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Effectiveness of Gender Equality Health Education Program on Knowledge of Adolescents in Vadodara, Gujarat

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ABSTRACT

Background: The transitional phase of adolescence is vital for the development of attitudes concerning social behaviors, health practices, and gender roles. A prevailing lack of awareness regarding interpersonal relationships, reproductive rights, and gender equity frequently results in harmful stereotypes and subsequent health challenges. **Objectives**: The primary aims of this investigation were to evaluate the baseline understanding of gender equality among adolescents and to determine the effectiveness of a targeted health education program in bridging these knowledge gaps. **Methods**: A quasi-experimental study utilizing a single-group pre-test and post-test design was conducted. The sample consisted of 100 school-going adolescents from Vadodara, Gujarat, selected via simple random sampling. Data collection was executed using a validated, structured questionnaire. The gathered data underwent descriptive and inferential statistical analysis, specifically utilizing paired t-tests and chi-square statistics to ascertain the educational intervention's impact and explore demographic associations. **Results**: The analysis demonstrated a substantial enhancement in the participants' comprehension following the educational intervention. The proportion of students with poor knowledge dropped drastically from 62% to 24%, while those exhibiting average knowledge surged from 35% to 73%. Furthermore, variables including age, gender, and geographical region exhibited highly significant statistical associations with post-test scores ($p < 0.001$). The primary source of information regarding gender concepts also significantly influenced learning outcomes ($p = 0.007$). **Conclusion**: The implementation of a structured gender equality health education program proved highly efficacious in augmenting adolescent awareness. Such interventions play an instrumental role in dismantling gender stereotypes and fostering positive, equitable attitudes among the youth.

Keywords: *Gender equality, health education, adolescents, reproductive rights, knowledge improvement.*

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1. INTRODUCTION

The principle of gender equality is rooted in ensuring that all individuals, irrespective of their gender identity, are afforded equal rights and opportunities. Fostering an early understanding of these concepts among the younger population is of paramount importance, particularly in developing nations such as India. Societal frameworks that enforce rigid gender inequality inevitably inflict adverse physical and psychological consequences on both men and women. Within the Indian cultural context, adolescents frequently navigate highly distinct behavioural expectations based on their biological sex. These ingrained social norms heavily dictate youth attitudes and subsequent health behaviors, profoundly impacting critical areas such as sexual and reproductive health, puberty management, HIV prevention, and vulnerability to gender-based violence [1].

Educational interventions explicitly aimed at adolescents serve as a foundational mechanism for reshaping these deep-seated norms. By focusing on the intersections of health, interpersonal behavior, and reproductive rights, these programs strive to equip young individuals with the knowledge required for informed decision-making and sustained future well-being [2, 3]. Existing scholarly literature reinforces the efficacy of these structured interventions. Research has consistently demonstrated that youth-led and gender-focused health programs yield measurable improvements in how adolescents perceive and internalize gender roles [1, 4]. Furthermore, extensive reviews by international bodies such as UNESCO emphasize that weaving comprehensive, gender-focused health education into school curricula directly correlates with improved health trajectories and a reduction in discriminatory practices [5, 6]. Global health authorities, including the World Health Organization, have also strongly advocated for the urgent deployment of educational frameworks to address the skewed attitudes held by young adults [7].

Because adolescents inherently exhibit curiosity and a willingness to explore social boundaries, they represent an ideal demographic for structured learning regarding reproductive rights, gender-based violence, and mental health. Facilitating open, destigmatized dialogues surrounding these subjects not only normalizes healthy physiological processes, such as menstruation and menstrual hygiene for adolescent girls, but also cultivates an environment conducive to holistic well-being [8, 9, 10]. Consequently, the present study was conceptualized to implement and evaluate a tailored gender equality health education program among adolescents in a specific regional setting.

2. METHODOLOGY

This research utilized a descriptive, quantitative approach to evaluate the impact of a targeted health education program on the gender equality knowledge of adolescents. Adhering to the principles outlined in the TREND statement for the reporting of public health interventions, a quasi-experimental, single-group pre-test and post-test design was deployed. This specific framework was selected because it facilitates an objective and accurate measurement of knowledge acquisition resulting directly from an educational intervention within a real-world school setting.

The research was conducted at a designated secondary school located in Vadodara, Gujarat. The target population comprised adolescents actively enrolled at the institution. A total sample size of 100 students was secured through a simple random sampling technique, ensuring a representative cross-section based on participant availability and eligibility.

Participant selection was governed by strictly defined inclusion and exclusion criteria to maintain the study's integrity. To be included in the research, participants had to be actively enrolled school students between the ages of 13 and 18 years. Furthermore, they were required to express a clear willingness to participate and commit to being present for both the initial assessment and the follow-up evaluation. Conversely, individuals who were under the age of 13 were excluded from the sample. Students who were absent from the institution on the scheduled days of data collection were also excluded to ensure the paired data analysis remained consistent.

The primary instrument for data collection was a rigorously structured and expert-validated knowledge questionnaire. The instrument was divided into two distinct sections. The first section gathered essential demographic details, including age, gender, residential region, primary sources of gender-related information, and the key individuals influencing their views on gender roles. The second section comprised twenty multiple-choice questions meticulously designed to probe the participants' understanding of gender stereotypes, reproductive and sexual health, gender-specific societal roles, and the dynamics of gender-based violence. To quantify the results, a definitive scoring matrix was established. Cumulative scores ranging from zero to ten were classified as indicating poor knowledge. Scores between eleven and twenty denoted an average level of understanding, while scores from twenty-one to thirty represented good knowledge.

The execution of the study was systematically divided into three sequential phases. The initial phase involved the administration of the pre-test. During this stage, the structured questionnaire was distributed to the 100 selected adolescents to establish a baseline measurement of their existing knowledge regarding gender equality and reproductive rights, alongside the collection of their demographic profiles. Following the pre-test, the second phase encompassed the delivery of the educational intervention. All participants attended a comprehensive gender equality health education session explicitly designed to elevate their awareness. This intervention spanned approximately sixty to ninety minutes and integrated various participatory learning strategies, including visual presentations, group discussions, and interactive activities. The curriculum heavily emphasized the deconstruction of gender stereotypes, the promotion of menstrual hygiene, and the prevention of gender-based violence. The final phase, conducted one week after the intervention, involved the administration of the post-test. Participants completed the identical questionnaire utilized in the first phase, allowing researchers to capture any shifts in knowledge and directly measure the educational program's overall impact.

Upon completion of the data collection, the responses were compiled and analyzed utilizing SPSS version 26. Descriptive statistics, encompassing frequency distributions, percentages, means, and standard deviations, were calculated to

summarize the demographic data and baseline scores. To ascertain the statistical significance of the knowledge gained from the educational session, paired t-tests were executed to compare the pre-test and post-test means. Furthermore, chi-square tests of independence were applied to investigate potential associations between the participants' demographic characteristics and their subsequent post-test knowledge levels. The threshold for statistical significance was established at a p-value of less than 0.05. Prior to any data collection, ethical clearance was formally granted by the Institutional Ethics Committee. Written informed consent was obtained from all participants, with strict assurances provided regarding the confidentiality and anonymity of their responses. Participants were explicitly advised of their unconditional right to withdraw from the research at any given moment without facing any academic penalties.

3. RESULTS

The data acquired from the sample of 100 adolescents were systematically analyzed to determine the efficacy of the health education program. The analytical outcomes encompass the demographic profile of the respondents, a comparative analysis of their knowledge before and after the intervention, the statistical significance of the educational session, and the interplay between demographic variables and educational outcomes.

Regarding the demographic characteristics of the studied population, the sample was perfectly bifurcated by age, with fifty percent of the participants falling into the 13 to 14 years age bracket, and the remaining fifty percent aged between 15 and 18 years. The gender distribution revealed a slightly higher representation of male students at fifty-six percent, compared to female students at forty-four percent. A significant majority of the participants, constituting seventy-one percent, reported residing in rural areas, while twenty-nine percent were from urban locales. When evaluating the primary influencers on their perceptions of gender roles, social media emerged as the dominant force for thirty-five percent of the youth, closely followed by peer influence at twenty-nine percent, parental guidance at twenty-four percent, and teachers at twelve percent. Similarly, the primary sources from which they acquired information regarding gender equality were predominantly peer groups and social media, accounting for twenty-nine percent and twenty-seven percent respectively. School environments contributed to twenty-two percent of their information, while family and books made up the smaller remainder. These detailed demographic distributions are catalogued in Table 1.

An assessment of the knowledge scores prior to the educational intervention revealed a distinct lack of awareness among the majority of the participants. Initially, sixty-two percent of the adolescents demonstrated a poor level of knowledge regarding gender equality concepts. Thirty-five percent possessed an average understanding, and a mere three percent exhibited a good level of knowledge. None of the participants achieved an excellent score during the pre-test phase. Following the implementation of the comprehensive health education program, a remarkable shift in comprehension was recorded during the post-test phase. The proportion of students classified with poor knowledge plummeted to twenty-four percent. Conversely, the segment of students demonstrating an average level of knowledge more than doubled, surging to seventy-three percent. The percentage of students with good knowledge remained static at three percent. This dramatic positive shift in the distribution of knowledge scores is numerically detailed in Table 2 and visually referred in Figure 1.

To rigorously quantify the effectiveness of the teaching session, a paired t-test was conducted on the pre-test and post-test mean scores. The initial mean knowledge score of the group stood at 1.41 with a standard deviation of 0.552. Following the intervention, the mean score elevated significantly to 2.79, accompanied by a standard deviation of 0.478. The calculated t-value was 22.47, which substantially exceeded the tabulated t-value of 1.984 at 99 degrees of freedom. This yielded a highly significant p-value of less than 0.05, definitively confirming that the gender equality health education session was statistically effective in augmenting the participants' knowledge base. The detailed results of this inferential analysis are presented in Table 3.

Further analysis was undertaken using chi-square tests to determine if specific demographic background factors influenced the extent of knowledge retained post-intervention. The results indicated highly significant statistical associations between several core demographic variables and the post-test scores. Specifically, the age of the participants, their gender, and their region of residence all exhibited a profound association with their learning outcomes, each yielding a p-value of less than 0.001. Interestingly, the specific individuals who influenced the participants' views on gender roles did not show a statistically significant relationship with the post-test knowledge levels ($p = 0.752$). However, the medium through which they primarily sourced their information on gender equality demonstrated a significant impact on their post-intervention scores ($p = 0.007$). These associative findings are comprehensively documented in Table 4.

4. DISCUSSION

The primary objective of this investigation was to assess the baseline understanding of gender equality among adolescents and to measure the tangible impact of a targeted educational intervention. The findings robustly demonstrate that a well-structured health education session can serve as a powerful catalyst for knowledge enhancement in young populations.

Prior to the program, a concerning majority of the students exhibited poor to average comprehension of fundamental gender concepts, reproductive rights, and societal roles. This baseline deficit underscores the pressing need for integrated public health education within the standard school curriculum, particularly in developing regions where traditional gender norms often go unchallenged [4]. Following the intervention, the dramatic reduction in poor knowledge scores and the corresponding surge in average comprehension levels validate the methodological approach utilized in this study.

The statistical robustness of the intervention's success is evidenced by the highly significant paired t-test results. The shift in the mean score from 1.41 to 2.79 confirms that even highly focused, short-duration educational modules can yield substantial cognitive gains among adolescents. These outcomes are highly congruent with broader global research paradigms. For instance, studies examining youth-led educational frameworks have similarly reported that participatory and interactive learning models significantly dismantle preconceived gender biases and improve knowledge acquisition [1, 2]. The ability of an educational session to clarify concepts surrounding gender-based violence and sexual health proves that schools represent an optimal environment for such transformative learning [6].

Beyond the direct impact of the education provided, this study brought to light critical socio-demographic intersections. The strong statistical association between the participants' age, gender, and residential region with their post-test knowledge suggests that educational interventions cannot be entirely uniform; they must be contextually tailored to be most effective. Furthermore, the data revealed that social media and peer networks are the dominant primary sources of information for this demographic, significantly influencing their learning outcomes. Curiously, traditional authoritative figures like parents and teachers did not significantly associate with the knowledge gained. This discrepancy points to a potential communication gap within households and traditional classroom settings regarding sensitive topics, reiterating the necessity for schools to formalize and normalize open discussions about gender equity [4, 9].

5. CONCLUSION

In conclusion, the gender equality health education program deployed in this study was unequivocally effective in raising the awareness and knowledge levels of the participating adolescents. By actively addressing and dismantling gender stereotypes through structured education, society can foster a generation that holds positive, equitable attitudes toward health and interpersonal relationships. The integration of such robust, evidence-based modules into continuous school curricula is strongly recommended to ensure sustained behavioural transformation and the promotion of universal gender equity early in life.

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TABLES AND FIGURES

Table 1: Demographic Profile of Participants

(N = 100)

Sl. No.	Demographic Variables	Items	Frequency	Percentage (%)
1	Age (in years)	13-14	50	50
		15-18	50	50
2	Gender	Male	56	56
		Female	44	44
3	Residential Region	Urban	29	29
		Rural	71	71
4	Primary influence on views regarding gender roles	Parents	24	24
		Teachers	12	12
		Friends	29	29
		Social media	35	35
5	Primary source of information regarding gender equality	Family	13	13
		School	22	22
		Social media	27	27
		Books	9	9
		Peer Groups	29	29

Table 2: Knowledge Score Distribution Before and After the Intervention

(N = 100)

Knowledge Level	Pre-Test Frequency (%)	Post-Test Frequency (%)
Poor (0-10)	62	24
Average (11-20)	35	73
Good (21-30)	3	3
Excellent	0	0

Table 3: Paired t-test Results of Knowledge Scores

(N = 100)

Test Phase	N	Mean	Standard Deviation (SD)	Calculated "t" value	Tabulated "t" value	df	p-value
Pre-Test	100	1.41	0.552	22.47	1.984	99	< 0.05
Post-Test	100	2.79	0.478	22.47	1.984	99	< 0.05

Table 4: Chi-square Test Results for Association Between Demographic Variables and Post-test Knowledge

(N = 100)

Sl. No.	Demographic Variable	Frequency (%)	X^2 value	df	p-value
1	Age: 13-14	50	-21.824	99	0.000
	Age: 15-18	50			
2	Gender: Male	56	-21.578	99	0.000
	Gender: Female	44			
3	Region: Urban	29	-15.955	99	0.000
	Region: Rural	71			

Sl. No.	Demographic Variable	Frequency (%)	X^2 value	df	p-value
4	**Influence: Parents**	24	-0.317	99	0.752
	Influence: Teachers	12			
	Influence: Friends	29			
	Influence: Social media	35			
5	**Source: Family**	13	2.760	99	0.007
	Source: School	22			
	Source: Social media	27			
	Source: Books	9			
	Source: Peer Groups	29			

Figure 1: Bar graph representing the distribution of participants according to their knowledge scores on gender equality questions in pre-test and post-test.