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The Water Conserving Practices of Households in Katchi Abadis of Lahore: A Gender-Based Analysis

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Abstract:

Water is a basic human need but the world is increasingly confronted with the greatest water crisis. The behavior of individuals is the true face of this crisis. The focal point of this cross-sectional quantitative study was to contemplate the attitude and habits of people in slum households in a gender-based context on how to conserve water in Lahore. Specifically, the study looked at two primary objectives. Firstly, to explain gender dissimilarity in attitude to conserve water and, secondly, to investigate gender differences in residential water conservation habits. Two slums were selected for comparison. Structured questionnaires containing close statements were used. A total sample of 200 respondents both male (100) and female (100), 50 each male and female within the age bracket of 18-65 years from a permanent household with 3-8 family members in both localities were selected. In current work, Dolnicar et al.'s (2012) attitudes and patterns scales and Past Habit scale by Sathaporyajana (2008) was employed. The findings showed that even though the mainstream of the family unit settled on the fact that water saving is necessary to sustain water resources, but a difference was seen in the responsibilities of both males and females.

Keywords: Attitude, habits, water conservation, slums, household, gender, residents, save water

INTRODUCTION

Water is a basic human right on earth. 71percent of the earth consists of water. In this proportion, the Earth contains only 2.5 percent freshwater, while ice and groundwater account for 98.8 percent of this amount (Khatri & Tyagi, 2015). But soon, the world will be confronted with the greatest water crisis The behavior of people is the real face behind this crisis. Only preventive measures could help safeguard and sustain the water use otherwise it is predicted that till the year 2025, severe water deficiency will affect 2/3 of the world populace (Burek et al., 2016).

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The whole world is facing a scarcity of water resources, and Pakistan is no exception. Though Pakistan has sufficient water assets as its rivers came down the heights of Himalayas and Karakoram from the environment's basic ice regions into the open and special lushness of this region (Ahmed, Iftikhar & Chaudhry, 2007). Pakistan used to be a region of too much water, but now become a region of scarce water. Despite having the world's best connecting irrigation system, it has been under the spell of water scarcity, and the situation will run out even more in the coming time. Today, the nation is incapable of tackling the scarcity of drinking water. According to a survey, no effort has been made to assist Pakistan in extracting more water resources (Briscoe and Qamar, 2007). Large cities like Lahore and Karachi have limited water supply and even in some regions, there is no water supply at all. Urban areas in major cities lack access to the water needed to meet the basic needs of slum dwellers.

Today, Katchi Abadis and shantytowns are the main characteristics of many countries. According to UN-Habitat (2010), in developing countries like Pakistan 33 percent of urban residents lived in urban slums or katchi Abadis. A slum or katchi Abadis house is such native area where one or more of the basic conditions were absent like water and sanitation, adequate living space, strong houses, and secure habitation. While these areas face tremendous challenges, the study focuses on water. The challenges posed by water resources are therefore called upon to fully understand the practices of ingestion and conservation of these shantytowns.

Water faced many obstacles such as climate change while massive population made it vital to explore ways and means to conserve water, water-saving behaviors, water re-use, and water reprocessing at domestic and national levels (Russell & Fielding, 2010). It is essential to underline the public's acceptance of actions and measures to conserve water. The water situation is better in the main cities of Pakistan, but deficiencies of life's necessities can easily be seen in many cities due to massive rural, urban migration, especially in the urban areas of Lahore where many katchi Abadis and slums came into being near posh areas. According to Aziz et al. (2014), the main reasons for these squatter settlements are urbanization, large population, lack of housing, high crime rates, unemployment, and lack of basic amenities.

It is imperative to discourse this matter, so policy setters and specialists have stressed adopting water sustainable planning and procedure to secure water for future needs, otherwise, there will be no water in Pakistan, and Pakistan will face a famine-like situation. Therefore, the present study was conducted as an initial development to clarify the water-saving attitude and habits of folks in domestic slums in Pakistan, by taking the case study of Lahore. More specifically, the study looked at numerous objectives. It attempts to explain gender dissimilarity in the attitude of saving water. Secondly, it attempts to study the gender difference in residential water conservation patterns. Even the attitude and habits of small and big households to conserve water have been explored. The rationaledescribed how family size affects habits and attitudes to conserve water.

Water experts in the world opined that water-scarcityand the limited quality of drinking water became the foremost challenge for living beings and the environment in the 21st century. People rely heavily on water to ensure their survival. Typically, a single person ingests one gallon of water each day while an ordinary household in Pakistan uses more than 20 gallons of water per day (Qureshi, 2011). To overcome the scarcity of water access, it is necessary to monitor the use of water. In other words, it's about preserving water. Careful use of water involves less water use and

recycling for various usual practices including washing, rinsing toilets, manufacturing, and watering of crops. Only the highest level of social and community involvement in saving water is the solution to the problem (Ahmed, Iftikhar & Chaudhry, 2007).

GENDER DIFFERENCES AND WATER CONDITIONS IN KATCHI ABADIS

Being considerate on water savings in the domestic arena, the sociodemographic characteristics of households are inevitable because it differs from one individual to another and from residence to the community. Along with these elements of society, psyche and behavior are also responsible for predicting the conduct of the people. It is very tough to fancy that one person produces a transformation to sustain water stock on earth, but it matters if proper actions are taken by the people at this stage. The proper arrangements can aid to save water by reducing the amount of water being utilized and it helped to guard cash too, for instance, when scrubbing teeth and while rinsing vegetables or fruits, put off the water tap, spraying while soaping or bathing; do laundry only when there is heavy bulky to safeguard water (Boylu & Gunay, 2017). Additional improvements are to replace the spray heads and tap with water-efficient replicas; employ a mop in place of pipe to clean entrance or cars and insertion of the spray jet on the closing of a tube for watering plants to halt the water discharge. All these practices can help conserve water co.

In the slums, much of the domestic work was done by adult women, whereas men are the breadwinners. Hence it is necessary to investigate the gender difference in household water use practices, equally, as there is a variance among females and males right to and on governing the water (GWA, 2006). The women managed the water in the domestic configuration competently because they had to take care of the household tasks and the family. But men are more concerned about their own water needs. If individuals are diverse in their requirements so it is needed to spot out the difference in the daily water consumption of males and females in domestic setup and to persuade them to assume such habits and attitudes that can save water (Dolnicar et al., 2012). Gender is a variable that may describe variations in environmental beliefs, values, attitudes, and behaviors, though empirical findings are inconsistent: even though females are more expected to reveal a high concern for environmental matters, they are less expected to involve in environmental practices (O'Shaughnessy & Kennedy, 2010).

Ensuing the introduction given above, a review of previously conducted arguments on such attitudes and habits of people in water conservation in the world also gives a contextual base that checks the worldwide water usage practices of people. Again, emphasis is placed on Lahore, Pakistan, and water conservation practices and attitudes in slums.

LITERATURE REVIEW

By keeping the importance of water in human life and making efforts to withstand the regular assets, it is vital to identify the variables linked to water-saving attitudes, habits, and effective processes that contributed to water-saving practices. There are social and psychological factors responsible to contribute to conservation. These elements are important to develop strategies and policies to maintain water resources (Dolnicar et al., 2012). First-hand studies have been prepared on water conservation and consumption universally, mostly in progressive countries, but research concerns differ from state to state. As a specimen, the prominence stress in America was on the outcome of domestic water drinking and the varied procedures adopted by the administration to

regulate excess usage, whereas in Australia the consideration was to know the connotation between ecology and water safeguarding attitudes at household water end uses (Willis et al., 2011).

Likewise, in other well-known countries, like Greece and Poland, the focus was to alter the behavior of home water consumers to streamline an existing approach concerning water regulation (Shan et al., 2015). The other household-based researches regarding water preservation have also affected the sense of attachment, relation, and socio-demographic objects like gender category, age, schooling, members of the family, and salary. Yet, to control the water use, who bears the attitude and habits to maintain water as the slum occupant, this study has been undertaken.

Empirical data have proven that in urban areas, residents of the household consumed more water than people anywhere else. It was indicated that maximum water can be saved from going to waste if the perception and attitude of the common masses were changed. People can alter their non-friendly behavior and apathy towards the environment only if policies and programs were there to help them out to change (Hassell & Cary, 2007). Fielding, et al. (2012) stated that families with strong values to protect water truly utilized a smaller amount of water than those where people saved no water. It further revealed that noble water-saving habits were connected to practices of water conservation. Willis et al. (2013) accredited that families with more family members were motivated to consume less water per sale, maybe they have a better conservation awareness and showed an attitude to sustain the water use, the size of the household does affect water demand positively (García-Valiñas, 2005). On the contrary, Addo et al. (2019) indicated that the method, habits, and values of people play a trivial effect on water activities. Khalil and Kabir (2015) established that female servants and kids in the home misused water due to a lack of thought and coaching. According to Barata et al. (2012); Cardona (2006); Jeffrey and Gary (2006) there is a huge impact on family size, residential type, income, and education. If the domestic sphere has a large family size, then family members flushed their toilet many times and even took more showers during a week. Willis et al. (2009), believed that families with more members, motivated to use less water per person, maybe they have better environmental awareness and water conservation attitudes.

To find out the nonconformity in the conduct of males and females on the protection of water in homes, Tong et al. (2017), found a notable gender difference between water preservation awareness and manners among males and females. But Makki et al. (2011) on the other side documented that the females and youth in houses utilized more water while taking showers than the males. The study of Gökçe and Sarıyar (2019) recognized that women typically displayed a positive attitude towards their environs. It showed that females have securer pro-environmental conduct than guys. O'Shaughnessy and Kennedy (2010) contrary to that, pondered that nevertheless, womenfolk showed uneasiness for environmental troubles, but then again, they stayed away and did not play a role in the ecological safety process. It was further certified by the study of Bloodhart & Swim (2010) that nevertheless, ladies exhibited greater concern to their environment in their conservancy conduct, but they did not play a part to protect the universe as likened to the menfolk.

The current research seeks to identify and compare the attitude and habits of people in general and men and women, in particular, to conserve water at the household level. This work attempts to stimulate further inquiry along the line of action and also to target the overall actions of men and

women regarding water conservation, including the importance of water, efforts to save it, and pressure faced during water storing and uses in the socio-demographic context of households in catchy Abadis of Lahore, Pakistani. Like other urban centers, there are two foremost water types in Lahore such as surface and earth water (Malik, Aboidullah, and Chaudhry, 2016). Owing to expansion in development, great pressure is being exerted on Lahore like an enormous populace, small availability of simple amenities, scarcer homes, joblessness, and wrongdoings; which results in many slums and squatter that originated adjacent to high-class regions. To safeguard water and its control is a problematic situation confronted by these Abadis. Predominantly, this is owing to inadequate water and exhaustion of water assets which became the key worry of the societies existing in these developing parts (Adams, 2014).

Many previous studies conducted on water conservation, did not represent the katchi Abadis of Pakistan. The population of this research was Lahore, the second-largest thickly populated area in Pakistan. It deeply explored pragmatic facts about the perception of men and women in families about water and the pressure of water scarcity that may put pressure on the natural water resources and choices people made about its sustainability. Data were collected from different slum areas of Lahore, where there was a gap in knowledge about the problems and obstacles associated with habits and attitudes of people about water conservation. It will be fruitful for future directions as no significant work has been done in this domain.

In light of the revaluation of the literature presented above, the investigation of this study focuses on the attitude and habits of residents in Lahore's slums towards water conservation. Thus, the central idea of this analysis is on the water-gender link, water distribution, and regulatory role of the region and water safeguarding conducts assumed by Katchi Abadis. The review of the literature established that there are breaches in information associated with attitudes and habits of people, particularly in the context of slum households – specifically concerning whether there are differences between positions and water consumption figures.

Objectives: The study has following objectives: To explain the gender difference in the attitude of males and females to conserve water; To investigate the gender difference in water-conserving habits of the household inmate; To explore the attitude and habits of small and large households to conserve water, and to investigate the effect of family size on habits and attitudes to conserve water.

Hypotheses: Thus, the main hypotheses to guide this research were: 1) There will be an important gender variance in attitude and habits to save water between two slums. 2) Males will be different in habits and attitudes from females to conserving water in the slums. 3) There will be a significant difference in attitude and habits of small and large households in water conservation practices. 4) There will be a significant effect of family members on water conservation habits and the attitude of people towards water conservation.

RESEARCH METHODOLOGY

A flexible cross-sectional quantitative methodology was adopted to gather data from the respondents. The primary data was collected mainly through a constructed questionnaire in a self-administrated survey research method, in person, involving both men and women. Published articles, books, and government documents were consulted to draw secondary data. The study

strategy of the survey was inexpensive and fetch quick bulk of data (Creswell & Plano Clark, 2007). The domestic setup of the slum was chosen to scrutinize the water-saving habits and attitude with the main focus on water controlling strategies. Two slums were nominated to make a comparison of water conservation attitudes and habits. Najaf and Shah Jamal colony in Lahore were chosen as containing the biggest household units with comparatively better household's socio-demographic characteristics as compared to other katchi Abadis. Both areas were urban areas and situated near the posh areas of the city. The purpose of taking this sample was to explore water conservation attitudes and habits of poor people.

Sample: A total sample of 200 respondents both male (100) and female (100) was selected through the convenient sampling technique. The sample was further subdivided as 50 each male and female from both localities. These sample sizes stood as the maximum accessible samples assumed the extent of the panel participants in those two sites and the reply rates were attained.

Measure: Demographic characteristics of respondents both male and female in the household (age, gender, education, income, family size, and occupation) were also collected and reported in Table 1.

Water Conservation Attitudes and Habit Scales: The study employed Water Conservation Attitudes and habits scales developed by Dolnicar et al. (2012) and the Past Habit sub-scale by Sathaporyajana (2008) with a little tailoring. It was used to measure variables by using a five-point Likert-like scale (Strongly disagreed to strongly agree), (from rarely done to never do) scoring 1-5. Both scales showed a moderate to high rate of reliability and validity (Dolnicar et al. (2012). The past Habit scale contained 12 items with Cronbach's alpha as .810. The attitude scale contained 22 statements with Cronbach's alpha as .720 and the habits scale contained 26 statements with Cronbach's alpha as .810 as per current study reliability and validity. The survey comprised (1) attitude items on water conservation (witness Table 2), enquiring respondents to specifytheir agreement or disagreement, and (2) a list of habits and routines to conserve water (Table 3 for reference).

Procedure: Two structured questionnaires with close-ended statements were used to get data. The researching team went from door to door to select the respondents both male and female to gather the answers. A total sample of 200 males and females was visited. Permission was taken from family members to allow men and women to participate in a survey. Respondents were required to specify if they participate in those actions or not by ticking either yes or no. The informed consent of participants was taken for participation in the study. It was ensured to maintain the confidentiality and anonymity of the respondents. In the present work, the word behavior used in the scale was modified as habits. Researchers briefed the respondents about the purpose and objectives of the research. On average, respondents filled the questionnaire within 15-20 minutes. The concerns of the participants were addressed while filling out the questionnaire. The researchers thanked the participants for their valuable time at the end of the research. The Statistical Package for the social sciences was utilized to enter, screen, and analyze the data for possible results. The t-test was employed to equate differences between the two settings.

RESULTS:

The current research aimed to investigate the gender difference in attitude and habits of males and females in the Katchi Abadis household to conserve water. Water is essential for the wellbeing of

humans, without water life is non-existent. It is essential to make water sustainable through saving at the household and community levels. Mean, Standard Deviation, Alpha Reliability, Independent t-test, and One Way ANOVA were used in the present study. The socio-demographic characteristics of the respondents are displayed in table 1.

Table 1

Socio-Demographic Features of the Respondents

Family Members of the Respondents	**Male f (%)**	**Female f (%)**
3 and below	14	12.1
4 to 6	47.3	44
7 to 9	16.1	33
10 and more	22.6	11
Age of the Respondents	**M**	**F**
20 and below	5	2
21 to 30	31	29
31 to 40	32	57
41 to 50	24	12
51 and above	8	0
Occupation of the Respondents	**M**	**F**
Household	0	61.5
Private Job	26.1	20.8
Govt. Job	14.1	7.3
Maid	0	5.2
Gardener	3.3	0
Self Employed	39.1	1
Others	17.4	4
The educational level of the Respondents	**M**	**F**
No Education	12	12.1
Matric and below	46	29.3
Intermediate	19	14.1
Graduation	16	31.3
Post-Graduation	7	13.1
Marital Status of the Respondents	**M**	**F**
Married	76.8	83
Unmarried	23.2	17
Average Family Income	**M**	**F**
10,000 and below	13	11
11,000 to 30,000	47	40
31,000 to 40,000	17	22
410,000 to 50,000	8	15
50,000 and above	15	12

Both localities were compared based on socio-demographic characteristics, 50 males and 50 females each were selected from both localities (Table 1 provides the breakup). Demographic features (Table 1) were analogous between localities: in the main age category. The mainstream 55percent of females and 32percent of male folks come under 31-40y. It was observed that 68percent of the male and 88percent of the female participants were youth and laid in the age

range 19-40 y. As for education, the bulk of males 46percent were under matric and 31.1percent of females were under-graduate. Of the widely held women, 31.4percent were households (no job), 23.4percent of the entire respondents have the private occupation, 19.4percent run their own business and only 10.6percent of the participants have a stable government job. Amongst the respondent's main part of the female participants as 61.5percent did no job, and 39.1 percent men have their business. 43.7percent of the respondents have a low income and were making less than 30,000, 19.6percent have less than 40,000, income on monthly basis, while 13.1% of the respondents showed a middle income of above 50,000 and 12.1percent of the participants were receiving below 10,000/-. The mainstream of the respondents 79.9percent were married and 20.1percent of the respondents were single. 45.7percent of the families have 4-6 members, 24.5percent have more than 6 family members, and 16.8percent of the respondents have more than 10 members and 3 members' families constituted 12.0percent.

Table 2

Alpha Reliability of Attitude and Habits Scales

Scales	Cronbach Alpha
Water Conservation Attitude	.720
Water Conservation Past Habits	.810

Table 2 shows Cronbach Alpha Reliability of the scales of the water conservation Attitude and Water conservation Habits. The outcomes show that all the scales have acceptable alpha reliability, hence the scales in this study have internal consistency and are reliable.

Table 3

Water Conservation Attitude

Sr	Statement	Group	Frequency	(SJC)	(NC)
1	I am very positive to conserve water	Male (M)	32	3.60	2.58
		Female (F)	37	3.46	3.18
2	Water conservation is necessary because of water scarcity	M	51	3.80	3.30
		F	37	3.70	3.70
3	Water conservation isn't my responsibility	M	38	2.42	2.40
		F	45	2.32	2.60
4	I am not worried at all to save water	M	26	2.63	2.90
		F	37	2.20	2.96
5	More attention to water conservation is needed	M	40	4.16	3.56
		F	46	3.82	3.48
6	I advocate water conservation among my friends and family	M	35	3.62	3.30
		F	42	3.46	3.26
7	Water shortage issues don't affect me	M	36	2.64	2.46
		F	33	2.87	2.82
8	I conserve water wherever I can	M	41	3.40	3.28
		F	41	3.72	3.02
9	I feel no pressure to conserve water at	M	26	2.62	3.04

	the moment	F	35	2.52	2.78
10	I only conserve water if water conservation does not inconvenience me	M	15	3.38	2.74
		F	22	3.10	2.78
11	I only conserve water if water conservation does not cause additional expenses for me	M	33	3.00	3.02
		F	27	2.92	3.44
12	I only conserve water if water conservation does not take more time	M	17	3.12	2.78
		F	22	3.20	2.94
13	The need for water conservation depends on location	M	35	3.64	2.94
		F	35	3.14	3.56
14	It is a challenge to convince others to conserve water	M	18	3.84	3.02
		F	12	3.74	3.52
15	I could make more effort to conserve water	M	37	3.86	3.42
		F	47	3.94	3.74
16	Water conservation is important	M	34	4.12	3.54
		F	39	3.84	3.70
17	Water conservation alone can save water problem	M	34	3.90	3.34
		F	31	3.68	3.38
18	I like to take bath with a lot of water	M	20	2.84	3.00
		F	28	2.54	3.28
19	I think that my ease will be lessened if I protect indoor water use	M	42	3.84	2.72
		F	30	3.22	3.12
20	I feel that water is too inexpensive to be preserved.	M	15	3.80	3.12
		F	10	3.46	3.82
21	I always feel guilty to let the water run off the earth pot.	M	31	3.45	3.18
		F	36	3.50	3.14

Table 3 Water conservation attitudes of the participants from both colonies were measured with water-related statements, showing major differences. Various questions were linked to attitudes to conserve were enquired from people. Two kinds of queries backing water-saving and its hurdles were prepared. The replies were calculated with a measure from strongly agree (5) to strongly disagree (1). Table 3, showed that the mainstream 38percent of men and (45percent) women did not agree that saving water is not their obligation, ladies of Shah Jamal Colony (SJC) considered that conservation is their concern. One fourth (26percent) of men were not worried to save water as likened female respondents (37percent), who did not settle that they were not worried to conserve. Females in Najaf Colony (NC) were more concerned to save water. The mainstream of men (31percent) and women (36percent) were settled that they intuited guiltiness if water let loose from the earth vessel. Most of men(32percent) and women (37percent) were steady to have hopeful attitudes to preserve water. It shows that female respondents of SJC have a more optimistic attitude to save water than males in two areas. About 40 to 46percent of women accepted that more attention to water conservation is needed, while the majority of men in SJC agreed that it was

essential due to scarce water than females. Forty one percent males and females in SJC correspondingly agreed to preserve water in their homes. Only (18percent) male and (12percent) female participants agreed that to persuade people to save water is not an easy task. notwithstanding, the majority 35percent men and 42percent women reinforced to deliver the water-saving memo to their connections and clan within the females of SJC who were more active than male and female of NC.

Inferential Statistics Findings on Attitude of Households

Individuals' attitudes towards water conservation between both localities were calculated by using univariate analysis.

Table 3

Attitudes towards Water Conservation – The male versus female

	Male (n=100)		***Female (n=100)***				***95% CI***		
Variables	*M*	*SD*	*M*	*SD*	*t (200)*	*p*	*LL*	*UL*	*Cohen's d*
Attitude	71.21	9.89	72.12	8.58	-.689	.492	-3.49	1.68	.09
Habits	58.82	10.16	53.02	7.93	4.46	.001	3.24	8.37	.63

The t-test outcomes displayed in table 3 indicate a statistically significant difference. Men showed habits to conserve water (*M*=58.82, *SD*= 10.16) than females (*M*=53.02, *SD*= 7.93) at t=4.46 and p= 0.01. These results promote that male residents demonstrated habits to exercise and guard water than women. Cohen's d effect size of .09 offered that though men displayed an attitude to safeguard water the effect size was average. By strapping figures, a non-significant difference was found between men (*M*=71.21, *SD*=9.8) to women (*M*= 72.12, *SD*= 8.58), *t*=-.689, *P*=. 492).

Table 4

Individuals Attitudes towards Water Conservation – The NC versus SJC

	NC(n=100)		***SJC(n=100)***				***95% CI***		
Variables	*M*	*SD*	*M*	*SD*	*t (df)*	*p*	*LL*	*UU*	*Cohen's d*
Attitude	69.63	8.91	73.75	9.14	-3.21*(200)*	.002	-6.65	1.59	.45

The t-test outcomes displayed in table 4 indicate a statistically significant difference. NC inhabitants showed a bad attitude to conserve water (*M*=69.63, *SD*= 8.91) than SJC residents (*M*=73.75, *SD*= 9.14). These results promote that the occupant of SJC demonstrated a slight attitude to exercise and guard water than folks in NC. Cohen's d effect size of .45 offered that though the public of SJC displayed an attitude to safeguard water the effect size was average. By strapping figures, it was realized that men inhabitants of SJC exhibited better attitudes (*M*=75.43, *SD*=10.27) than women of the alike part (*M*=72.14, *SD*=7.68).

Table 5

Water conservation habits

Sr.	Statement		frequency	SJC	NC
1	I take short showers	M	33	3.49	3.52
		F	23	3.42	3.02
2	I hand wash clothes	M	33	3.46	3.22
		F	25	3.10	2.60
3	I do not wash my vehicle with water	M	23	2.86	2.84
		F	30	2.82	2.60
4	I do not hose my driveway	M	27	3.27	2.90
		F	21	3.24	2.82
5	I do not conserve any water	M	27	3.04	3.12
		F	25	2.68	2.84
6	I have repaired any damage to water tubes or taps as soon as possible	M	36	3.86	3.40
		F	27	3.38	3.20
7	I have poured out the extra water after drinking.	M	19	3.33	3.32
		F	15	3.32	3.18
8	I have used equal water volume for washing clothes regardless of the size of the items.	M	26	3.27	3.42
		F	14	3.06	3.02
9	I make sure that taps do not drip	M	35	3.82	3.24
		F	24	3.54	3.38
10	I minimize toilet flushing where possible	M	38	3.63	3.48
		F	33	3.34	2.56
11	I only use the machine when it is full	M	33	3.63	3.34
		F	26	3.40	3.26
12	I have turned off the faucet every time I use tap water.	M	34	3.61	3.31
		F	36		
13	I have a dual flush toilet	M	29	2.92	3.34
		F	27	2.68	3.16
14	I use water-efficient showerheads	M	28	3.31	3.32
		F	14	2.62	2.76
15	I use water-efficient taps	M	35	3.73	3.58
		F	23	3.06	3.20
16	I recycle gray water from the washing machine for outdoor use	M	18	2.88	2.72
		F	20	2.20	2.18
17	I recycle gray water from the shower for outdoor use	M	20	2.80	3.02
		F	8	2.36	1.96

Table 5 Water conservation habits of the participants from both colonies were measured with water-related statements, showing major differences. Male (33percent) seemed to engage in a shorter shower than (23percent) female respondents. The bulk of men 33percent and women, 23percent individually always consumed a lower amount of water for laundry. The majority of

males (27percent) seldom save water like (25percent) females who do not protect water. The mainstream of males (32percent) communicated about environmental matters than (30percent) females who certainly not communicated about conservation matters. While only 20percent male and 8percent females agreed on recycling the wastewater of shower /sink/bath for other purpose. Further, 48percent of females and (29percent) men did not believe in the recycling of greywater from the wash for spraying plants, and females, 44percent and 23percent of men not agreed to utilize greywater from the shower for outdoor consumption.

Respondents were asked to give information on water conservation performance assumed at the domestic level. The people in both Abadis in bulk stated that they retain water in different ways comprising that mainstream of male (35percent) and (24percent) female participants agreed and all the time make sure that taps do not trickle. Males in SJC were better than females; 33percentof men and 26percent of women dolaundry when it is loaded full, and 31percent men and 21percent women sturdily settled to use the smallest water quantity to sweep floors. While 38percent of men and 33percent of women settled to cut down the flush practice, males in SJC were more prone to practice minimize toilet flushing. Men (34percent) and women (36percent) strongly decided to turn off the tap every time they consumed water. Male in NC was more willing to practice dual flush toilets.

Inferential Statistics Findings on Habits of Households

Further Water conservation habits between individuals of both localities were calculated by using univariate analysis. Table 5 indicates the results.

Table 6

Individuals Water Conservation habits – The NC versus SJC

	Najaf (n=100)		*Shah Jamal (n=100)*				*95% Cl*		
Variable	*M*	*SD*	*M*	*SD*	*t (200)*	*p*	*LL*	*UU*	*Cohen's d*
Habits	54.88	10.01	56.97	9.01	-1.54	.125	-4.76	.584	.21

The t-test results showed in table 6 display a nonsignificant score of NC and SJC. But there appears a somewhat higher mean in habits of NC to protect water (*M*=54.55, *SD*= 10.01) as compared to SJC (*M*=56.97, *SD*= 9.01), *(t*=-1.87, *P*= .062). These outcomes recommend that there is no difference in water-saving habits of the inhabitants of Najaf Colony and Shah Jamal Colony.

Table 7

	Small residence (n=89)		***Large residence (n=111)***				***95% Cl***		
Variables	*M*	*SD*	*M*	*SD*	*t (200)*	*p*	*LL*	*UL*	*Cohen's d*
Attitude	72.00	9.50	71.23	8.75	.588	.557	-1.30	3.34	.08

Habits	56.42	10.76	55.66	8.21	.734	.578	-1.92	3.45	.07

Individuals Water Conservation habits and attitude – The small versus large residence

The t test exhibited in Table 7 shows a statistically non-significant difference in attitude scores of small residences (single story) (*M*=72.00, *SD*= 9.50), big residences (double story) (*M*=71.23, *SD*= 8.75), (*t*=.588, *P*= .557). The mean difference in the score of residential types shows a statistically non-significant difference in the scores of small residences (*M*=56.42, *SD*=10.76), large residences (*M*=55.66, *SD*= 8.21), (*t*=.557, *P*= .578) in habits.

Table 8

Individuals Water Conservation habits and attitude and family size

The ANOVA test results exhibited in table 8, show that there is a statistically non-significant effect of family size on water conservation habits [F (2, 194) = .561, P=.571]. A non-significant effect of family size was also seen on attitude towards water conservation [F (2, 195) = .081, P=.922].

DISCUSSION

The purpose of this study was to examine whether slum families showed any particular attitude and habits towards conservation in the gender-based context in Lahore. Two structured scales for water conservation attitude and past habits were used to explore the attitude and habits of men and women in katchi Abadis households in Lahore. Since the water situation in Pakistan is not very good due to its extravagant use by the people and because the government is not active in taking innovative and concrete steps to sustain the water resources. Due to excessive population growth, less basic resources, and high rural-urban migration, people face many issues, one of the issues is the lack of housing units, due to that many katchi Abadis formed in urban areas of Lahore. The Cronbach alpha reliability of the structured scales of the self-constructed autonomy scale used in

	df	SS	MS	F	P
Effect of family size on habits	2	103.05	51.52	.561	.571
Attitude	2	14.01	7.00	.081	.922

the current investigation was computed. It varied from .72 to .81, which proved that all scales had internal reliability and consistency to use.

Residents of Najaf and Shah Jamal colonies were surveyed. The findings exhibited that though the mainstream of the families settled on the fact that conserving water is necessary to sustain water resources but a difference was seen in their responsibilities. Residents of slums also differed in their attitude and habits concerning different activities. The majority of female residents of the Shah Jamal colony did not support saving water as their duty, feel no stress to save, only conserve if it does not cause inconvenience to them, but they wanted to save water and also acknowledged the importance but to save water, they have to spend more to buy the storing tools and the water-saving appliances. But they were willing to give additional thoughtfulness to save water. These study outcomes are in line with the earlier results of Addo et al. (2019) and Fielding et al. (2012). Both were of the view that attitude, habits, and values have a minor effect on water consumption, and families with sturdy values to protect water used less quantity of water than those households where water-saving habits were non-existed (Khalil & Kabir, 2015).

On the other hand, more men in the same locality were aware that water conservation only can protect water, to them, it is challenging to persuade others to safeguard water, water scarcity does affect them, water conservation is necessary due to water shortage and that is why they preferred to take a short shower. As far as habits and routines are concerned, more male inhabitants of Shah Jamal colony are giving more attention than the female of the same area to sort that tap do not trickle, utilize the washing machine when it is full, do not hose the driveway, always reported leaked pipes, mended any mutilation of water pipes or taps on priority, take shorter showers and recycle greywater from the baths to clean entrance and to water plants. It is an interesting finding to see that male members in the Najaf area preferred to use water-efficient taps and a dual flush toilet.

The gender difference was also visible in both colonies about attitudes and habits to conserve water in households. Men in the Shah Jamal colony were better in their attitude towards water conservation than women of the same locality. These findings were reinforced by Tong et al. (2017) and Makki et al. (2011) and endorsed that there is a significant dissimilarity found between the water conservation insight and habits of men and women. Womenfolk and youngsters in homes are habitual of ingesting extra water during bathing than the menfolk.

Another finding of the study showed a non-significant difference between residential type and attitude and habits of people in slum households. Male and females in residents either it's a single story or double story residence, did not behave differently to conserve water, their attitude and habits are the same. Hence, this shows the two socio-demographic characteristics that had most influenced domestic water consumption with the total income and larger residence and many occupants (Marzouk, 2019). This finding is supported by Frederiks et al.,2015). This finding is contrary to the results of Cardona (2006); Jeffrey and Gearey (2006), who believed that there is a huge impact of residential type, income, and education on the behavior of males and females to conserve water in homes.

The research hypothesizes that family size affects the attitude and habits of people in slums to save water. The outcomes proved a non-significant difference in attitude, habits, and family size. That family size has no impact on the attitude and habits of men and women in slum households. This finding was in line with the findings of Willis et al. (2013) and Willis et al. (2009), who believed that families with more members are trained and motivated to use less water per person, maybe they have better environmental awareness and water conservation attitudes. While it is contrary to the outcomes of García-Valiñas, 2005; Barata et al. (2012); Cardona (2006); Jeffrey and Gearey (2006) who established that large family size does impact the attitude and habits of people to consume and save water. If the domestic sphere has a large family size, then family members flushed their toilet many times and even took more showers during a week.

LIMITATIONS AND SUGGESTIONS

The current research, however small, in size, was an effort to persuade new studies on examining water preserving behaviors, attitudes, and performances, and the reliability strategies to implement them successfully in Pakistan. The findings have noteworthy repercussions about the enhancement and usage of standards for water consumption and saving like awareness campaigns for better water supply, water-saving approaches, water intake behaviors, attitude, and practices to

safeguard water and uses within a particular water dearth situation. People who individually confronted water shortages are more prone to modify their habits and practices to protect and safeguard their water usage. They wanted to advocate this message to their near and dear ones. This outcome can be linked to convey water conservation messages to people that water scarcity can be avoided if we focused on conserving water in households in daily activities like bathing, washing, cleaning, etc. This will not restrict to slums, but the whole country. These water conservation slogans and messages that are expected to be very fruitful will endeavor to help the people to picture what it would like to be in case of no water or limited water trailed by good words of how their positive attitude and habits towards conservation can bring positive change not only in their lives but in the lives of their coming generations.

There are few constraints to this research that ought to be documented. Whereas overall records can be made about the group of people who consume and guard water. The current little sample of the people who saved and consumed water did not give a proper representation of all societies who are more likely to ingest water. Finally, the study only inspects a few weeks' waters end-use facts and notes. Rather, such differences should be completed through a range of periodic times. A large-scale study in the future could easily overcome this deficiency.

CONCLUSION

Resultantly, it can be concluded that differences do exist in both colonies concerning attitude and habits depending upon the situation of water supply in the areas where households are situated.

Another important finding was that the slum inhabitants recognize that there must be a decrease in their water use. They identified that they must rinse clothes in buckets as a substitute for tube/tap and reduce water waste or recycle the gray water for spraying plants, clean entrances, and automobiles. As per mean difference results, overall residents of Najaf Colony were not better in their attitude to save water than participants in the Shah Jamal colony. As far as habits to save water are concerned, both colonies have similar habits to save water. The gender difference was also visible in both colonies about attitudes and habits to conserve water in households. Men in the Shah Jamal colony were better in their attitude toward water conservation than women of the same locality.

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