



A COMPARATIVE STUDY TO ASSESS THE EFFECTIVENESS OF WHATSAPP BASED SELF-CARE INFORMATION WITH THE MANUAL MODE OF INFORMATION AMONG ASTHMATIC PATIENTS ON QUALITY OF LIFE.

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ABSTRACT

An experimental factorial research design was used to compare an effectiveness of WhatsApp based self-care information and manual mode of information among asthmatic patients on quality of life. 10 adult asthma patients between 18-55 years of age were selected randomly in the study at the outpatient department of respiratory medicine. Patients were divided in WhatsApp based self-care information group and manual mode of self-care information group. The operational information in the form of "Asthma self-care information manual" was distributed by the researcher to manual mode of self-care information group in the preferred language of patient after collecting pre-test data from patients. For WhatsApp based self-care information group, the operational information was communicated through WhatsApp messenger app in 15 days to asthma patients after collecting pre-test score of patients. Post-test score of Quality of life of these patients was assessed again after 6 months of intervention. The mean of pre-test score for manual mode of self-care information patients is 117.5 and WhatsApp mode of information patient is 119.7. Mean of Post-test score is 167 and 168.8 respectively. This shows that post-test score is improved for both the group patients. The calculated t values was 1.148 which is less than the tabulated value hence the research hypothesis is accepted which states that WhatsApp based self-care information effective than the Manual mode of self-care information among asthmatic patients on quality of life.

KEYWORDS : WhatsApp, Self-care information, Manual mode of information, asthmatic patients, quality of life.

INTRODUCTION:

Asthma is a chronic inflammatory reaction that causes hypersensitivity in airways resulting in constant mucus production. As a result of this the typical symptoms associated with Asthma can be seen. In terms of the severity and duration of disability, asthma is the 14th most common disorder on the planet. Asthma impacted roughly 235 million people globally in 2011. [10] Globally around 5% of population suffers with asthma. Roughly around 300 million suffer with asthma and numbers are expected to rise to 400 million by 2020. Annually up to 250,000 deaths are encountered worldwide due to asthma. [1]

Uncontrolled asthma is linked to a patient's failure to follow the appropriate treatment plan. [11] Asthma that isn't well controlled has a negative impact on daily outdoor activities. [12]

WhatsApp is the application allowed to create groups which are used for sharing and receiving information back and forth to individuals as well as groups. It also facilitates additional features of sending images, videos, and links. [2].

Quality of life (QOL) of patients and their families is affected greatly due to severe asthma. [3]. Studies have concluded that strict adherence to treatment regime have improved asthma control and also QOL in severe asthma. [4] Few interventions, like inhaler reminders for missed doses, comprehensive asthma education with home visits by health care provider are observed to be effective [5].

Visit to emergency department and hospital admission are reduced with the intervention of asthma education [6]. It was recommended by researchers that asthma education should include the importance of adherence to prescribed inhaled corticosteroids (ICS) as control medication even without symptoms [7].

Effectiveness of asthma self-care information delivered through WhatsApp messenger app is yet to be explored.

Research Question:

Is WhatsApp based self-care information effective than manual mode of self-care information on quality of life of

asthma patients?"

Objectives:

1. To assess quality of life patients with asthma.
2. To assess the effectiveness of WhatsApp based self-care information on quality of life of asthma patients.
3. To assess the effectiveness of manual mode of self-care information on quality of life among asthma patients.
4. To compare the effectiveness of WhatsApp based self-care information and manual mode of self-care information on quality of life among asthma patients.
5. To associate quality of life score with selected demographic variables.

H. Hypothesis:-

H₁:- WhatsApp based self-care information may be effective than the Manual based self-care information among asthmatic patients on quality of life.

Conceptual Framework:

This study was based on general system theory. Ludwig Von Bertalanffy's general system theory includes structural and functional elements that interact inside a border that controls the type and rate of interaction with the outside world. The components of this theory are input, Process, output and feedback.

Input is considered as matter, energy and information received from the environment. Process includes modification or transformation of matter, energy and information within the system. Output is release of processed matter, energy and information from the system into the environment.

Feedback is environmental responses used by the system. [8]

Input: In this study, asthma patients are a system with inputs from itself and those acquired from the environment. These inputs include asthma patient's background like demographic variables i.e., age, sex, education, marital status, occupation, duration of asthma, diagnosis, medications, use of peak flow meter, visit to emergency department etc.

Process: In this study, the process refers to the assessment of

demographic data and pre-test quality of life score, by standardised quality of life tool of Ms. Elizabeth Juniper. After assessment of pre-test quality of life score, the administration of self-care information by two ways i.e. manual mode of self-care information (distribution of self-care manual to one group of patients) and through WhatsApp messenger app, to get desired output, i.e., to improve quality of life.

Output: It is improvement in quality of life score that may also be regarded as the product of the process. Quality of life score of manual mode group patients and WhatsApp mode group patients are compared before and after the intervention to evaluate the effectiveness of mode of delivery of self-care information.

Feedback: Improvement in quality of life score among asthma patients, after intervention indicate that both the mode of information are effective but information through WhatsApp mode is more effective.

Methodology:

Research Approach:-
Experimental research approach

Research Design:-

A factorial research design in the form of true experiment is used in this study.

Two independent variables i. e. WhatsApp based self-care information and manual mode of self-care information are evaluated on quality of life.

Sample:-

Asthma patients between 18-55 years of age, both male and females and asthma as their primary disease as diagnosed by standard methods.

Sample size:

Based on the study design, the sample size for the study is estimated to 93.8 by using calculator.net (online RCT sample size calculator) with level of confidence: 95%, Margin of error: 7%, Population proportion of asthma patients is taken at 15%. The sample size is rounded up to 100 for each group. Both the groups are getting interventions.

Inclusion Criterion:

1. Patients between 18-55 years of age.
2. Patients should have asthma as their primary disease as diagnosed by standard methods.

Exclusion Criteria:

Exclusion criteria for the study include presence of any other primary diseases, diseases related to lung and inability to read at a basic level.

Data Collection Tools:-

1. Demographic data sheet
2. Asthma quality of life questionnaire Developed by Elizabeth F. Juniper, MCSF, Msc.

Procedure Of Data Collection:

Asthmatic patients at the outpatient department respiratory medicine were selected randomly for WhatsApp based self-care information group and manual mode of self-care information group. The operational information in the form of "Asthma self-care information manual" was distributed by the researcher to manual mode of self-care information group in the preferred language of patient after collecting pre-test data from patients.

For WhatsApp based self-care information group, the operational information was communicated through

WhatsApp messenger app in 15 days to asthma patients after collecting pre-test score of patients.

Post-test score of Quality of life of these patients was assessed again after 6 months of intervention.

RESULTS

Table 1: Distribution Of The Study Groups According To Their Demographic Characteristics

| Sr. No. | Demographic Characteristics | Categories | Manual | | WhatsApp | |
|---------|---|-----------------------------|--------|-----|----------|-----|
| | | | Freq. | % | Freq. | % |
| 1 | Age in years | A. 18 – 27 | 1 | 10 | 1 | 10 |
| | | B. 28 – 37 | 2 | 20 | 1 | 10 |
| | | C. 38 – 47 | 3 | 30 | 3 | 30 |
| | | D. 48 – 57 | 4 | 40 | 5 | 50 |
| 3 | Education | A. No formal Education | 1 | 10 | 1 | 10 |
| | | B. Primary | 1 | 10 | 1 | 10 |
| | | C. Secondary | 3 | 30 | 2 | 20 |
| | | D. Higher Secondary | 1 | 10 | 2 | 20 |
| | | E. Graduation | 2 | 20 | 3 | 30 |
| | | F. Post-Graduation and more | 2 | 20 | 1 | 10 |
| 4 | Occupation | A. Housewife | 2 | 20 | 1 | 10 |
| | | B. Retired | 1 | 10 | 1 | 10 |
| | | C. Self Employed | 1 | 10 | 1 | 10 |
| | | D. Farmer | 2 | 20 | 3 | 30 |
| | | E. Private Service | 2 | 20 | 2 | 20 |
| | | F. Govt. Service | 1 | 10 | 1 | 10 |
| | | G. Student | 1 | 10 | 2 | 20 |
| 5 | Marital Status | A. Married | 6 | 60 | 5 | 50 |
| | | B. Unmarried | 4 | 40 | 5 | 50 |
| 6 | Duration of asthma diagnosis | A. Less than 1 yr | 1 | 10 | 1 | 10 |
| | | B. 1 – 5 yrs | 4 | 40 | 3 | 30 |
| | | C. 6 – 10 yrs | 2 | 20 | 2 | 20 |
| | | D. 11 – 15 yrs | 2 | 20 | 3 | 30 |
| | | E. More than 15 yrs | 1 | 10 | 1 | 10 |
| 7 | Medications | A. Inhaler | 1 | 10 | 1 | 10 |
| | | B. Nebulization | 1 | 10 | 1 | 10 |
| | | C. Tablets/Medicines | 2 | 20 | 2 | 20 |
| | | D. Inhaler + Tablets | 2 | 20 | 2 | 20 |
| | | E. Inhaler + Nebulization | 1 | 10 | 1 | 10 |
| | | F. Neb. + Tablets | 2 | 20 | 1 | 10 |
| | | G. Inh. +Neb. + Tablets | 1 | 10 | 2 | 20 |
| 8 | Use of Peak Flow meter at home | A. Yes | 7 | 70 | 6 | 60 |
| | | B. No | 3 | 30 | 4 | 40 |
| 9 | Chart Maintenance of Peak Flow meter readings | A. Yes | 0 | 0 | 0 | 0 |
| | | B. No | 10 | 100 | 10 | 100 |
| 10 | Unscheduled visit to clinic | A. Yes | 6 | 60 | 3 | 30 |
| | | B. No | 4 | 40 | 7 | 70 |
| 11 | Asthma attack | A. Yes | 8 | 80 | 6 | 60 |
| | | B. No | 2 | 20 | 4 | 40 |
| 12 | Perception of Asthma Control | A. Yes | 3 | 30 | 4 | 40 |
| | | B. No | 7 | 70 | 6 | 60 |
| 13 | Satisfaction with Asthma Care | A. Yes | 1 | 10 | 6 | 60 |
| | | B. No | 9 | 90 | 4 | 40 |

Table 2: Levels Of Perceived Quality Of Life (domain-wise) In Pre-Test And Post-Test

| Domain | Level of perceived QOL | Score range | Percent age range | Pre-Test | | | | Post-Test | | | |
|-----------------------|------------------------|-------------|-------------------|----------|----|-----------|---|-----------|----|-----------|----|
| | | | | Manual | | Whats App | | Manual | | Whats App | |
| | | | | Fre q. | % | Fre q. | % | Fre q. | % | Fre q. | % |
| Symptoms | Poor | 1 – 21 | 1 – 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Satisfactory | 22 – 42 | 26 – 50 | 4 | 40 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Good | 43 – 63 | 51 – 75 | 6 | 60 | 7 | 7 | 7 | 70 | 3 | 30 |
| | Very Good | 64 – 84 | 76 – 100 | 0 | 0 | 3 | 3 | 3 | 30 | 7 | 70 |
| Activity Limitation | Poor | 1 – 19 | 1 – 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Satisfactory | 20 – 38 | 26 – 50 | 4 | 40 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Good | 39 – 57 | 51 – 75 | 6 | 60 | 4 | 4 | 4 | 40 | 3 | 30 |
| | Very Good | 58 – 77 | 76 – 100 | 0 | 0 | 6 | 6 | 6 | 60 | 7 | 70 |
| Emotional Function | Poor | 1 - 9 | 1 – 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Satisfactory | 10 – 18 | 26 – 50 | 4 | 40 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Good | 19 – 27 | 51 – 75 | 6 | 60 | 6 | 6 | 6 | 60 | 5 | 50 |
| | Very Good | 28 - 35 | 76 – 100 | 0 | 0 | 4 | 4 | 4 | 40 | 5 | 50 |
| Environmental Stimuli | Poor | 1 - 7 | 1 – 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Satisfactory | 8 – 14 | 26 – 50 | 3 | 30 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Good | 15 – 21 | 51 – 75 | 7 | 70 | 7 | 7 | 7 | 70 | 6 | 60 |
| | Very Good | 22 - 28 | 76 – 100 | 0 | 0 | 3 | 3 | 3 | 30 | 4 | 40 |

The above table shows each domain wise perceived quality of life before and after giving self-care information through manual mode and through whatsapp mode.

Table 3: Difference Between Means – Efficacy Of Manual Information

| Domain | Tests | N | Mean | SD | F/ 't' | 'p' |
|-----------------------|-------|----|-------|-------|---------|-------------------|
| Overall | Pre | 10 | 117.5 | 12.17 | 9.69 | 0.000 S, p<0.05 |
| | Post | 10 | 167 | 10.54 | | |
| Symptoms | Pre | 10 | 45.4 | 3.46 | 0.10115 | 0.9216 NS, p<0.05 |
| | Post | 10 | 62.4 | 3.95 | | |
| Activity Limitations | Pre | 10 | 39 | 5.11 | 0.1120 | 0.913 NS, p<0.05 |
| | Post | 10 | 57.5 | 4.43 | | |
| Emotional Function | Pre | 10 | 19.4 | 1.85 | 0.13959 | 0.8921 NS, p<0.05 |
| | Post | 10 | 26 | 2.48 | | |
| Environmental Stimuli | Pre | 10 | 15.1 | 2.21 | 0.1825 | 0.859 NS, p<0.05 |
| | Post | 10 | 21.1 | 1.57 | | |

Table 4: Difference Between Means – Efficacy Of Whatsapp Information

| Domain | Tests | N | Mean | SD | F/ 't' | 'p' |
|-----------------------|-------|----|-------|-------|----------|-------------------|
| Overall | Pre | 10 | 119.7 | 10.92 | 0.14574 | 0.887 NS, p<0.05 |
| | Post | 10 | 168.8 | 14.97 | | |
| Symptoms | Pre | 10 | 44 | 4.14 | 0.083066 | 0.935 NS, p<0.05 |
| | Post | 10 | 64.7 | 5.06 | | |
| Activity Limitations | Pre | 10 | 57.4 | 5.78 | 0.15784 | 0.878 NS, p<0.05 |
| | Post | 10 | 40.4 | 4.82 | | |
| Emotional Function | Pre | 10 | 19.8 | 1.72 | 0.20544 | 0.841 NS, p<0.05 |
| | Post | 10 | 26.3 | 3.0 | | |
| Environmental Stimuli | Pre | 10 | 14.1 | 1.7 | 0.1771 | 0.8633 NS, p<0.05 |
| | Post | 10 | 20.4 | 2.33 | | |

Table 05: Difference Between Means – Efficacy Of Manual Vs. Whatsapp Information In Post Test

| Domain | Tests | N | Mean | SD | 't' | 'p' |
|---------|-------|----|-------|-------|------|------------------|
| Overall | Post | 10 | 167 | 10.54 | 3.98 | 0.0032 S, p>0.05 |
| | Post | 10 | 168.8 | 14.97 | | |

| | | | | | | |
|-----------------------|------|----|------|------|---------|--------------------|
| Symptoms | Post | 10 | 62.4 | 3.95 | 1.1412 | 0.2832 NS, p>0.05 |
| | Post | 10 | 64.7 | 5.06 | | |
| Activity Limitations | Post | 10 | 57.5 | 4.43 | 0.3135 | 0.7610 NS, p>0.05 |
| | Post | 10 | 40.4 | 4.82 | | |
| Emotional Function | Post | 10 | 26 | 2.48 | 5.1447 | 0.000607 S, p>0.05 |
| | Post | 10 | 26.3 | 3.0 | | |
| Environmental Stimuli | Post | 10 | 21.1 | 1.57 | 0.53011 | 0.60887 NS, p>0.05 |
| | Post | 10 | 20.4 | 2.33 | | |

Comparison was done on Post-test score of both the modes of information to rule out overall efficacy. Paired t test was applied at 5% level of significance. The calculated "t" value was 1.148 which is less than the tabulated value hence the research hypothesis is accepted which states that WhatsApp based self-care information is effective than the Manual based self-care information among asthmatic patients on quality of life.

DISCUSSION:

1. Self-management of various diseases through mobile based technologies is found to be effective in improving health outcome especially in medication adherence. [9,10]
2. Interactive mobile phone based applications are successfully used to assess daily symptoms, adherence to medications in adolescent asthma patients. These are easily available and accessible. [11,12,13,14]
3. Personalised action plans and use of daily medications is recommended to prevent asthma. [15].
4. Asthma action plan helps to improve patient's clinical outcome by including proper education on use of medication as per symptom and severity of asthma. [16]
5. Regular use of preventer medications (ICS) in severe asthma patients reduces the frequency of asthma attack, risk of death and use of oral corticosteroids with their side effects. [17,18]
6. Nearly 500000 hospitalizations every year are due to asthma. 217000 emergency hospital visits are for asthma. [19]
7. There are various issues addressed by 'International Conference on Health Care Delivery for Asthma' about asthma care in India, like cost of medications, incongruity in socioeconomic status of people, cultural and language differences, alternative remedies used by people hampers the management of asthma. [20]
8. The educational package and guided self-management plan for parent's, decreases the morbidity. [21]
9. This study shows that administration of self-care information to patients improves quality of life of patients but in that also dissemination of self-care information through WhatsApp messenger app is more effective than the manual mode of self-care information on quality of life of asthmatic patients.

CONCLUSION:

The study reveals that participants are interested in getting information on asthma care. Both mode of self-care information were effective but information through WhatsApp mode is slightly more effective. Self-care information should be emphasized at every visit of patient at emergency department.

Recommendations:

At respiratory department of hospital there should be provision of information centres for asthma patients where self-care information can be emphasized again and again for patients.

Some other mode of self-care information to asthma patients can also be evaluated.

Extent Of Research Gap Filled:

This study shows that delivery of self-care information to asthma patients through WhatsApp and manual modes were effective. WhatsApp mode of self-care information is assessed

newly and found to be more effective in today's time.

Consent And Ethical Approval:

The study was approved by IEC (Institutional Ethics Committee) of DMIMS (DMIMS (DU)/IEC/2018-19/7340). Permission was obtained from the head of the respiratory department of hospital. An informed consent was taken from all participants after explaining them the course of study and their role in the study. Their doubts and queries were clarified to their satisfaction. Participants were assured about the confidentiality of information. The data has a limited access to the investigator and statistician.

Competing Interest:

There is no competing interest exist by authors

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