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A Study To Assess The Awareness And Attitude Toward Vaccination Programs Among Urban Residents Of Vadodara, Gujarat

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Abstract
Vaccination is a cornerstone of public health, yet awareness and attitudes among urban populations remain inconsistent. This study aimed to assess the knowledge, awareness, and attitudes toward vaccination among urban residents of Vadodara, Gujarat, and to explore the relationship between knowledge and attitude. A descriptive cross-sectional design was used, involving 120 participants selected through stratified random sampling. Data were collected using a structured and validated questionnaire and analysed using SPSS software. Descriptive statistics revealed that the mean knowledge score was 5.34 (SD = 2.48), and the mean attitude score was 16.80 (SD = 4.41). Although 83.3% of participants reported prior exposure to vaccination information—primarily through media—only 23.3% demonstrated good knowledge, and 30% were categorised as aware. Attitudes were generally positive, with 62.5% showing strong support for vaccination. However, a significant negative correlation ($r = -0.463$, $p < 0.01$) was observed between knowledge and attitude, suggesting that higher knowledge did not necessarily translate into more favourable attitudes. Furthermore, no significant association was found between knowledge levels and socio-demographic variables such as age, gender, or family type. The study concludes that while trust in vaccination exists, substantial gaps in factual understanding persist, highlighting the need for targeted, evidence-based educational strategies to strengthen vaccine literacy and reduce hesitancy in urban communities.
Key words: *Vaccination, Awareness, Attitude, Urban Residents, Knowledge, Vaccine Hesitancy, Public Health, Health Education*

INTRODUCTION

Vaccination is one of the most effective tools in combating infectious diseases. Despite its significance, vaccine hesitancy and misinformation have undermined public trust in vaccination programs, especially in urban centres where diversity, misinformation, and rapid social influences play a significant role. In India, although urban residents have better access to healthcare, awareness and attitudes toward vaccination still vary.

Vadodara, Gujarat, being a rapidly urbanising city, presents a pertinent setting to examine public perception regarding vaccination. This study explores the awareness and attitude toward vaccination programs among Vadodara's urban residents and identifies factors influencing them.

Objectives

1. To assess the level of knowledge among urban residents toward vaccination.
2. To assess the level of awareness among urban residents toward vaccination.
3. To evaluate the attitude of urban residents toward vaccination.
4. To find the correlation between knowledge and attitude toward vaccination.

METHODOLOGY

This study employed a quantitative research approach using a descriptive cross-sectional design to assess the awareness and attitudes toward vaccination programs among urban residents of Vadodara, Gujarat. The cross-sectional nature of the study allowed data to be collected at a single point in time, capturing a snapshot of the community's current knowledge and perceptions about vaccination. The setting of the study comprised selected urban neighbourhoods within Vadodara city. The target population included adults aged 18 years and above who were residing in urban areas.

A total of 120 participants were selected through stratified random sampling, ensuring representation across different age groups, genders, and family types. This method helped maintain diversity and reduce sampling bias. The tool for data collection was a structured questionnaire, which consisted of three sections: demographic information, awareness (knowledge) assessment, and attitude evaluation. The awareness section included multiple-choice and factual questions, while the attitude section used a Likert scale to assess perceptions, trust, and behavioural intentions regarding vaccination.

To ensure the reliability and validity of the tool, a pilot study was conducted with a small group of participants before the main study. Feedback from the pilot study was used to refine the questionnaire for clarity and effectiveness. Ethical approval for the study was obtained from the Parul University Ethical Committee, and informed consent was obtained from all participants before data collection.
The actual data collection was conducted over a defined period using face-to-face interviews, ensuring that participants clearly understood the questions and had the opportunity to clarify any doubts. Data were analysed using SPSS software. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarise socio-demographic details, knowledge scores, and attitude levels. Inferential statistics, including Chi-square tests and t-tests, were applied to examine the relationships between socio-demographic variables and knowledge/attitude levels. The significance level was set at $p < 0.05$. This comprehensive methodology allowed for a systematic exploration of the community's awareness and attitudes, forming the basis for evidence-based recommendations.

RESULT

Table 1: Frequency and Percentage of Socio-demographic Variables

Sr. No.	Content	Frequency	Percentage
1	**Age**		
	25 – 35 years	87	72.5%
	35 – 45 years	15	12.5%
	45 – 55 years	18	15.0%
2	**Sex**		
	Male	74	61.7%
	Female	46	38.3%
	Trance gender	00	0.0%
3	**Type of residential area**		
	Urban	120	100%
4	**Type of family**		
	Joint Family	82	68.3%
	Nuclear family	38	31.7%
5	**Previous knowledge about vaccination**		
	Yes	100	83.3
	No	20	16.7
6	**If yes, source of information through**		
	Media	65	54.2
	Books	32	26.7
	Relatives	23	19.2

The study included a total of 120 urban residents from Vadodara, Gujarat. The majority of the participants (72.5%) were within the age group of 25–35 years, followed by 15.0% who were aged between 45–55 years, and 12.5% between 35–45 years. In terms of gender distribution, 61.7% were male and 38.3% were female, with no respondents identifying as transgender. All participants were from urban areas, as per the inclusion criteria. Regarding family structure, 68.3% of respondents lived in joint families, while 31.7% lived in nuclear families. This demographic profile reflects a relatively young, male-dominated, and joint family-oriented urban population.

Table 2: Knowledge and Awareness values mean, median, mode, standard deviation, minimum, maximum and sum

Value	Knowledge	Awareness	Attitude
Mean	5.3417	2.8167	16.80
Median	5	3	16
Mode	5	3	14
Std. deviation	2.48524	1.25680	4.41
Minimum	1	0	10
Maximum	10	5	31
Sum	641	338	2016

This table presents the descriptive statistics of the Knowledge, Awareness, and Attitude scores related to vaccination among urban residents of Vadodara. The mean score for knowledge was 5.34 with a standard deviation of 2.48, indicating a moderate level of knowledge with some variability among participants. The median and mode values for knowledge were both 5, suggesting that this score was most commonly reported. The knowledge scores ranged from a minimum of 1 to a maximum of 10, with a total sum of 641.

For awareness, the mean score was 2.82 with a standard deviation of 1.26. Both the median and mode were 3, showing a tendency toward moderate awareness among respondents. The scores ranged from 0 to 5, with a total sum of 338.

Regarding attitude, the mean score was 16.80 with a standard deviation of 4.41, reflecting generally positive attitudes but with noticeable variability. The median was 16 and the mode was 14. The attitude scores ranged from a minimum of 10 to a maximum of 31, with a total sum of 2016.

Out of the 120 respondents, 83.3% (n=100) reported having previous knowledge about vaccination, while 16.7% (n=20) did not. Among those with prior knowledge, the media emerged as the most common source (54.2%), followed by books (26.7%) and relatives (19.2%). These results emphasise the critical role of media as the dominant medium for disseminating health-related information among urban populations, followed by traditional educational and interpersonal channels.

Table 3: Knowledge Categorization

Knowledge Category	Frequency	Percentage
Poor Knowledge	48	40.0%
Average Knowledge	44	36.7%
Good Knowledge	28	23.3%

Table 4: Awareness Category

Awareness Category	Frequency	Percentage
Not aware	84	70%
Aware	36	30%

Table 5: Attitude Category

Attitude Category	Frequency	Percentage
Strongly Pro-vaccination	0	0%
Moderately Supportive	4	3.3%
Hesitant/Neutral	41	34.2%
Strongly	75	62.5%

The mean knowledge score among the participants was 5.34 with a standard deviation of 2.49, indicating moderate variability in the level of knowledge. The median and mode scores were both 5, suggesting a central tendency around this value. The scores ranged from a minimum of 1 to a maximum of 10, with a total cumulative knowledge score of 641 across all participants.

In contrast, the awareness scores were relatively lower, with a mean of 2.82 and a standard deviation of 1.26. The median and mode were both 3, with the lowest awareness score being 0 and the highest 5, totalling 338 points. Categorically, 40.0% of participants were found to have poor knowledge, 36.7% had average knowledge, and only 23.3% demonstrated good knowledge. For awareness, 70% of respondents were categorised as "not aware," while only 30% were considered "aware." These results reveal a substantial gap between exposure to vaccination information and actual comprehension or awareness.

Categorises participants based on their attitudes toward vaccination. Notably, 62.5% (n=75) of respondents were categorised as having a strongly positive attitude, indicating a high level of acceptance and trust in vaccination programs. 34.2% (n=41) were hesitant or neutral, suggesting a level of uncertainty or lack of strong opinion. Only 3.3% (n=4) were moderately supportive, and none of the participants fell into the strongly pro-vaccination category. This distribution indicates that while a majority of respondents are favourable toward vaccinations, a significant portion remains ambivalent or cautious, underscoring the need for targeted awareness campaigns to address vaccine hesitancy.

Table 6: Correlation Between Knowledge and Sociodemographic Variables

Sr. No.	Content	Poor Knowledge	Average Knowledge	Good Knowledge	Chi-square value	df	t value
1	**Age** 25 – 35 years 35 – 45 years 45 – 55 years	 37 5 6	 32 7 5	 18 3 7	3.502	4	0.478
2	**Sex** Male Female	 34 14	 25 19	 15 13	2.920	2	0.232
3	**Type of family** Joint Family Nuclear family	 34 14	 30 14	 18 10	0.351	2	0.839
4	**Previous knowledge about vaccination** Yes No	 40 8	 38 6	 22 6	0.748	2	0.688

To assess whether socio-demographic characteristics influenced knowledge levels, chi-square tests were conducted. No statistically significant associations were found between knowledge levels and age, gender, type of family, or prior knowledge about vaccination. Among participants aged 25–35 years, 37 had poor knowledge, 32 had average knowledge, and 18 had good knowledge. For the 35–45 and 45–55 age groups, the distribution of knowledge categories was similar, and chi-square analysis yielded a value of 3.502 with a non-significant p-value. Similarly, males and females did not differ significantly in knowledge levels (χ^2 = 2.920), nor did participants from joint and nuclear families (χ^2 = 0.351). Furthermore, previous knowledge did not significantly correlate with actual knowledge scores (χ^2 = 0.748). These findings suggest that knowledge disparities are not strongly influenced by standard demographic factors in this population, highlighting the need for universal awareness interventions.

Correlation between Knowledge and Attitude

Correlations			
		Knowledge	Attitude
Knowledge	Pearson Correlation	1	-.463**
	t Value		.000
	N	120	120
Attitude	Pearson Correlation	-.463**	1
	t Value	.000	
	N	120	120
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation analysis using Pearson's correlation coefficient shows a statistically significant negative correlation between knowledge and attitude scores, with $r = -0.463$ and $p < 0.01$. This indicates a moderate inverse relationship, meaning that as knowledge scores increased, attitude scores tended to decrease, and vice versa. The correlation is significant at the 0.01 level (2-tailed), confirming that this association is unlikely to have occurred by chance. This finding suggests a complex dynamic where increased factual knowledge about vaccination does not necessarily translate into more favourable attitudes, highlighting the potential influence of other factors such as beliefs, misinformation, cultural perceptions, or prior experiences.

DISCUSSION

Despite a high proportion of individuals reporting prior exposure to vaccination information, actual knowledge and awareness remain suboptimal. This gap between perceived and actual understanding may be attributed to the influence of superficial media messaging or misinformation.

Positive attitudes were more widespread than awareness levels, indicating that trust in healthcare systems and government campaigns may be stronger than factual understanding. The disconnect between knowledge and attitude suggests that while campaigns have built trust, there remains a pressing need for in-depth, evidence-based community education.

The lack of significant correlation between demographics and knowledge implies that misinformation and knowledge gaps are widespread across age and gender groups, underscoring the importance of universal health literacy efforts.

CONCLUSION

The study concludes that urban residents in Vadodara exhibit a generally positive attitude toward vaccination, yet gaps remain in awareness and factual knowledge. This underscores the need for comprehensive educational campaigns that go beyond messaging to deepen understanding. Health authorities should focus on leveraging trusted sources like doctors and community health workers to disseminate accurate information.

Recommendations

- Develop targeted awareness campaigns tailored to different urban subpopulations.
- Train healthcare providers in communication strategies to address vaccine hesitancy.
- Promote community-based workshops to improve health literacy.
- Enhance visibility of educational material in local languages and accessible formats.

Limitations

- The study was limited to a single urban location.
- Self-reported data may include social desirability bias.

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