

Effectiveness of Multimedia-Based Education on Knowledge and Attitude Regarding Polycystic Ovarian Disease (PCOD) Among Adolescent Girls in Selected Areas of Gurugram, Haryana

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Abstract

Background: Polycystic Ovarian Disease (PCOD) is one of the most common endocrine disorders affecting adolescent girls and women of reproductive age. It is characterized by hormonal imbalance, menstrual irregularities, obesity, acne, infertility, and metabolic complications. Lack of awareness regarding PCOD often leads to delayed diagnosis and poor management. Multimedia-based education is an effective teaching strategy that enhances learning through audio-visual aids and interactive methods, thereby improving knowledge and promoting positive attitudes among adolescents.

Method: A pre-experimental (one-group pre-test and post-test) research design was used for the study. The sample consisted of 100 adolescent girls who were selected by purposive sampling technique from Government Senior Secondary School, Budhera, Gurugram, Haryana. Data were collected using a self-structured knowledge questionnaire and a Likert attitude scale. The collected data were organised in a master data sheet and analysed using descriptive and inferential statistics according to the objectives of the study with SPSS version 20.

Result: The findings of the study revealed that in the pre-test, 18 (18%) participants had good knowledge, 56 (56%) had moderate knowledge, and 26 (26%) had poor knowledge regarding PCOD. Regarding attitude, 20 (20%) participants had an unfavorable attitude, 55 (55%) had a neutral attitude, and 25 (25%) had a favorable attitude. After the multimedia-based educational programme, 82 (82%) participants had good knowledge, while only 2 (2%) had poor knowledge. Similarly, 80 (80%) participants demonstrated a favorable attitude towards PCOD. The mean pre-test knowledge score was 11.8 ± 3.4 , which increased to 20.6 ± 2.8 in the post-test. Likewise, the mean attitude score increased from 26.4 ± 5.8 in the pre-test to 34.0 ± 4.2 in the post-test. The calculated paired *t*-values for knowledge (18.72) and attitude (12.84) were statistically highly significant ($p < 0.001$), indicating that the multimedia-based educational programme was effective in improving the knowledge and attitude of adolescent girls regarding PCOD.

Conclusion: After administering the multimedia-based educational programme on Polycystic Ovarian Disease, the knowledge and attitude levels of adolescent girls improved significantly. Therefore, it can be concluded that multimedia-based education is an effective teaching strategy for enhancing awareness and promoting positive attitudes regarding PCOD among adolescent girls.

Keywords: Polycystic Ovarian Disease, PCOD, Multimedia-Based Education, Knowledge, Attitude, Adolescent Girls, Effectiveness.

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Introduction

Adolescence is a critical stage of physical, emotional, and reproductive development, and appropriate health education is an essential component in promoting lifelong healthy behavior. ⁽¹⁾ Adolescent girls' reproductive health disorders are emerging as a growing public health problem due to changing lifestyles, unhealthy dietary habits, obesity, and unawareness about preventive healthcare practices. ⁽²⁾

Polycystic ovarian disease is one of the most common endocrine disorders in adolescent girls and women of reproductive age. It is characterized by hormonal imbalance, menstrual irregularities, hyperandrogenism, polycystic ovaries, obesity, acne, infertility, insulin resistance and increased risk of metabolic syndrome. ⁽³⁾ The condition has a profound impact on physical health, psychological well-being, body image, self-esteem, and quality of life. PCOD complications can be prevented effectively by early detection and appropriate changes in lifestyle. ⁽⁴⁾

Though PCOD is on the rise but knowledge about causes, symptoms, complications and prevention of PCOD among adolescent girls is poor. Poor treatment outcomes and long-term reproductive and metabolic complications are caused by misconceptions and late diagnosis. Thus, accurate health information during adolescence is important to promote healthy lifestyle practice and to improve reproductive health awareness. ⁽⁶⁾

Multimedia education combines text, graphics, animations, audio, videos, and interactive presentations to foster effective learning. Multimedia-assisted education improves understanding, retention of information, learner participation, and positive attitudes toward health-related behaviors more effectively than conventional teaching methods. Multimedia has been shown to be effective in educational interventions to improve adolescents' knowledge on reproductive health issues. ⁽⁵⁾

With the increasing burden of PCOD and need for effective educational strategies, the present study was undertaken to assess the effectiveness of multimedia-based education on knowledge and attitude regarding Polycystic Ovarian Disease among adolescent girls in selected areas of Gurugram, Haryana.

Need of the Study

A key element of illness prevention and health promotion is health education. ⁽⁵⁾ The way information is communicated is just as important to the success of any health education program as the substance that is taught. Teenagers are a special group with different communication demands and learning preferences. ⁽¹⁰⁾ Multimedia-based instructional practices are therefore becoming more widely acknowledged as being more effective and engaging than traditional approaches. ⁽⁴⁾

When knowledge is provided through both visual and auditory channels, learners retain it better, according to educational research. ⁴ Active learning, attention span, memory retention, and learner participation are all enhanced by multimedia instruction. Multimedia education is especially appropriate for teenage health education programs because of these benefits. ⁽⁴⁾

Multimedia technology is being used more and more in educational settings, but many school and health programs still do not fully utilize it for reproductive health teaching. ⁽⁹⁾ The majority of awareness programs still use traditional teaching techniques, and there is little proof that multimedia-based education may improve teenage girls' attitudes and knowledge about reproductive health issues.

Only a small number of studies have looked at the impact of multimedia-based educational interventions on adolescent girls' knowledge and attitudes about polycystic ovarian disease. Additionally, there is little data from the chosen research environment.

MATERIAL AND METHODS

Study Objectives

- To assess the knowledge regarding Polycystic Ovarian Disease (PCOD) among adolescent girls in selected areas of Gurugram.
- To assess the attitude regarding Polycystic Ovarian Disease (PCOD) among adolescent girls in selected areas of Gurugram.
- To assess the effectiveness of multimedia-based education regarding Polycystic Ovarian Disease (PCOD) among adolescent girls in selected areas of Gurugram.
- To find out the association between knowledge and attitude regarding Polycystic Ovarian Disease (PCOD) with selected demographic variables among adolescent girls in selected areas of Gurugram.

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Study Design: The research design adopted for this study was a quasi-experimental one-group pre-test and post-test design.

Setting: Government Senior Secondary School, Budhera, Gurugram, Haryana.

Sample: Adolescent girls studying in Government Senior Secondary School, Budhera, Gurugram, Haryana.

Sampling Technique: Purposive sampling technique.

The collected data were analysed according to the objectives of the study using descriptive and inferential statistics. The level of statistical significance was set at $p \leq 0.05$.

RESULTS

Analysis of data is presented in following section:

Section A: Description of socio-demographic data

It included seven items to collect information regarding age, type of residence, religion, type of family, dietary pattern, previous knowledge regarding PCOD, and source of information regarding PCOD.

Description of the Tools

Section A: Demographic Variables

This section consisted of demographic characteristics of the participants. It included seven items to collect information regarding age, type of residence, religion, type of family, dietary pattern, previous knowledge regarding PCOD, and source of information regarding PCOD.

Section B: Structured Knowledge Questionnaire regarding PCOD

This section consisted of a structured knowledge questionnaire containing 25 multiple-choice questions to assess the knowledge of adolescent girls regarding Polycystic Ovarian Disease (PCOD).

Section C: Five-point Likert Attitude Scale regarding PCOD

This section consisted of a five-point Likert attitude scale developed to assess the attitude of adolescent girls regarding Polycystic Ovarian Disease (PCOD).

Data Collection Duration

The study was conducted from **28 December 2025 to 15 January 2026** after obtaining approval from the Institutional Ethics Committee of SGT University and administrative permission from the Principal of Government Senior Secondary School, Budhera, Gurugram.

Data Analysis

Table 1: Demographic Characteristics of Adolescent Girls

(N = 100)

S. No.	Demographic Variables	Frequency (f)	Percentage (%)
Age			
a	13–14 years	28	28%
b	15–16 years	42	42%
c	17–18 years	25	25%
d	19 years	5	5%
Type of Residence			
a	Rural	46	46%
b	Urban	54	54%
Religion			
a	Hindu	88	88%
b	Muslim	12	12%
c	Sikh	0	0%
d	Christian	0	0%
Type of Family			
a	Nuclear	58	58%

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b	Joint	36	36%
c	Extended	6	6%
d	Others	0	0%
Dietary Pattern			
a	Vegetarian	39	39%
b	Non-vegetarian	21	21%
c	Mixed	40	40%
Previous Knowledge About PCOD			
a	Yes	63	63%
b	No	37	37%
Source of Information About PCOD			
a	Internet	34	34%
b	Teachers	26	26%
c	Parents	18	18%
d	Friends	22	22%

The above table presents the frequency and percentage distribution of demographic variables among adolescent girls participating in the study.

- Regarding age, the majority of participants 42 (42%) belonged to the age group of 15–16 years, followed by 28 (28%) in the age group of 13–14 years, 25 (25%) in the age group of 17–18 years, and only 5 (5%) were aged 19 years.
- With respect to type of residence, 54 (54%) participants belonged to urban areas, whereas 46 (46%) were from rural areas.
- In terms of religion, the majority of participants 88 (88%) were Hindu and 12 (12%) were Muslim. None of the participants belonged to Sikh or Christian religion.
- Regarding type of family, more than half of the participants 58 (58%) belonged to nuclear families, 36 (36%) belonged to joint families, and 6 (6%) belonged to extended families. None of the participants reported other family types.
- Concerning dietary pattern, 40 (40%) participants followed a mixed diet, 39 (39%) were vegetarian, and 21 (21%) were non-vegetarian.

- Regarding previous knowledge about PCOD, the majority of participants 63 (63%) had previous knowledge regarding PCOD, while 37 (37%) had no prior knowledge.
- With regard to source of information about PCOD, 34 (34%) participants obtained information through the internet, 26 (26%) through teachers, 22 (22%) through friends, and 18 (18%) through parents.

Section B: Pretest knowledge of adolescent girls regarding Polycystic Ovarian Disease (PCOD) before multimedia-based educational intervention

Table 2: Distribution of Adolescent Girls According to Pre-test Knowledge Scores Regarding PCOD

(N=100)

S. No.	Level of Knowledge	Score Range	Frequency (f)	Percentage (%)
1	Good	17–25	18	18%
2	Moderate	9–16	56	56%
3	Poor	0–8	26	26%
	Total		100	100%

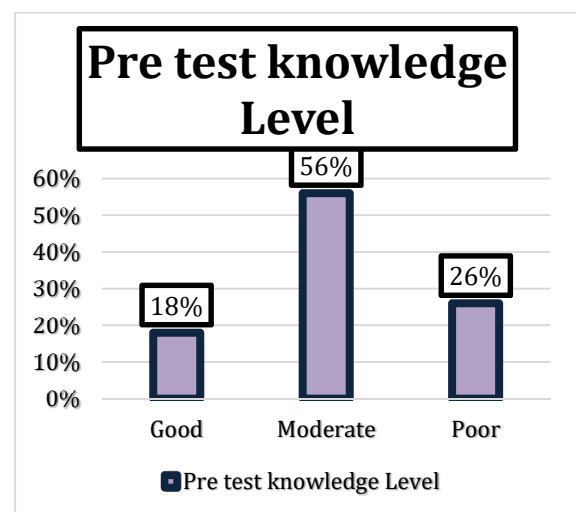


Fig. 1: Bar graph show distribution of respondents according to pretest knowledge level

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The above table depicts the distribution of adolescent girls according to their pre-test knowledge levels regarding Polycystic Ovarian Disease (PCOD).

The findings reveal that the majority of participants 56 (56%) had moderate knowledge regarding PCOD. About 26 (26%) participants had poor knowledge, whereas only 18 (18%) participants demonstrated good knowledge regarding PCOD before the multimedia-based educational intervention.

Table 3: Mean and Standard Deviation of Pre-test Knowledge Scores

Variable	Mean	Standard Deviation
Pre-test Knowledge Score	11.8	3.4

The above table shows the mean and standard deviation of pre-test knowledge scores regarding Polycystic Ovarian Disease (PCOD) among adolescent girls (N = 100).

The mean pre-test knowledge score was 11.8 with a standard deviation of 3.4. This indicates that the participants had moderate baseline knowledge regarding PCOD before the multimedia-based educational intervention.

Section C: Pretest attitude of adolescent girls regarding Polycystic Ovarian Disease (PCOD) before multimedia-based educational intervention

Table 4: Distribution of Adolescent Girls According to Pre-test Attitude Scores Regarding PCOD

(N=100)

S. No.	Level of Attitude	Score Range	Frequency (f)	Percentage (%)
1	Unfavorable Attitude	1–20	20	20.0
2	Neutral Attitude	21–30	55	55.0

3	Favorable Attitude	31–40	25	25.0
	Total	1–40	100	100.0

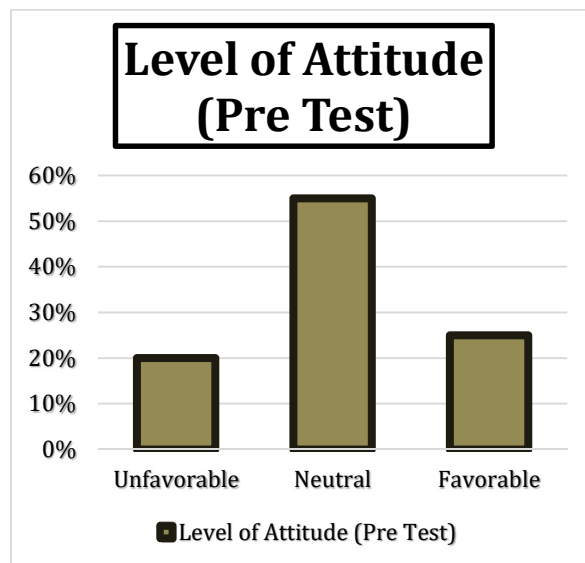


Fig. 2: Bar graph show distribution of respondents according to pre test attitude level

The above table & graph depicts the distribution of adolescent girls according to their pre-test attitude levels regarding Polycystic Ovarian Disease (PCOD). Out of 100 participants, 55 (55.0%) had a neutral attitude towards PCOD, indicating that the majority of adolescent girls possessed an average level of attitude regarding the condition. Twenty-five (25.0%) participants demonstrated a favorable attitude, whereas 20 (20.0%) participants exhibited an unfavorable attitude towards PCOD.

Table 5: Mean and Standard Deviation of Pre-test Attitude Scores

Variable	Mean	Standard Deviation
Pre-test Attitude Score	26.4	5.8

The above table shows the mean and standard deviation of pre-test attitude scores regarding Polycystic Ovarian Disease (PCOD) among adolescent girls. The mean pre-test attitude score was 26.4 with a standard deviation of 5.8.

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Section IV: Effectiveness of multimedia-based education regarding Polycystic Ovarian Disease (PCOD) among adolescent girls in selected area of Gurugram.

Table 6: Comparison of Pre-test and Post-test Knowledge Scores Regarding PCOD Among Adolescent Girls

(N = 100)

Knowledge Score	Mean	Standard Deviation	Mean Difference	t-value	p-value
Pre-test	11.8	3.4	8.8	18.72	<0.001*
Post-test	20.6	2.8			

* Significant at $p < 0.05$ level

The table shows the comparison of pre-test and post-test knowledge scores regarding Polycystic Ovarian Disease (PCOD) among adolescent girls after multimedia-based educational intervention. The mean pre-test score was 11.8 ± 3.4 , which increased to 20.6 ± 2.8 in the post-test. The mean difference was 8.8, indicating improvement in knowledge after the intervention. The calculated paired t-value was 18.72 with a p-value of <0.001, which was statistically highly significant.

Table 7: Distribution of Pre-test and Post-test Knowledge Levels Regarding PCOD

(N = 100)

S. No.	Level of Knowledge	Score Range	Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
1	Good	17 – 25	18	18%	82	82%

2	Moderate	9–16	56	56%	16	16 (16%)
3	Poor	0–8	26	26%	2	2 (2%)
	Total		100	100%	100	(100%)

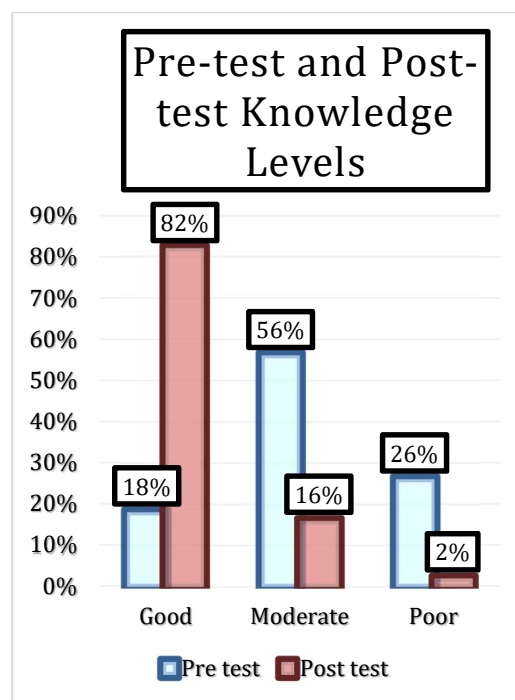


Fig.3: Bar graph show distribution of respondents according to Pre-test and Post-test Knowledge Levels

The above table depicts the comparison of pre-test and post-test knowledge levels regarding Polycystic Ovarian Disease (PCOD) among adolescent girls. In the pre-test, 18% of participants had good knowledge, 56% had moderate knowledge, and 26% had poor knowledge regarding PCOD. After the multimedia-based educational intervention, the post-test findings showed that 82% of participants had good knowledge, 16% had moderate knowledge, and only 2% had poor knowledge. The findings indicate a marked improvement in knowledge levels following the intervention.

Table 8: Comparison of Pre-test and Post-test Attitude Scores Regarding PCOD Among Adolescent Girls

(N = 100)

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Attitude Score	Mean	Standard Deviation	Mean Difference	t-value	p-value
Pre-test	26.4	5.8	7.6	12.84	<0.001*
Post-test	34.0	4.2			

Significant at $p < 0.05$ level

The above table shows the comparison of pre-test and post-test attitude scores regarding Polycystic Ovarian Disease (PCOD) among adolescent girls after the multimedia-based educational intervention. The mean pre-test attitude score was 26.4 ± 5.8 , which increased to 34.0 ± 4.2 in the post-test. The mean difference was 7.6. The calculated paired t-value was 12.84 with a p-value of <0.001, indicating a statistically highly significant improvement in attitude scores following the intervention. Therefore, multimedia-based education was effective in improving the attitude of adolescent girls regarding PCOD.

Table 9: Distribution of Pre-test and Post-test Attitude Levels Regarding PCOD

(N = 100)

Level of Attitude	Score Range	Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
Unfavorable	1–20	20	20%	2	(2%)
Neutral	21–30	55	55%	18	(18%)
Favorable	31–40	25	25%	80	(80%)
Total		100	100%	100	(100%)

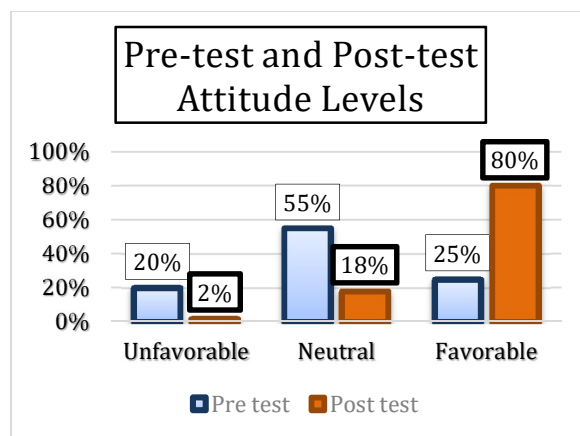


Fig. 4: Bar graph show distribution of respondents according to Pre-test and Post-test Attitude Levels

The above table depicts the comparison of pre-test and post-test attitude levels regarding PCOD among adolescent girls. Before the intervention, 20% of participants had an unfavorable attitude, 55% had a neutral attitude, and 25% had a favorable attitude. After the multimedia-based educational intervention, 80% of participants demonstrated a favorable attitude, 18% had a neutral attitude, and only 2% had an unfavorable attitude.

Section D: To find association between demographic variables and post-intervention knowledge levels regarding PCOD

The association between selected demographic variables and post-test knowledge levels regarding Polycystic Ovarian Disease (PCOD) among adolescent girls. With regard to age, the calculated

($\chi^2 = 8.42$, $p = 0.038$, type of residence, ($\chi^2 = 2.16$, $p = 0.141$), religion the obtained ($\chi^2 = 3.28$, $p = 0.350$), Type of family ($\chi^2 = 4.12$, $p = 0.249$), dietary pattern, ($\chi^2 = 1.84$, $p = 0.398$), Concerning previous knowledge about PCOD ($\chi^2 = 10.65$ $p = 0.001$) which was statistically highly significant. This indicates that participants who had previous knowledge regarding PCOD showed better post-test knowledge scores. With regard to source of information about PCOD ($\chi^2 = 7.36$, $p = 0.061$). No statistically significant association was found between post-test knowledge levels age, type of residence, religion, type of family, or dietary pattern and source of information about PCOD as the obtained p-values were greater than 0.05.

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Section E: To find Association Between Demographic Variables and Post-test Attitude Levels Regarding PCOD Among Adolescent Girls

It depicts the association between selected demographic variables and post-test attitude levels regarding Polycystic Ovarian Disease (PCOD) among adolescent girls. Age showed a statistically significant association with post-test attitude levels ($\chi^2 = 9.15$, $p = 0.027$). Previous knowledge regarding PCOD was also significantly associated with post-test attitude levels ($\chi^2 = 11.82$, $p = 0.001$). Source of information regarding PCOD demonstrated a significant association with post-test attitude levels ($\chi^2 = 8.06$, $p = 0.045$). No statistically significant association was found between post-test attitude levels and type of residence, religion, type of family, or dietary pattern, as the obtained p-values were greater than 0.05.

Conclusion

Out of 100 adolescent girls who participated in the study, the pre-test findings revealed that only 18 (18%) had good knowledge regarding Polycystic Ovarian Disease (PCOD), while 56 (56%) had moderate knowledge and 26 (26%) had poor knowledge. Regarding attitude, 20 (20%) participants had an unfavourable attitude, 55 (55%) had a neutral attitude, and only 25 (25%) had a favourable attitude. Following the multimedia-based educational programme, knowledge and attitude improved significantly. In the post-test, 82 (82%) participants had good knowledge and only 2 (2%) had poor knowledge. Similarly, 80 (80%) participants demonstrated a favourable attitude towards PCOD. The mean knowledge score increased from 11.8 ± 3.4 to 20.6 ± 2.8 , while the mean attitude score increased from 26.4 ± 5.8 to 34.0 ± 4.2 . The findings confirmed that the multimedia-based educational programme was effective in improving the knowledge and attitude of adolescent girls regarding PCOD. Therefore, incorporating regular multimedia-assisted health education programmes in schools can enhance awareness, promote healthy lifestyle practices, and encourage early identification and timely management of PCOD among adolescent girls.

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Authors' Contribution

All authors contributed equally to the conception and design of the study, data collection, data analysis, interpretation of findings, manuscript preparation, and critical revision of the article. All authors read and approved the final manuscript.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this research.

Ethical Approval

Ethical approval for the study was obtained from the Institutional Ethics Committee of SGT University before the commencement of data collection. Administrative permission was also obtained from the Principal of Government Senior Secondary School, Budhera, Gurugram.

Informed Consent

Written informed consent was obtained from all participants before their enrolment in the study. Confidentiality and anonymity of the collected information were maintained throughout the research process.

Data Availability

The datasets generated and analysed during the current study are available from the corresponding author upon reasonable request.

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