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Impact of Health Education on Mothers' Knowledge, Attitude and Practice Regarding Diarrhea among Children in District Head Quarter Hospital, Sheikhpura

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ABSTRACT: Diarrheal diseases account for the second most leading cause of death among the under-five, despite being preventable and treatable. The World Health Organization reports Pakistan at the 23rd position in the list of most affected diarrhea related child death countries in the world among other 190 countries. Education of mothers on health, is critical for the management and prevention of diarrhea in children. In this article we aimed to evaluate the effect of health education on knowledge, attitude and practice of mothers about diarrhea in under five year's children in District Head Quarter Hospital, Sheikhpura. Quasi experimental (pre and post-test) study conducted in University of Health Sciences, Lahore in collaboration with District Head Quarter Hospital Sheikhpura. The study included 54 mothers of under five children suffering from diarrhea, selected through non-probability purposive sampling technique for this purpose data was collected by a structured questionnaire as baseline, post-1 (immediately) after health education intervention session, post-2 (after 1 month). SPSS version 27 used for data analysis by employed means, standard deviation, frequencies and percentages. Repeated measure ANOVA was used to identify significant difference in KAP score with p-value < 0.05 considered significant. The study found a significant improvement in mothers KAP after health education intervention. On the Baseline level, 90.7% of mother's demonstrated good knowledge regarding diarrhea management, 75.9% showed good attitudes, while 57.4% displayed poor practices. After post-1 and post-2 in KAP 100% desired level achieved.

1. INTRODUCTION

Diarrhea is the second leading cause of death among children under five globally, despite being preventable and treatable (Manetu et al., 2021). According to the World Health Organization (WHO), diarrhea is defined as “the passage of three or more loose or liquid stools per day” (WHO, 2017). It can be categorized as acute, prolonged, or chronic based on duration (Vecchio et al., 2021). Acute diarrhea, lasting less than seven days, is most common and often viral in origin, with Rotavirus responsible for 40% of cases worldwide. Bacterial and parasitic infections also contribute significantly to the disease burden (Webb & Cabada, 2018).

Key risk factors for diarrhea include inadequate breastfeeding, poor sanitation, contaminated water, and insufficient hand hygiene (Wolf et al., 2022). Diarrhea can lead to severe complications such as dehydration, electrolyte imbalances,

malnutrition, and death if not managed effectively (Iddrisu et al., 2021). Globally, there are 1.7 billion cases annually, causing over 525,000 child deaths, with South Asia bearing the highest burden (Bennion et al., 2021). In Pakistan, diarrhea is a major health concern, with 6.4 million cases reported annually and a mortality rate of 74 per 1,000 children (Rahmat et al., 2023).

The Sustainable Development Goals (SDGs) aim to reduce under-five mortality to 25 per 1,000 live births and achieve universal access to clean water and sanitation by 2030 (Brollo et al., 2021). Achieving these targets requires health education to empower caregivers, particularly mothers, who are key to managing and preventing diarrhea in children.

Studies highlight that while many mothers are aware of oral rehydration solutions (ORS), they often lack proper knowledge about their preparation and use (Prakash & Banappagoudar, 2021). Research also shows gaps between mothers' knowledge, attitudes, and practices (KAP) regarding diarrhea management and prevention (Garg et al., 2019; Yüksel Kaçan et al., 2022). For instance, a study in Turkey revealed that 53.3% of mothers had inadequate knowledge, and 84% demonstrated poor attitudes toward prevention (Upashe & Shil, 2022).

Mothers play a critical role in managing childhood diarrhea, yet studies show significant gaps in their knowledge, attitudes, and practices (KAP) (Upashe & Shil, 2022). Maternal education has been linked to better outcomes, with higher levels of education associated with reduced rates of diarrhea in children (Kombat et al., 2024). Providing targeted health education can empower mothers with the skills to prevent, identify, and manage diarrhea effectively, improving child health outcomes and reducing morbidity and mortality. In Pakistan, diarrhea remains a leading cause of under-five mortality, with 6.4 million pediatric cases reported annually (Gessesse & Tarekegn, 2022). Despite numerous studies on childhood diarrhea, there is limited data on maternal KAP in tertiary care hospitals, including DHQ Hospital Sheikhupura. Understanding these gaps is essential for designing targeted health education interventions.

This study aims to assess the impact of health education on mothers' KAP regarding diarrhea among children in DHQ Hospital Sheikhupura. By addressing gaps in maternal knowledge and practices, the research aligns with Sustainable Development Goals (SDGs) focused on reducing child mortality and improving access to clean water and sanitation.

Our Contribution: We conducted a focused evaluation of the impact of health education programs on improving mothers' knowledge, attitudes, and practices (KAP) regarding diarrhea management in children at DHQ Hospital Sheikhupura. By implementing targeted educational interventions, we assessed the effectiveness of these programs in enhancing maternal understanding of diarrhea prevention, treatment, and care. This contribution provides actionable understandings into how health education can influence maternal behavior and improve child health outcomes in similar healthcare settings.

Diarrhea: In this study Diarrhea is defined as passage of 3 or more loose or liquid stools per day, or stools that are more frequent than usual for the children under five in DHQ Hospital Sheikhupura.

Knowledge: Knowledge in this study is a familiarity, awareness or understanding of mothers, such as facts, information, and description regarding diarrhea management among children under five that is acquired through experience or education. In this study, a questionnaire was used to measure mothers' KAP regarding diarrhea at DHQ Hospital Sheikhupura.

Attitude: Attitude in this study is mother's predisposed state of mind regarding their children under five suffering from diarrhea. In this study, a questionnaire was used to measure mothers' KAP regarding diarrhea among children at DHQ Hospital Sheikhupura.

Practice: Practice in this study is the action taken by mothers of children under five suffering from diarrhea. In this study it is measured by questionnaire related to knowledge, attitude and practice regarding diarrhea among mothers. For this, data was collected at DHQ Hospital Sheikhupura.

2. LITERATURE REVIEW

Diarrhea is defined by World Health Organization as three or more loose stools per day (Kombat et al., 2024b). Globally, it is also the second biggest cause of mortality in children under five years of age (Hartman et al., 2023). The burden of diarrhea is especially high in low and middle income countries due to inadequate access to water, sanitation, hygiene and nutrition (Ali et al., 2022). Diarrhea, causing 1.7 billion cases annually (Hartman et al., 2023). It leads to 1 in 9 child deaths globally (Iddrisu et al., 2021). The following are ten countries with the highest number of deaths among children under the age of five: Nigeria, India, Pakistan, Democratic Republic of the Congo, Ethiopia, China, Indonesia, Tanzania, Bangladesh, and Angola. These countries have recorded a total of 3.15 million deaths which represents 59.5% of the global burden (Perin et al., 2022). In

Pakistan, with a population of over 225 million people, diarrhea is a leading cause of mortality among children, responsible for 60% of deaths in the same age group (Saeed et al., 2021). The frequency of diarrhea is high in various provinces, with rates of 20.6% in Punjab and 21.4% in Khyber Pakhtunkhwa (Ali et al., 2022). Between April 2022 and February 2023, approximately 137,552 children under the age of five in Baluchistan suffered from diarrhea. Similarly, from August 2022 to January 2023, Sindh reported over 2,009 cases of diarrhea among children in the same age group (Nisar et al., 2024). A decline in under-5 mortality rate from 75 deaths per 1000 live births in 2000, to 38 deaths per 1000 live births in 2019 were seen. However, despite such an extraordinary reduction, the global under-5 mortality rate is still above the target of 25 deaths per 1000 live births as defined by Sustainable Development Goals 3.2 (Perin et al., 2022) and (Nayak, 2023).

Worldwide studies show significant gaps in maternal knowledge, attitudes, and practices regarding the prevention and management of pediatric diarrhea. In Nigeria, mothers demonstrated awareness of diarrhea but lacked proper knowledge about ORS usage and exhibited poor home management practices (Okafor et al., 2022). Similarly, in Saudi Arabia, while 62% of mothers knew about ORS, only 23.5% used it, and misconceptions, such as linking teething to diarrhea, were prevalent (Alghadeer et al., 2021). Rotavirus education programs significantly improved mothers' knowledge and attitudes, correlating positively with income in Egypt (Abd Elkodoos et al., 2019). In contrast, audiovisual instructional sessions were found to enhance maternal practices for preventing diarrhea (Abd Elmoniem Syan et al., 2020). A study in Lesotho identified considerable gaps in maternal understanding and prevention practices in both urban and rural settings (Adeleke & Mhlaba, 2019b). In Indonesia, counseling and discharge planning programs improved maternal knowledge, attitudes, and self-efficacy in diarrhea prevention (Zain et al., 2020; Utami & Nurnaningsih, 2021). In Rwanda, socio-demographic factors, particularly parental education, significantly influenced diarrhea risk (Claudine et al., 2021). Research in Pakistan revealed that mothers in urban slums had limited knowledge about diarrhea prevention and management, although their practices helped reduce its incidence (Khaliq et al., 2022). In Iraq, factors such as low parental education, poverty, and large family sizes were linked to severe diarrhea (Tuky & Semender, 2019). In Yemen and Cameroon, maternal knowledge and attitudes were inadequate, yet many mothers practiced effective diarrhea prevention and treatment (Abdulla et al., 2021b; Chi et al., 2023). Studies in Nepal and Syria highlighted suboptimal practices despite better knowledge among educated and higher-income mothers, with gaps in identifying dehydration signs and preparing ORS (Gupta & Sah, 2021; Bohsas et al., 2022). A Nigerian health education program, consisting of weekly sessions over six weeks, effectively enhanced mothers' preventive and home management practices (Emea & Lawal, 2023). These findings underscore the importance of targeted educational interventions to improve maternal knowledge, attitudes, and practices for managing paediatric diarrhea worldwide.

3. METHODOLOGY

A one-group pre-test and post-test quasi-experimental study design was employed, with the study conducted at DHQ Hospital Sheikhpura, a 648-bed tertiary care facility offering diverse medical services. The study population included mothers of children under five suffering from diarrhea who were admitted to the hospital. Purposive sampling was utilized to select 54 participants, determined using the WHO sample size calculator with an 80% power and a 5% level of significance. Inclusion criteria required mothers of under-five children with diarrhea who understood Urdu and had phone access, while caregivers other than mothers and healthcare professional mothers were excluded.

Data were collected using a structured, validated questionnaire adopted from (Adeleke and Mhlaba, 2019a), comprising 32 questions across four sections: demographics, knowledge, attitude, and practice. The scoring system categorized participants into good or poor KAP groups. The tool was translated into Urdu, validated, and pretested on 10 participants, achieving a high reliability score with a Cronbach's alpha of 0.95.

The data collection process included three phases. In the baseline phase, a pre-intervention assessment of KAP was conducted. During the intervention phase, mothers attended 30–45 minute health education sessions based on WHO guidelines, supplemented by follow-up phone calls on days 7th, 14th, and 21st day. In the post-intervention phase, KAP was reassessed via phone after one month. Ethical approval was obtained from the University of Health Sciences Lahore and DHQ Hospital Sheikhpura, with informed consent taken from all participants. Confidentiality and ethical standards, aligned with the Declaration of Helsinki, were strictly maintained.

The data were analyzed using SPSS Version 27. Descriptive statistics summarized demographic variables, while repeated measures ANOVA assessed changes in KAP scores across baseline, post-intervention, and follow-up phases. A significance level of $p \leq 0.05$ was considered statistically significant.

3.1. Data Analysis and Results

This study was conducted at District Headquarter Hospital Sheikhpura. Descriptive statistics were applied to summarize demographic information, with results presented in frequencies and percentages, supplemented by bar charts. Inferential statistics, particularly repeated measures ANOVA, were employed to compare mean differences between pre-intervention and post-intervention groups. The findings are presented in four sections: demographics, knowledge, attitude, and practices.

The demographic profile of 54 participating mothers in this study revealed below in table 1.

Table 1: Demographic Profile

Demographic Variables		n (%)
Age of mothers	20-30	27 (50.0)
	31-40	24 (44.4)
	41-50	3 (5.6)
Marital status	Married	53 (98.1)
	Divorced	1(1.9)
Numbers of children	One	15(27.8)
	Two	18(33.3)
	Three	8(14.8)
	More than three	13(24.1)
Child's age	less than 1 year	23(42.5)
	1-2 year	17(31.5)
	2-3 year	7(13.0)
	3-4 year	5(9.3)
	4-5 year	2(3.7)
level of Education	Primary	7(13.0)
	Secondary	20(37.0)
	Tertiary	9(16.7)
	Uneducated	18(33.3)
Employment status	Self-employed	3(5.6)
	Employed	2(3.7)
	Unemployed	49(90.7)
Monthly Income	Low (≤ 15 K)	13(24.1)
	Middle (16 k -25 k)	25(46.3)
	Upper (>25 K)	16(29.6)

Above table (Adeleke and Mhlaba, 2019a) shows that half (50%) were aged between 20-30 years, 44.4% were aged 31-40 years, and 5.6% were aged 41-50 years. Most participants (98.1%) were married, while only one (1.9%) was divorced. Regarding the number of children, 27.8% had one child, 33.3% had two children, 14.8% had three children, and 24.1% had more than three children. The majority of children (42.5%) were aged less than one year, followed by 31.5% aged 1-2 years, 13% aged 2-3 years, 9.3% aged 3-4 years, and 3.7% aged 4-5 years. Educational attainment showed that 13% had a primary education, 37% secondary, 16.7% tertiary, and 33.3% were uneducated. Employment status revealed that 90.7% of mothers were unemployed, 5.6% were self-employed, and 3.7% were employed. Regarding monthly income, 24.1% had a monthly income of ≤15,000 PKR, 46.3% earned 16,000-25,000 PKR, and 29.6% had an income greater than 25,000 PKR.

3.2. Impact of Health Education on Mothers' Knowledge

Table 2: Distribution of correct answers of Mother's Knowledge about Diarrhea Pre-intervention, Post-Intervention 1 and Post –intervention 2 (n = 54)

Knowledge	Pre (n)	Post 1 (n)	Post 2 (n)
What do you think are the causes of diarrhea?	29	45	51
Breastfeeding increase the risk of child diarrhea?	41	45	53
Can diarrhea be induced by extended breast feeding lasting up to two years?	21	38	51
Compared to breast feeding infant formula feeding might increase the risk of diarrhea?	43	46	50
Is it possible to die from diarrhea?	51	52	53
Where did you get information on child diarrhea prevention and management?	32	32	32
When your child has diarrhea how do you know?	41	50	52

Above table depicted that before, the intervention, only 29 participants correctly identified germs (unclean water, dirty hands) as the primary cause of diarrhea. This increased to 51 participants after the final intervention. Misconceptions about breastfeeding and diarrhea were also addressed. Initially, 41 participants understood that breastfeeding does not increase diarrhea risk, which rose to 53 post-intervention. Moreover, nearly all participants recognized that diarrhea could be life-threatening after the sessions, with significant improvements in knowledge about the definition, prevention, and management of diarrhea.

Table 3: Comparison of Mean Mother's Knowledge Regarding Diarrhea Pre- intervention, Post-intervention 1 and Post-intervention 2.

Knowledge	Mean ± SD	Min.	Max.	p-value
Pre-Intervention	4.8 ± 1.1	2.0	7.0	< 0.001*
Post-Intervention 1	5.7 ± 1.1	2.0	7.0	
Post-Intervention 2	6.3 ± 0.6	5.0	7.0	

*Significant

Table 3 shows comparison of mean mother's knowledge regarding diarrhea pre- intervention, post-intervention 1 and post-intervention 2.

The mean knowledge score rose significantly from 4.8 ± 1.1 pre-intervention to 5.7 ± 1.1 post-intervention 1 and 6.3 ± 0.6 post-intervention 2 ($p < 0.001$). The proportion of mothers with a "good knowledge" regarding diarrhea prevention and management also increased significantly over time, indicating the intervention's effectiveness.

Furthermore, mothers' knowledge regarding diarrhea was categorized as good and poor knowledge. Mothers who achieved four (4) and above from the maximum attainable score of seven (7) were considered as good knowledge. The distribution of mothers with good knowledge regarding diarrhea pre-intervention, post-intervention 1 and post-intervention 2 is presented in the below graph.

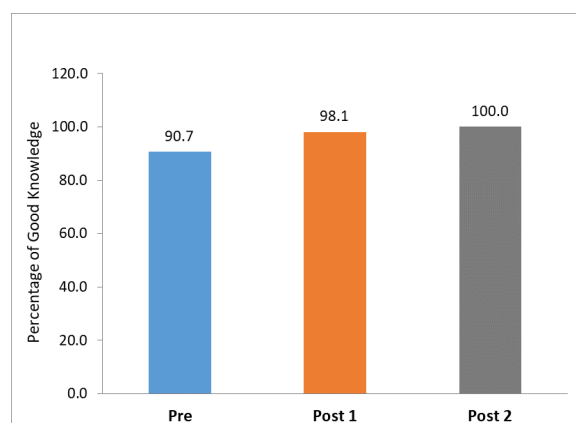


Figure 1: mother's knowledge regarding diarrhea

Figure 1 represent the mother's knowledge regarding diarrhea only 90.7% participants shows good knowledge initially, while it increased to 100% at post-intervention 1 and post-intervention 2 respectively.

The mothers' attitudes towards diarrhea prevention and management also improved markedly as shown in Table 4, after the health education intervention. Initially, 40 participants believed in exclusive breastfeeding, which increased to 48 post-intervention. Knowledge about optimal feeding frequency and the importance of breastfeeding during diarrhea also improved. Pre-intervention, 37 mothers recognized that breastfeeding should be increased during diarrhea; this rose to 52 after the first intervention and slightly adjusted to 48 after one month.

Impact of Health Education on Mothers' Attitude

Table 4: Distribution of Correct Answers of Mother's Attitude Regarding Diarrhea Pre-intervention, Post-intervention 1 and Post-intervention 2. (n=54)

Pre-Attitude	Pre	Post 1	Post 2
Do you believe exclusively in breast feeding?	40	44	48
What is the optimal feeding frequency for breastfed babies?	53	54	54
What should a breastfeeding mother do, when her child has diarrhea?	37	52	48
What is the optimal period of breastfeeding?	35	51	52
What are the initial complimentary foods do you give to your child?	51	54	54
Do you believe that children with diarrhea should be given extra fluids?	41	53	51

Table 5: Comparison of Mean Mother's Attitude Regarding Diarrhea Pre intervention, Post-intervention 1 and Post-intervention 2.

Attitude	Mean $\pm$ SD	Min.	Max.	p-value
Pre-Intervention	3.2 $\pm$ 1.0	1.0	5.0	< 0.001*
Post-Intervention 1	4.7 $\pm$ 0.5	3.0	5.0	
Post-Intervention 2	5.8 $\pm$ 0.5	4.0	6.0	

The mean attitude score rose significantly from 3.2 $\pm$ 1.0 pre-intervention to 4.7 $\pm$ 0.5 post-intervention 1 and 5.8 $\pm$ 0.5 post-intervention 2 ($p < 0.001$). The proportion of mothers with a "good attitude" regarding diarrhea prevention and management also increased significantly over time, indicating the intervention's effectiveness.

Further mothers' attitude regarding diarrhea was categorized as good and poor attitude. Good attitude mothers attained three (3) and over from the greatest attainable score of six (6) were considered to have a good attitude. The distribution of mothers with good attitude regarding diarrhea pre-intervention, post-intervention 1 and post-intervention 2 is presented in the below graph.

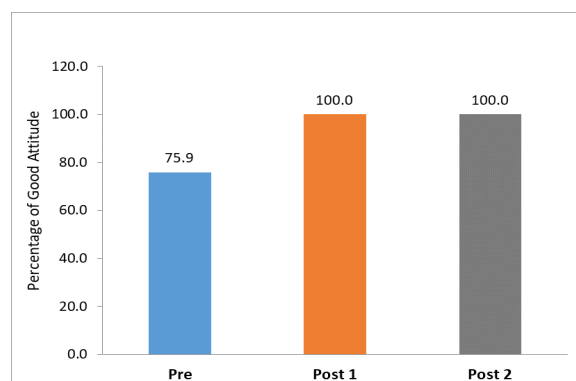


Fig 2: Mother's Attitude Regarding Diarrhea

Figure2 shows the mother's attitude regarding diarrhea only 75.9% participants shows good knowledge initially, while it increased to 100% at post-intervention 1 and post-intervention 2 respectively.

Impact of Health Education on Mothers' Practices

Table 6: Distribution of Correct Answers of Mother's Practice towards Diarrhea Prevention and Management Pre-Intervention, Post-Intervention 1 and Post-Intervention 2. (n=54)

Practice towards diarrhea prevention and management	Pre	Post 1	Post 2
Do you believe that diarrhea is preventable?	53	53	51
If yes, how do you prevent it in first place?	25	51	49
What kind of sanitary facilities do you have at home?	52	52	52
What source of drinking water do you use?	43	43	43
What would you do when your child has diarrhea?	29	45	46
Do you make your own oral rehydration solution?	36	42	50
If so, how do you do it?	25	52	52
Would you use ORS at every watery stool?	35	53	50

Is bloody stool considered severe diarrhea?	53	52	53
Is sunken fontanel considered severe diarrhea?	4	53	52
Do you consider diarrhea severe when child cries but with no tears?	44	53	53
What would you do if child's diarrhea gets worsens?	46	52	49

The intervention positively influenced mothers' practices regarding diarrhea prevention and management. Pre-intervention, 53 mothers believed diarrhea was preventable, and this remained consistent post-intervention. The use of safe sanitation facilities, such as flush toilets, was consistent among 96.3% of participants across all phases. However, improvements were noted in preventive practices like hand washing with soap after contact with a child's fecal matter, where the number of respondents increased from 25 pre-intervention to 51 post-intervention. Similarly, safe food preparation and hygienic disposal of fecal matter were emphasized during the sessions, resulting in improved practices.

Table 7: Comparison of Mean Mother's Practice towards Diarrhea Prevention and Management Pre-Intervention, Post-Intervention 1 and Post-Intervention 2

Practice	Mean $\pm$ SD	Min.	Max.	p-value
Pre-Intervention	6.0 $\pm$ 1.7	3.0	9.0	< 0.001*
Post-Intervention 1	10.1 $\pm$ 1.0	8.0	11.0	
Post-Intervention 2	9.1 $\pm$ 1.1	6.0	11.0	

Furthermore, mothers' practices towards diarrhea prevention and management were categorized as good and poor practices. Good practices mothers attained six (6) and over from the greatest achievable score of twelve (12). The distribution of mothers with good practices regarding diarrhea pre-intervention, post-intervention 1 and post-intervention 2 is presented in the below graph.

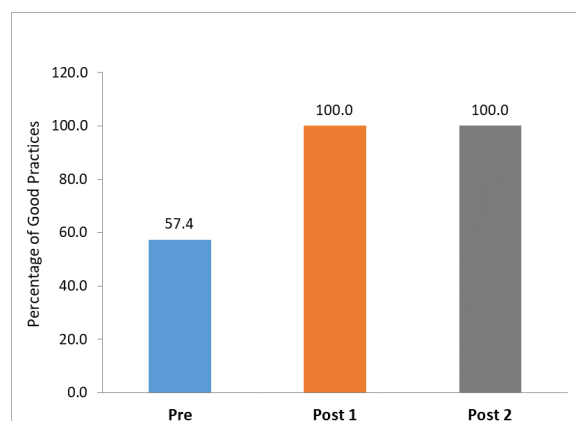


Fig 3: Mother's Practice Regarding Diarrhea

Figure 3 shows the mother's practice regarding diarrhea only 57.4% participants shows good knowledge initially, while it increased to 100% at post-intervention 1 and post-intervention 2 respectively.

Overall, the findings demonstrate a statistically significant improvement in mothers' knowledge, attitudes, and practices regarding diarrhea after health education, underscoring the importance of such interventions in enhancing maternal roles in child health.

4. DISCUSSION

This study assessed the impact of health education on mothers' knowledge, attitudes, and practices (KAP) regarding diarrhea in children at DHQ Hospital, Sheikhpura. Results demonstrate that health education interventions significantly improved mothers' KAP, as evidenced by higher post-intervention scores.

Most participants were younger, married mothers, with 50% aged 20–30 years and 98% married. Nearly 33% had two children, and 42.6% had children under one year. Educational levels were low, with 33.3% uneducated, and unemployment was prevalent at 90.7%, contributing to financial stress. Low income and limited education underscore the need for targeted health education interventions.

In the present study, the mean and standard deviation of the total knowledge score of mothers were 4.8 ± 1.1 , which increased to 5.7 ± 1.1 in post-intervention 1 and further improved to 6.3 ± 0.6 in post-intervention 2, with a p-value less than 0.001, demonstrating the effectiveness of health education. A similar study conducted in Egypt supported this finding, revealing that health education significantly enhanced mothers' knowledge, attitude, and practice regarding the management of diarrhea in children (Said et al., 2024). These improvements included better understanding of diarrhea's causes, prevention strategies, and appropriate management, which are critical for reducing child morbidity and mortality associated with diarrheal diseases. Following the intervention, participants demonstrated significant progress in identifying common causes of diarrhea, such as contaminated water and inadequate hand hygiene, and in understanding the importance of breastfeeding in reducing diarrhea risks. Previous studies corroborate these findings. For instance, (Salimath and Anjinamma 2020) reported that health education significantly enhanced maternal knowledge and reduced diarrhea prevalence in children. Likewise, (Sharif et al. 2020) highlighted the effectiveness of educational programs in increasing mothers' awareness of oral rehydration therapy and the importance of hydration during diarrhea episodes. Traditional misconceptions, such as attributing diarrhea to teething, were prevalent pre-intervention but significantly declined post-intervention, aligning with (Pereira et al. 2023). These results underscore the critical role of health education in improving maternal knowledge, promoting proper child care practices, and ultimately reducing the burden of diarrheal diseases (da Penha et al., 2022 and (Saha et al., 2022).

This study revealed a significant improvement in mothers' attitudes following health education, with mean and standard deviation scores increasing from 3.2 ± 1.0 pre-intervention to 4.7 ± 0.5 in post-intervention 1 and 5.8 ± 0.5 in post-intervention 2 ($p < 0.001$). Similar findings were reported by (Patel et al. 2023) in Ahmedabad, India, where health education significantly enhanced mothers' awareness, attitudes, and actions regarding child diarrhea. The intervention fostered proactive behaviors, such as seeking timely medical care and adopting hygiene practices, consistent with (Mahmood et al. 2019) and (Shah et al. 2022), who highlighted the positive impact of education on maternal attitudes and sanitation practices. By addressing misconceptions, such as viewing diarrhea as unavoidable, the sessions empowered mothers to see it as a preventable and treatable condition, significantly increasing their confidence and responsibility in managing it effectively.

This study showed a significant improvement in mothers' practices for managing diarrhea, with mean and standard deviation scores increasing from 6.0 ± 1.7 pre-intervention to 10.1 ± 1.0 in post-intervention 1 and 9.1 ± 1.1 in post-intervention 2 ($p < 0.001$). Mothers became more proficient in preparing and administering oral rehydration therapy, maintaining hydration, and adhering to recommended dietary practices. (Rai et al. 2020) similarly reported that health education improved mothers' practices related to oral rehydration therapy, while (Khatun et al. 2021) found enhanced hygiene practices, such as regular hand washing. Prior to the intervention, errors in oral rehydration preparation and inadequate fluid intake were common. Post-intervention, mothers adopted correct techniques and improved hygiene practices, such as hand washing, significantly reducing the risk of diarrhea.

5. CONCLUSION

This study highlights the critical role of health education in improving maternal knowledge, attitudes, and practices (KAP) regarding diarrhea prevention and management in children. Significant improvements were observed in mothers' understanding of diarrhea's causes, symptoms, and management post-intervention, consistent with findings by (Anitha 2020) and (Sarada and Subhavelvizhi, 2019). Before the intervention, misconceptions like attributing diarrhea to teething were prevalent, but knowledge about hydration and oral rehydration therapy improved markedly after education sessions. The intervention also led to positive attitude shifts, empowering mothers to adopt preventive and corrective measures, aligning with findings by (da Penha et al. 2022) on improved health-seeking behaviors and hygiene. Practices such as preparing oral rehydration therapy, maintaining hydration, and proper hygiene improved significantly, similar to the results of (Mahmood et

al. 2019). These findings underscore the importance of integrating culturally relevant health education programs into maternal and child healthcare services to reduce diarrhea-related morbidity and mortality in resource-limited settings like DHQ Hospital Sheikhupura.

Author Contributions

Conceptualization, methodology, data analysis, writing (original draft preparation), review and editing.

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Ethical Approval

This study was approved by Ethical Review Committee of the University of Health Sciences, Lahore, Punjab, Pakistan on Jan 30, 2024 vide ERC approval number UHS/DPS/23-524.

Informed Consent

It was obtained from all the participants involved in the study.

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Conflict of interest

We declare that we don't have any conflict of interest.

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