



A Comparative Study to Assess the Effectiveness of WhatsApp Based Self-care Information with the Manual Mode of Self-care Information among Asthmatic Patients on Quality of Life

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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Study Protocol

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ABSTRACT

Background: 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.

WhatsApp is a popular app available in almost all android phones; this app is popular for sending and receiving messages along with additional features of sending images videos and links. Information can be shared at a time to a large number of people by creating groups in this app.

The use of WhatsApp messaging for self-care information among asthma patients has yet to be researched. So research question which is framed is, "Is WhatsApp based self-care information effective than manual mode of self-care information on quality of life of asthma patients?"

The study aim is to compare an effectiveness of WhatsApp based self-care information and manual mode of information among asthmatic patients on quality of life.

Methodology: Study Design: Experimental factorial research design **Population:** Adult asthma

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patients between 18-55 years of age **Sample Size:** 200. **Material:** Standard Quality of Life scale for Asthma patient.

Expected Results: WhatsApp mode of self-care information may be more effective than the manual mode of self-care information. Quality of life of asthma patients will be improved.

Conclusion: Conclusion will be drawn after statistical analysis of the collected data.

Keywords: WhatsApp; self-care information; manual mode of information; asthmatic patients; quality of life.

1. INTRODUCTION

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].

WhatsApp is a popular app available in almost all android phones; this app is popular for sending and receiving messages along with additional features of sending images videos and links. Information can be shared at a time to a large number of people by creating groups in this app [2].

Asthma patients and their families are greatly affected by severe form of asthma. It has great impact on their quality of life [3].

Usually asthma management focuses on mortality and morbidity prevention and quality of life refers to patients comfort and state of being happy. It has been observed that there is a strong relationship of asthma severity and quality of life [4].

By being adherent to treatment modalities of asthma one can improve the quality of life in severe asthma patients. Some of the asthma interventions are evaluated closely like reminders for inhaler, home visits for asthma education, patient's involvement in deciding doses of medications etc [5].

Asthma education reduces the frequencies of hospitalization and also prevents visits of patients to the emergency department. Adherence to prescribed inhaled corticosteroids (ICS) even in absence of symptoms is very important aspect of asthma education [6,7].

Repeated asthma education through various modes is found to be effective in improving asthma control and further their quality of life. These modes are like demonstration for use of

inhalers, workshops, therapy sessions, special coaching for asthma by phone, internet programs etc. [8,9].

Background/Rationale:

Burden of asthma on patient as well as health care system can be reduced through effective self-management techniques. Importantly mobile health or various mobile apps are proved to be effective in delivering self-management interventions which ultimately reduces treatment cost and improves quality of life.

A large number of studies have been done in Western countries for various tele health care systems for self-care in COPD and asthma. Though extensive reviews have been written overall the study remains inconclusive. An in detailed research is very essential to conclusively confirm that telehealth in fact has a very good impact. In Indian scenario there are hardly any studies that have been done to systemically review this aspect.

Technology advancement especially in smart phone is used widely by people to formulate groups for communication and whatsapp is most popular among them [2].

The use of WhatsApp messaging for self-care information among asthma patients has yet to be researched. So research question which is framed is, **"Is WhatsApp based self-care information effective than manual mode of self-care information on quality of life of asthma patients?"**.

The study aim is to compare an effectiveness of WhatsApp based self-care information and manual mode of information among asthmatic patients on quality of life.

Objectives:

- To assess quality of life patients with asthma.

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

2. METHODS

Method of data collection:-

Asthmatic patients will be 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" will be distributed by the researcher to manual mode of self-care information group in local language.

For WhatsApp based self-care information group, the operational information will be communicated through WhatsApp messenger in 15 days.

Quality of life of asthma patients will be assessed before intervention and after 6 months of intervention.

Scope of the Study:

This study will help to identify the effectiveness of dissemination of self-care information through WhatsApp messenger app or manual mode of information.

Study Design:

Factorial research design:-

Factorial research designs are a form of true experiment, where researcher manipulates two or more independent variables simultaneously to observe their effects on the dependent variable.

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.

Setting of the study: The study will be conducted in the IPD and OPD units of respiratory medicine of tertiary care hospital.

There are about 30 to 45 asthma patients reporting to the respiratory medicine unit. There are 030 beds allotted to respiratory medicine ward in the said hospital. The IPD is about 80% throughout the year. The patients shall be recruited simultaneously to both groups. The data collection shall be preferably done during rainy and winter season when the case increase. The exposure to treatment shall be in phasic manner. The patients shall be followed up after 7 days, 1 month and 3 months for their self-care related quality of life.

The asthma patients will be assigned randomly to two interventional groups. The OPD patients shall be given instructions by WhatsApp while the IPD patients shall be given information manually through interactive sessions and demonstrations of self-care.

Data will be collected from OPD's of respiratory medicine. Synopsis will be sent to IEC for approval. Permission to conduct research will be taken from concerned authority of the hospitals. Participant's written informed consent will be taken.

Socio-demographic data sheet will be used to collect details such as age, gender, education, occupation and socioeconomic status and duration of illness etc. and quality of life questionnaire will be given to assess quality of life of asthma patients.

Participants:

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

Exclusion criteria for the study include presence of any other primary diseases, diseases related to lung, severe psychological or psychiatric deficiency or the inability to read at a basic level.

Sample size:

Based on the study design, the sample size for the study is estimated to 196 by using calculator.net (online RCT sample size calculator) with level of confidence: 95%, Margin of error: 5%, Population proportion of asthma patients is taken at 15%. The sample size is rounded up to 200 for each group. Both the groups are getting interventions.

home / math / sample size calculator

Sample Size Calculator

Find Out The Sample Size

This calculator computes the minimum number of necessary samples to meet the desired statistical constraints.

Result

Sample size: **196**

This means 196 or more measurements/surveys are needed to have a confidence level of 95% that the real value is within $\pm 5\%$ of the measured/surveyed value.

Confidence Level: ?	<input type="text" value="95%"/>	
Margin of Error: ?	<input type="text" value="5%"/>	
Population Proportion: ?	<input type="text" value="15%"/>	Use 50% if not sure
Population Size: ?	<input type="text"/>	Leave blank if unlimited population size.
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Variables:

Independent: WhatsApp based self-care information, Manual mode of self-care information.

Dependent: Quality of life of asthma patients.

Operational definitions:-

- WhatsApp based self-care information:** In my study WhatsApp based self-care information means dissemination of operational information prepared by a researcher through WhatsApp messenger app in 15 days in local language.
- Manual based self-care information:** In my study Manual based self-care information means distribution of operational information in the form of "Asthma self-care manual" prepared by researcher will be distributed in Hindi, English or Marathi as per patient's preference.
- Quality of life:** In this study asthma specific quality of life will be assessed by the standardised instrument prepared by Elizabeth F. Juniper, MCSP, MSc.: which assess the physical and emotional impact of disease. It is assessed in four categories like symptom, activity limitation, emotional function and environmental exposure.

- Asthmatic Patients:** Patients between the age group of 18-55 years, who have asthma as their primary disease as diagnosed by standard methods.

Data sources / measurement:

- Demographic data sheet
- Asthma quality of life questionnaire Developed by Elizabeth F. Juniper, MCSP, MSc.

Quantitative variables:

The quantitative variables shall be processed, coded and presented in tabular and graphical forms. Two groups of two different interventions are part of this study. One group of 200 asthma patients gets the intervention of information sharing through WhatsApp messenger app and the other of 200 asthma patients gets the same information through face-to-face interaction. The group that gets the intervention through WhatsApp messenger shall be recruited from the OPD and those receiving information physically shall be recruited from IPD patients. This arrangement is to avoid contamination.

Statistical methods:

Descriptive statistics of mean, Standard Deviation shall be used to describe the population characteristics. Inferential statistics of

paired 't' test shall be used to estimate the efficacy of both interventions by comparing means on pre-test and post-test data. One way ANOVA shall be used to find out the association of demographic variables with the post-test scores. This association will guide on the adequacy/inadequacy in the intervention or its implementation. Unpaired samples 't' shall be used to compare the means of two interventions both in pre-test and post-test.

3. EXPECTED OUTCOMES / RESULTS

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

Bias: Sample of Manual mode self-care information group may get contaminated with the WhatsApp based self-care information. To resolve this issue, OPD patients will get information through WhatsApp and IPD patients shall get the same information through manual mode.

4. DISCUSSION

Self-management of various diseases through mobile based technologies are found to be effective in improving health outcome specially in medication adherence [10,11].

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 [12,13,14,15,16].

Personalised action plans and use of daily medications to prevent asthma is recommended by National Asthma Council Australia and Global Strategy for Asthma Management and Prevention [17,18].

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 [19].

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 [20,21].

Nearly 500000 hospitalizations every year are due to asthma. 217000 emergency hospital visits are for asthma [22].

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 [23].

The educational package and guided self-management plan for parent's, decreases the morbidity [24-25]. Different studies on Quality of Life were reviewed [26-35].

5. STUDY IMPLICATIONS

Nursing Practice: "WhatsApp based self-care information" in local language will be easily available for health care providers including nurses and nursing students to deliver for patients with asthma.

Nursing Administration:-It will save time, energy and money of health care provider required to give training to the patients and will enhance the efficiency of health care provider. It will be a ready reckoner for the asthma patients readily available in their mobiles for their repeat learning anytime anywhere at their own pace.

Nursing Education:-This study will emphasize the importance of asthma self-care training information for students.

Nursing Research: This study will help in assessing effectiveness of WhatsApp based self-care information and manual mode of self-care information which in turn help to health care provide to decide about mode of patient training to be selected.

6. CONCLUSION

Based on objectives of study after statistical analysis, conclusion will be drawn.

ETHICAL APPROVAL AND CONSENT

The study was approved by IEC (Institutional Ethics Committee) of DMIMS (DMIMS (DU)/IEC/2018-19/7340). An informed consent shall be taken from all participants after explaining them the course of study and their role in the study. Their doubts and queries shall be clarified to their satisfaction. The data shall be preserved under lock and key with limited access to the investigator and statistician.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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