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Assessing the Impact of Multimedia Education on Infertility Awareness and Attitudes Among Couples: A Pre-Experimental Study in Vadodara

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ABSTRACT

Background: Infertility is a growing concern among couples worldwide, affecting physical, emotional, and social well-being. Inadequate knowledge and negative attitudes toward infertility may hinder timely medical intervention and emotional coping. Educational interventions, particularly multimedia-based packages, have the potential to improve awareness and shape perceptions effectively.

Objectives: To assess the effectiveness of a multimedia educational package on the knowledge and attitude regarding infertility among couples at a selected hospital in Vadodara.

Methods: A pre-experimental one-group pretest-posttest design was adopted. A total of [insert number] couples attending the outpatient department of a selected hospital in Vadodara were selected through purposive sampling. A structured knowledge questionnaire and a 5-point Likert scale were used to assess knowledge and attitude, respectively. Pretest data were collected, followed by the administration of a multimedia educational package. Posttest data were collected after [insert duration]. Descriptive and inferential statistics, including paired *t*-test, were used to analyze the data.

Results: The mean posttest knowledge and attitude scores were significantly higher than the pretest scores ($p < 0.05$), indicating that the multimedia educational package was effective in enhancing knowledge and promoting a positive attitude toward infertility among the participants.

Conclusion: The multimedia educational package proved to be an effective intervention in improving knowledge and attitude regarding infertility among couples. Such educational tools should be integrated into routine counseling and awareness programs to support early detection, treatment, and emotional adjustment in infertility.

Keywords: *Infertility, Multimedia Educational Package, Knowledge, Attitude, Pre-experimental Study, Couples, Vadodara*

1. INTRODUCTION

Infertility is a growing global health concern that significantly impacts the physical, emotional, and social well-being of affected couples. It is clinically defined as the inability to achieve pregnancy after 12 months or more of regular, unprotected sexual intercourse (World Health Organization [WHO], 2020). In India, the burden of infertility is increasing, with estimates suggesting that approximately 10% to 15% of couples are affected (Ganguly & Unisa, 2010). Factors such as delayed marriage, sedentary lifestyles, environmental pollution, stress, and underlying medical conditions contribute to this rising trend.

In many societies, including India, infertility is associated with deep-rooted stigma, misconceptions, and cultural taboos. The inability to conceive is often attributed to the woman, leading to psychological distress, marital conflict, and social isolation (Deshpande & Gupta, 2019). Lack of accurate knowledge and negative attitudes surrounding infertility prevent couples from

seeking timely and appropriate treatment. Moreover, fear of judgment and misinformation from non-medical sources exacerbate the problem.

Health education is crucial in bridging these knowledge gaps and addressing the attitudinal barriers surrounding infertility. Conventional methods of health education, such as pamphlets and verbal counselling, may not always be sufficient in engaging learners or facilitating behavior change. In recent years, multimedia educational tools have gained prominence in health promotion due to their ability to combine text, audio, visuals, and interactive elements, making learning more effective and appealing (Mayer, 2009).

The present study aims to evaluate the effectiveness of a multimedia educational package in enhancing knowledge and improving attitudes toward infertility among couples. Conducted in a selected hospital in Vadodara, this research utilizes a pre-experimental one-group pretest-posttest design. The findings of this study may support the integration of multimedia-based health education in reproductive health services to empower couples with accurate information and reduce stigma associated with infertility.

Background of study:

Infertility is a significant public health issue with profound medical, psychological, and social implications. According to the World Health Organization (2020), infertility is defined as the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. Globally, infertility affects approximately 15% of reproductive-age couples, with both male and female factors contributing to the condition (Mascarenhas et al., 2012).

In India, infertility is a growing concern, affecting an estimated 10–15% of married couples (Ganguly & Unisa, 2010). Urbanization, lifestyle modifications, delayed parenthood, environmental pollutants, and reproductive tract infections are some of the contributing factors. Despite advances in reproductive technologies, many individuals still lack adequate awareness about the causes, treatment options, and preventive measures for infertility.

The societal perception of infertility, especially in the Indian context, adds to the complexity of the issue. It often carries cultural and emotional stigma, particularly for women, leading to feelings of guilt, isolation, and psychological stress (Deshpande & Gupta, 2019). In many cases, myths and misconceptions regarding infertility delay timely medical intervention.

Effective health education can play a vital role in demystifying infertility, reducing stigma, and encouraging early treatment-seeking behaviour. However, traditional health education methods may not always engage or influence individuals sufficiently. Multimedia-based educational interventions—incorporating audio, video, animation, and interactive elements—have shown promise in enhancing knowledge retention, changing attitudes, and promoting behavioral change (Mayer, 2009).

Given this context, there is a need to explore innovative educational strategies that can effectively inform and empower couples about infertility. The current study was undertaken to assess the effectiveness of a multimedia educational package in improving the knowledge and attitude of couples regarding infertility at a selected hospital in Vadodara. The findings are expected to inform future health education initiatives and strengthen reproductive health services.

abuse treatment.

2. METHODOLOGY

Research Design

A **pre-experimental one-group pretest-posttest design** was used to assess the effectiveness of a multimedia educational package on knowledge and attitude regarding infertility among couples. This design allows for measuring the changes in the participants' knowledge and attitudes before and after the intervention, providing insight into the effectiveness of the educational package.

Study Setting

The study was conducted at a selected hospital in Vadodara, Gujarat, India. The hospital offers reproductive health services and serves a diverse population of couples seeking infertility treatment and counselling.

Population and Sampling

The target population for this study consisted of couples attending the infertility clinic at the selected hospital.

- **Inclusion Criteria:**
    - Married couples (male and female) between the ages of 20 to 45 years.
    - Couples who have been diagnosed with infertility or those who are seeking infertility treatment.
    - Couples who can understand and communicate in Hindi or Gujarati (local languages).

  - Willingness to participate and provide informed consent.
- **Exclusion Criteria:**
  - Couples with previous formal education on infertility.
  - Couples with significant cognitive impairments that would affect their understanding of the intervention.

A **purposive sampling technique** was used to select **30 couples** who met the inclusion criteria and agreed to participate in the study. This sample size was chosen based on resource availability and to ensure manageable data collection and analysis.

Intervention: Multimedia Educational Package

The multimedia educational package was designed to provide comprehensive information on infertility, including its causes, myths, diagnostic methods, treatment options, and psychological aspects. The intervention incorporated a combination of the following multimedia elements:

- **Videos** explaining the biological aspects of infertility and treatment options.
- **Animated graphics** to illustrate causes of infertility, such as hormonal imbalances, lifestyle factors, and medical conditions.
- **Audio narration** to describe the content in an engaging manner.
- **Interactive quizzes** and fact sheets to reinforce learning and dispel common myths about infertility.

The entire package was delivered in a 30–40-minute session, conducted in the hospital's counseling room under the supervision of the researcher.

Data Collection Tools

Two main instruments were used to collect data:

1. **Knowledge Questionnaire:**A structured, multiple-choice questionnaire designed to assess participants' knowledge of infertility before and after the intervention. The questionnaire contained 20 questions covering various aspects of infertility, including its causes, prevention, and treatment.
2. **Attitude Scale:**A **5-point Likert scale** was used to assess the participants' attitudes toward infertility before and after the intervention. The scale included statements related to beliefs about infertility, its causes, and attitudes toward treatment. The scale ranged from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating more favorable attitudes.

Procedure

1. **Pre-Test:**The study began with administering the knowledge questionnaire and attitude scale to all participants before the multimedia educational session. This pre-test helped establish baseline knowledge and attitudes regarding infertility.
2. **Intervention:**Following the pre-test, participants were provided with the multimedia educational package. The session was conducted in a group setting, where participants watched the videos, viewed the animated graphics, and listened to the narration. The interactive quizzes and discussions were included to ensure participant engagement.
3. **Post-Test:**After the intervention, the knowledge questionnaire and attitude scale were administered again to assess any changes in the participants' knowledge and attitudes. The post-test was conducted immediately after the educational session.

Data Analysis

Data were analyzed using the following methods:

- **Descriptive Statistics:**The mean and standard deviation were calculated for the knowledge and attitude scores in both the pre-test and post-test.
- **Paired t-Test:**A paired t-test was used to compare the pre-test and post-test scores for knowledge and attitude to determine if there were statistically significant differences between them.
- **Statistical Significance:**A p-value of less than 0.05 was considered statistically significant, indicating that the multimedia educational intervention had a meaningful impact on the participants' knowledge and attitudes regarding infertility.

Ethical Considerations

- **Informed Consent:**Written informed consent was obtained from all participants before enrolling them in the study.

Participants were informed about the purpose of the study, the procedures involved, and their right to withdraw at any time without any consequences.

- **Confidentiality:**The confidentiality of the participants was maintained throughout the study. All data were anonymized and stored securely to prevent unauthorized access.
- **Ethical Approval:**The study was approved by the **Institutional Ethical Review Board** (IRB) of the selected hospital of vadodara district.

3. RESULT OF STUDY

Table 1: Frequency and Percentage Distribution of Demographic Variables.

N=30

S. No	Demographic Variables	Frequency (f)	Percentage (%)
1	Age group in years		
	a. 18 - 24	3	10
	b. 25 - 34	13	43.3
	c. 35 - 44	14	46.7
	d. 45 +	0	0
2	Gender		
	a. Male	9	30
	b. Female	21	70
3	Educational qualification		
	a. Primary education	13	43.3
	b. Secondary education	15	50
	c. Graduate	2	6.7
	d. Post graduate and above	0	0
4	Marital status		
	a. Unmarried	0	0
	b. Married	30	100
	c. Widowed	0	0
	d. Divorced	0	0
5	Religion		
	a. Hindu	25	83.3
	b. Muslim	5	16.7
	c. Sikh	0	0
	d. Christian	0	0
6	Occupation		
	a. Government employee	0	0
	b. Private employee	5	16.7
	c. Self employed	2	6.7
	d. Homemaker	16	53.3
	e. Other	7	23.3

7	Family monthly income		
	a. Less than ₹10,000	5	16.7
	b. ₹10,001 - ₹20,000	16	53.3
	c. ₹20,001 - ₹30,000	9	30
	d. More than ₹30,000	0	0

Table 2: Pre-test and post-test level of knowledge regarding infertility among couples

N=30

LEVEL OF KNOWLEDGE	Pre-Test		Post-Test	
	f	%	f	%
POOR KNOWLEDGE	19	63.3	0	0
AVERAGE KNOWLEDGE	11	36.7	6	20
GOOD KNOWLEDGE	0	0	24	80

Table 2 depicts the pre-test and post-test level of knowledge regarding infertility among couples. Results revealed that in pre-test majority 19(63.3%) had poor knowledge and 11(36.7%) had average knowledge where as in post-test maximum 24(80%) had good knowledge and 6(20%) had average knowledge regarding infertility.

Table 3: Pre-test and Post-test Level of Attitude Regarding Infertility Among Couples N=30

LEVEL OF ATTITUDE	Pre-Test		Post-Test	
	f	%	f	%
UNFAVORABLE	10	33.3	3	10
FAVORABLE	20	66/7	27	90

The table shows a significant improvement in participants' attitudes following the multimedia educational intervention. In the pre-test, only 66.7% of couples had a favorable attitude, while this increased to 90% in the post-test. Conversely, the proportion of participants with an unfavorable attitude decreased from 33.3% to 10%, indicating a positive shift in perception due to the intervention.

Table 4: Effectiveness of Multimedia Educational Package on Knowledge and Attitude Regarding Infertility Among Couples (N = 30)

Effectiveness	Pre-test Mean (SD)	Post-test Mean (SD)	Mean D	t value	Df	P value
Knowledge	9.06 (2.83)	14.50 (3.60)	5.43	6.338	29	0.001*
Attitude	32.43 (2.52)	39.26 (4.79)	6.83	6.921	29	0.001*

Table 4 indicates a statistically significant improvement in both knowledge and attitude scores following the multimedia educational intervention. The mean knowledge score increased from 9.06 to 14.50, and the mean attitude score improved from 32.43 to 39.26. The *t*-values (6.338 for knowledge and 6.921 for attitude) with a p-value of 0.001 confirm that these differences are significant at the 0.05 level. Thus, the multimedia educational package was effective in enhancing both knowledge and attitude regarding infertility among the participating couples.

Implications for study/ Implications for Practice

The findings of this study highlight the potential of multimedia educational interventions as an effective strategy in promoting

reproductive health awareness, particularly concerning infertility. Nurses and other healthcare professionals can incorporate such tools into patient education sessions to deliver comprehensive, engaging, and easily understandable information. Multimedia resources can help bridge communication gaps, especially for clients with low health literacy or limited exposure to medical information. By using culturally appropriate visuals and language, these tools can effectively dispel myths, reduce stigma, and foster positive attitudes among couples facing infertility challenges. In clinical settings, multimedia education can complement traditional counseling methods, making the learning experience more interactive and impactful. Furthermore, this approach supports the goal of patient-centered care by empowering individuals to make informed decisions about their reproductive health. On a broader scale, hospital administrators and health policymakers can consider integrating such educational packages into routine services, particularly in outpatient departments, fertility clinics, and community outreach programs. This strategy not only improves knowledge and attitudes but also encourages early help-seeking behavior, which is crucial for timely diagnosis and intervention in infertility management.

Study Limitations and Recommendations for Future Research

While this study provides valuable insights into the effectiveness of a multimedia educational package on infertility-related knowledge and attitudes among couples, certain limitations must be acknowledged. Firstly, the use of a **pre-experimental one-group pretest-posttest design** limits the ability to establish causality, as there was no control group for comparison. Secondly, the **sample size was relatively small** and selected through purposive sampling, which may affect the generalizability of the findings to a larger population. Thirdly, the **study was conducted in a single hospital setting in Vadodara**, which may not reflect the diverse cultural, social, or educational backgrounds of couples in other regions. Additionally, **follow-up was limited to a short duration**, and the long-term retention of knowledge or sustained change in attitude was not assessed. Lastly, **self-reported responses** could have introduced response bias, as participants may have provided socially desirable answers.

4. CONCLUSION

The present study aimed to assess the effectiveness of a multimedia educational package on knowledge and attitude regarding infertility among couples at a selected hospital in Vadodara. The findings revealed a statistically significant improvement in both knowledge and attitude post-intervention. The mean knowledge score increased from 9.06 (±2.83) in the pre-test to 14.50 (±3.60) in the post-test, with a mean difference of 5.43 ($t = 6.338$, $p = 0.001$). Similarly, the mean attitude score improved from 32.43 (±2.52) to 39.26 (±4.79), reflecting a mean difference of 6.83 ($t = 6.921$, $p = 0.001$). Additionally, the proportion of participants with a favorable attitude rose from 66.7% to 90% following the intervention.

These results indicate that the multimedia educational package was effective in enhancing both knowledge and attitudes among the study participants. The intervention helped in addressing common myths and misconceptions, promoting awareness, and fostering a more positive outlook toward infertility. The use of multimedia tools offered an engaging and interactive learning experience, supporting the idea that such approaches can be valuable additions to conventional health education strategies. Therefore, integrating multimedia-based education into routine counseling and reproductive health programs can serve as a practical and impactful method for empowering couples with accurate information and reducing the stigma associated with infertility.

Declaration of Conflicting Interests

- The author(s) declare that there is no conflict of interest with respect to the research, authorship, and publication of this article.

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Human Subjects Review Details

This study was approved by the Institutional Review Board (IRB) of Sumandeep University. All participants provided informed consent prior to participation. The study adhered to ethical guidelines for research involving human subjects, ensuring confidentiality, voluntary participation, and the right to withdraw at any time without consequence.

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