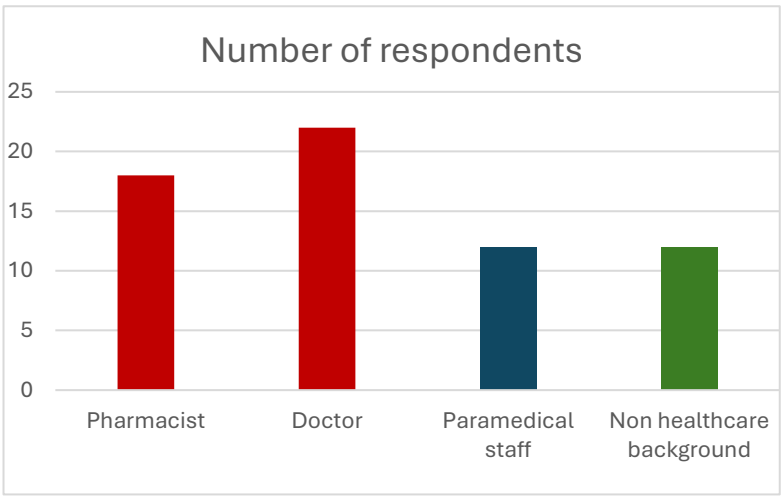


Fig: 8: Age (Demographic)

Gender:

Gender	Number of respondents
Male	32
Female	32

Table 9: Gender (Demographic)

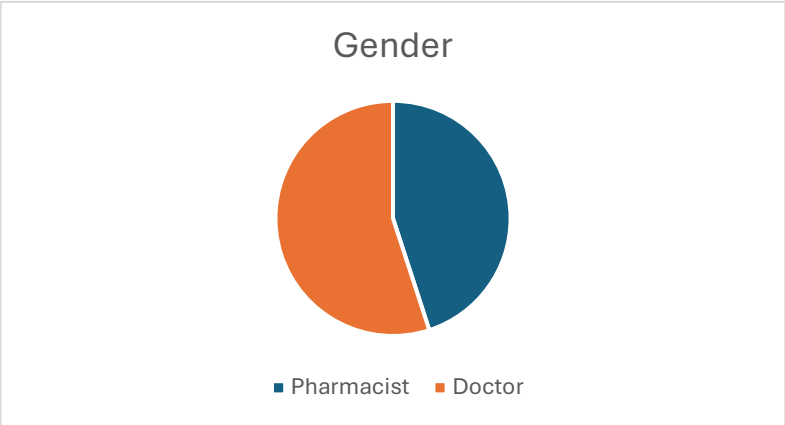


Fig: 9: Gender (Demographic)

Case:

Case	Number of respondents
Diabetic foot ulcer	13
Pressure ulcer	8
Graft site	11
First aid	32

Table 10: Cases in wound care.

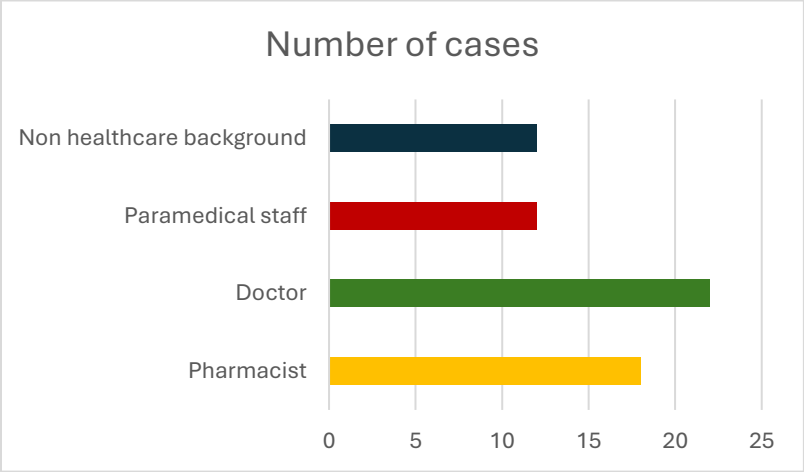


Fig 10: Cases in wound care.

Cases in wound care:

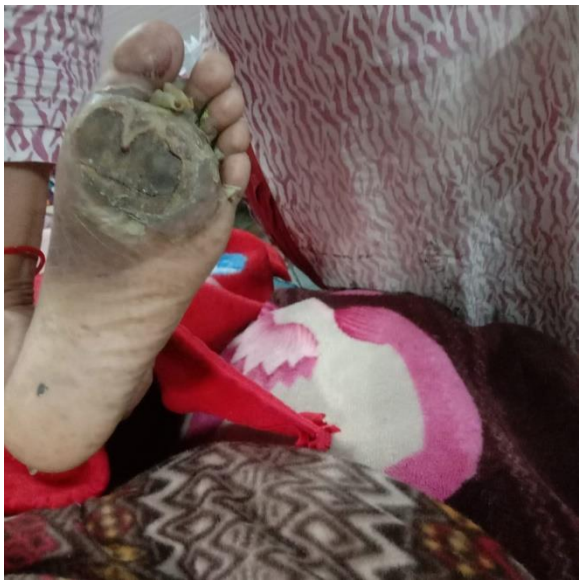


Fig: 11: Diabetic foot ulcer

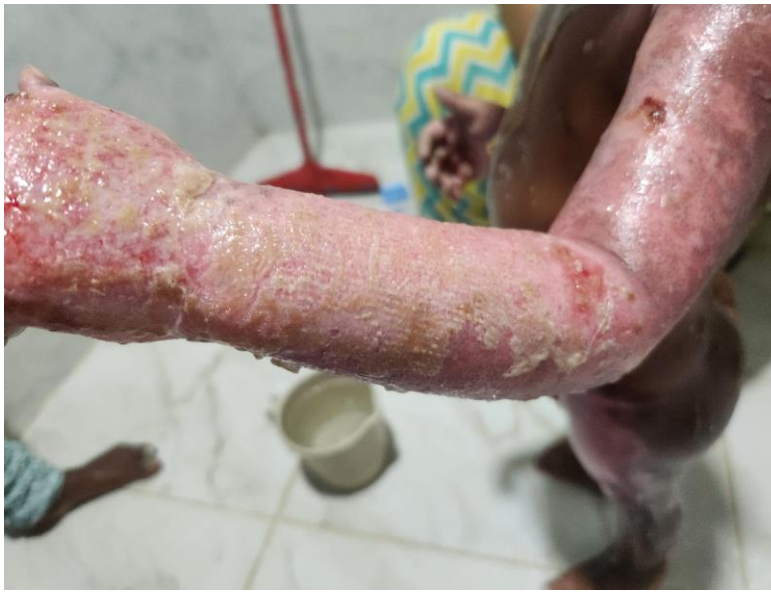


Fig: 12: Skin Graft

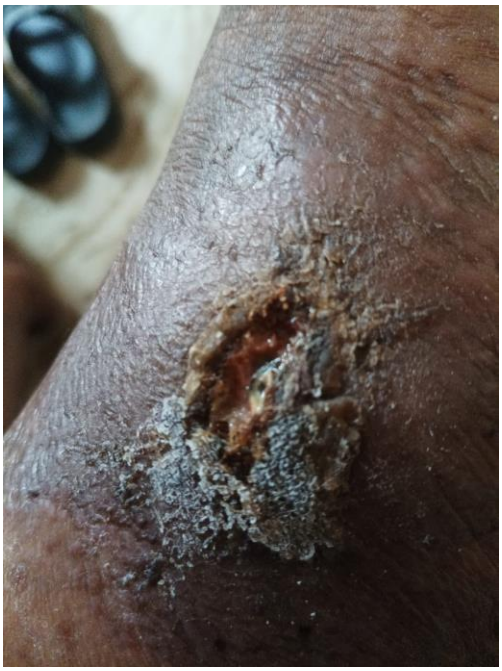
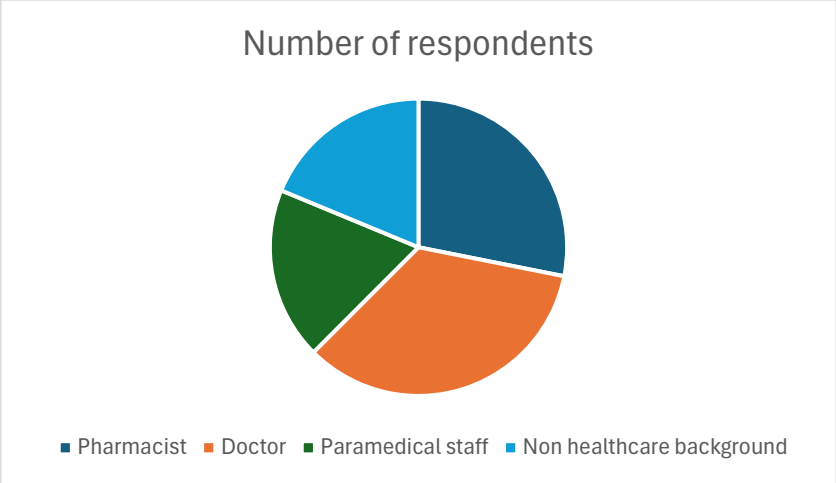


Fig: 13: Excessive tunneled abrasion

Family Income:

Family income	Number of respondents
less than 10000	32
10000- 50000	8
50000-100000	13
above 100000	11

Table 11: Family income (Demographic)



Fif: 14: Family income (Demographic)

Base location:

Base location	Number of respondents
Khamala	10
Sitabuldi	10
Mahal	10
Ajni	10
Kasturchand park	10
Rahate colony	14

Table 12: Base location (Demographic)

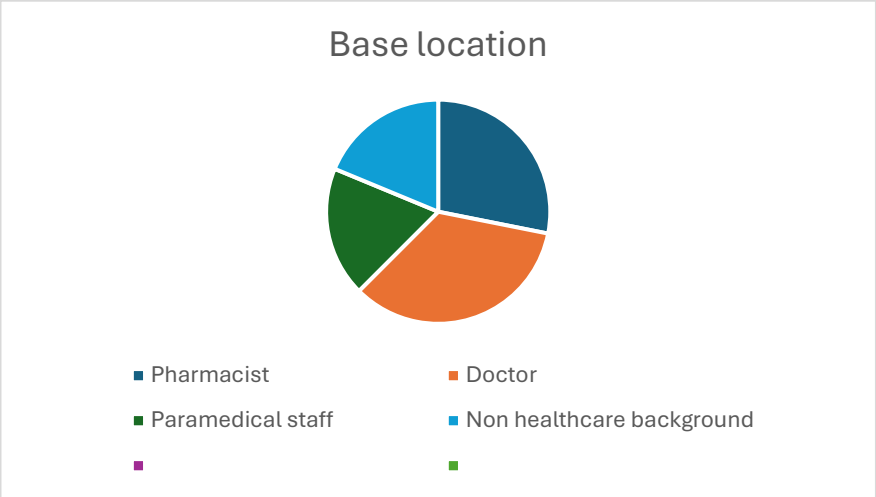


Fig 15: Base location (Demographic)

Occupation:

Occupation	Number of respondents
Pharmacist	18
Doctor	22
Paramedical staff	12
Non healthcare background	12

Table 13: Occupation (Demographics)

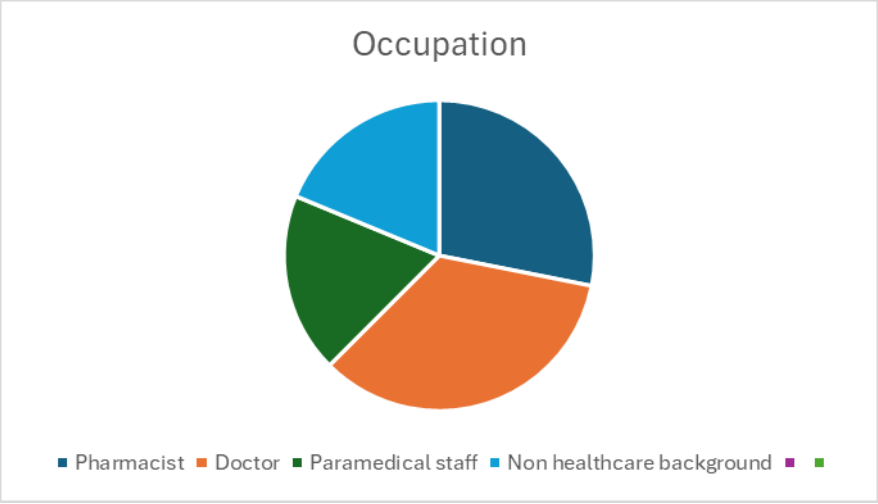


Fig16 :Occupation (Demographics)

Discussion:

Purpose of wound care:

On obtaining the response from the respondents regarding the questionnaire, it was noted that many people comprehend the wound care dressings as means to cover the wound. However some of them think wound care dressings as a biomaterial which actively participates in wound healing. It is just considered as the means to assist healing.

Products used:

When the survey took place on the products used for wound care management it was noticed that Traditionally Guaze dressing was one of the highest known product, however there were many other wound care products used like: Honey, Turmeric, Cotton, Wound bandages.

Turmeric and honey was least used compared to all.

Talking about the advanced wound care products, Hydrocolloid and collagen dressings were highest known by the people, while Silk protein based dressings, Chitosan based dressings, Negative pressure wound care therapy, Alginates were less frequently used.

However, Foam was such a dressing which is widely used in exudate types of wound.

Significant difference between traditional and advanced wound care as stated by the Customer:

The healing took place faster in advanced wound care techniques and not the traditional one.

Conclusion:

Difference in healing process:

Many of the people belonging to rural areas found less difference in both the dressings but the one I urban areas are well aware about the difference between both.

Qualitative Responses:

Treatment cost:

The Treatment cost was calculated amongst the various people undergoing treatment. It was observed that, maximum of the population was of low- moderate income group that is 500-10,000, while a vast group was studied undertaking treatment cost less than 500. This mainly was onserved in people undertaking treatment in Government hospitals.

Affordable treatment:

Comparing the cost and treatment duration, it was observed that despite of recent advancement in the wound care world, patients prefer the traditional wound care due to excessive cost of treatment.

Age:

For this study, the people above 18 years were studied to get a rational response, The population demographics was as follows: Maximum respondents were of the range- 31-50 years. However no candidate below 18 years of age was considered.

Gender:

Equal priority was given to gender, without any bias. This made exact 32 respondents as male and 32 as female.

Cases:

Various cases were studied and handled during my internship duration, which were of Diabetic foot ulcer, Pressure ulcer, Graft site, First aid. The first aid cases were maximum compared to the other cases.

Family Income:

Out of the study population who preferred traditional wound dressing, it was observed that 32 respondents belong to economically weaker section, while the majority were of higher middle class with family income between 50000-100000.

Base Location:

I conducted this study in various locations of Nagpur categorizing urban as well as rural areas of Nagpur forming a cohort of 10 people everywhere.

The various locations studied were: Khamala, Sitabuldi, Mahal, Ajni, Kasturchand park, Rahate colony.

Occupation:

A great diversity was studied in the study population out of which the respondents were: Pharmacists, Doctors, Paramedical staff, Non- healthcare background.

Results:

The collected data revealed that people with low income group preferred traditional wound care over advanced due to the high affordability.

The ease of access was high for traditional wound care products which is available at pharmacies, however in Super speciality hospitals, Advanced wound care was recognized.

The profession plays a significant role in understanding the importance of these methods, since the healthcare professional are more inclined to the advanced wound care compared to general public.

The ratio of preference to Traditional to advanced wound care was studied.

Out of 64 responses 38 people preferred traditional wound care, while 26 people preferred advanced wound care which makes the ratio: 1.46

The comparative analysis mentioned that, time taken by the advanced wound care was much lesser than time taken by traditional wound care dressing. As they were medicated with biomaterials.

Suggestions:

The cohort could be increased for study for the better understanding and finer result of analysis.

The study area could be more broader for next time so get maximum diversity.

The cohort can be prepared based on various other criteria apart from considering only single one.

More healthcare practitioners can be involved in the study to get maximum accurate data related to the wound care segment.

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