



RESEARCH PAPER

The Demographic Determinants and Water Conserving Attitude of Households at Katchi Abadis of Lahore, Pakistan

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ABSTRACT

Water resources are exhausting around the world owing to abundant issues like massive population, and the unconcerned behaviour of people. The majority of people have an inadequate supply of water in Pakistan. Against the backdrop of such a situation, this study examines how demographic determinants impact the attitude of people to conserve water at slum households in Lahore. Precisely, the study attempts to elucidate how the difference in marital status, occupation, family size, residential type impacts the attitude of people towards water conservation. A sample of 200 respondents was selected through a convenient sampling technique for data collection from a field survey. A significant difference was found between income, marital status, size of houses, and attitude, while no difference was enlisted between attitude, occupation, and size of the family. There should be a proper water policy by the government with a major emphasis on conservation and sustainability. All people should take significant steps to save water in day-to-day water practices like hand washing, soap application by turning off the water taps. Public awareness programs on how to save water should be planned.

Introduction

The majority of people have an inadequate supply of water globally, this state of affairs is even worse for the poorer in underdeveloped countries (UN-Habitat, 2010). Water resources are exhausting around the world due to environmental change, massive population, and unconcerned behavior and attitude of people (Scanlon, Cassar & Nemes, 2004). If people don't manage and use water in a proper way, then it is feared that the majority of the population in the world will face major water catastrophe. This turmoil will give rise to water shortage by the

year 2025 in the world. Water is continuously supporting the social and economic growth of the nation and with time it creates tussles amongst emerging economies (Ali, 2012).

Pakistan is the 6th largest state in the world with more than 2.4 percent of the total global populace (UN, 2013). Pakistan is losing its water assets, which is a massive threat to life and food safety. According to Hamid and Afzal (2013) presently the water level fell from 5000 cubic meters (CBM) per capita to more than 1000 CBM and it lowers down to more than 800 cm³ till 2030, opposing to set pattern of the WHO.

It is a universally recognized fact that besides technical measures to sustain water resources, the behavior of humans should also be observed to bring change. It is tough to figure out that a single entity can alter his behavior to save, but every single person can help. A successive attitude helps to save water by reducing the quantity of water consumes by individuals daily. Subsequent behaviors can support the conservation of water by reducing daily water consumption and repair leakage issues (Boylu & Gunay, 2017).

Katchi Abadis and Water Situation

The initial argument of the research is to understand the concept of katchi Abadis, which according to the UN-Habitat organization is such a domestic domain where one or more subsequent situations are missing likewise clean drinking water and better sanitation (UN-Habitat, 2010). As a result of urbanization, Lahore is facing enormous pressures (large population, limited basic needs, the fewer number of houses, inadequate occupations, and more unlawful behavior), such phenomena give rise to many katchi Abadis or squatter settlements originated near the urbanized high-class areas (Aziz, 2015).

In the katchi Abadis, it becomes pressure from the public to adopt water-saving actions to complete their home chores because of limited water supply and inappropriate water managing strategies. People made choices as either to care for water, recycle, or consume water in a lesser amount or to waste it unnecessarily (Abbasi, 1999).

The Water Conservation Practices at katchi Abadis Households

It is commended that a normal being consumes one gallon of water every day; a normal household utilized 20-30 gallons of water (Qureshi, 2011). The demand is further enhanced due to the large population and old rusty water management setups. This current inadequate water source is unable to fulfil the water needs and demands of people. So, conservation or safeguard the water resource is a must to save from the water scarcity situation in the coming time. Conservation is the proper managing process for water and energy.

The focus of this research is on the water-saving attitude of the people in the katchi Abadis household. This study has been designed to investigate the impact of different determinants like marital status, occupation, income, residential type, and family size on the attitude of households towards water conservation. The other emphasis is to observe whether there exists any difference in the water-saving attitude of men and women. It is a sort of comparative study.

Literature Review

To support the argument that in the katchi Abadis, social determinants like occupation, income, family size, gender, and residential types also impacted the water use practices. The previous studies supported the fact that resident's water intake was stimulated by income level, family members, education, and type of domestic setup (Jeffrey & Gearey, 2006). Beal et al. (2013) established a link between family size and water-saving attitude. Evenshower and laundry practices were more reported in large families (Beal et al., 2013). But other studies deny this finding and reported that big families utilized less water per person, perhaps they have a better level of awareness about water conservation and maintained a healthier water-conserving attitude (Campbell et al., 2004; Willis et al., 2009)

To see the effect of income on water saving attitude, Russell and Fielding (2010), Willis et al. (2013) also specified that people with more income used to consume more water. In opposition to that outcome, another study revealed that home with better educational and earning levels, a family member showed a better attitude towards water conservation and is involved in water-saving acts (De Oliver, 1999). It is argued that water-saving actions are valued only by high-income groups if they contributed to lower down water use (Aitken et al., 1994; Jeffrey & Gearey, 2006). It was also described in past studies that people having large incomes, perhaps, were good at fixing tap dripping, water leakages, and buywater effective devices could improve their water preservation attitude and thus reduced the water use (Willis et al., 2013). There existed a positive outcome between earnings and practice to install gadget that could save water in homes (Millock & Nauges, 2010)

The other focus of research is on the residential type and water-saving practice of households, it was supported by Mondejar-Jimenez et al. (2011) who established a strong connection between the attitude and resident types influence on behavior to maintain the water supply.

The argument that occupation has something to do with water-saving behavior is well supported by the previous study by Clark and Finley (2007), who established that income and occupation are linked to water consumption at the household level. People with better jobs and have more money, were more inclined to use more water than people with less income.

The most interesting argument of the present study that married people are different from unmarried in water-saving attitude, to cater to this Aprile and Fiorillo

(2016) in their study that was conducted in Italy, opined that married, divorced, and widowed people are saving water in a lesser amount than unmarried people in households.

This previous literature all focused on the demographic factors in cross-sectional data from the different developed communities and higher social classes. All previous research deliberates the pattern of water saving in urbanized and countryside areas; however, no research was done to understand this phenomenon in Katchi Abadis. To address this knowledge gap, the current study has tried to describe the water-keeping performance of families in a slum.

Thus, the main hypotheses as per the literature review to guide this research are.

- H1: There will be a significant attitude difference among married men and women and unmarried men and women to adopt water conservation practices.
- H2: The attitude of the low-income group would be dissimilar from a middle income to save water.
- H3: Small domestic setup will be different from a large house in attitude to control water usage.
- H4: There would be a significant difference in the profession and attitude of households towards water conservation practices.
- H5: There will a significant difference between family members and water-conserving attitudes.

Material and Methods

This is a survey study and it was conducted in the domestic setup of katchi Abadis households in Lahore. The sample size of 200 respondents comprised of both men and women, married and unmarried, low and medium income, with job and jobless. The sample of 100 men and 100 females was chosen by a convenient sampling technique. The respondents of this study fall within 18 to 65 years. For the gathering of data, a developed scale of Water Conserving Attitudes by Dolnicar et al. (2012) with 22 items was used. The responses from the scale were measured on the base of 5 points Likert scale ranging from 1 (strongly agreed) to 5 (strongly disagreed). The Cronbach's alpha test was conducted to check the reliability of the scale, it is .620.

Results and Discussion

The data were entered into SPSS for the possible results. The numerical tests like independent tests and ANOVA were commenced to observe the difference in two localities.

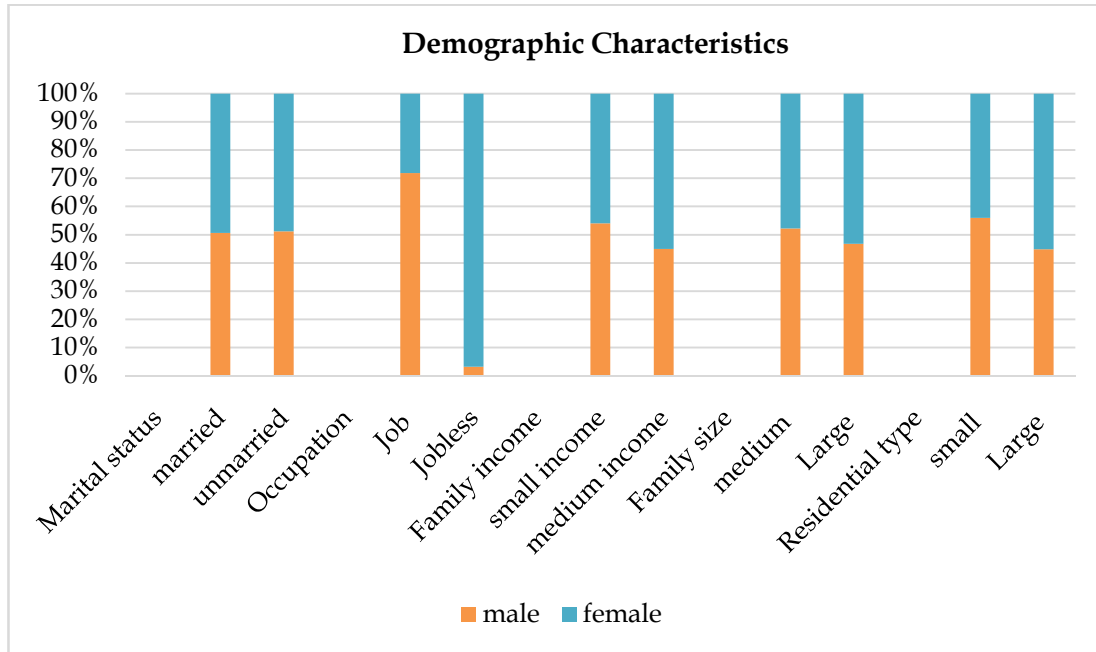


Figure 1: Socio-demographic features of respondents (200)

Figure 1 displays the demographic information of the people (gender, income, family size, residential type, and occupation) separately for males and females. It was anticipated from the data that the mainstream of respondents was employed. The data show that the majority of females in the shanty town were jobless. The bulk of the sample has a small income (less than 30000), and a very little fraction of people earned more than 50000. The mainstream of households has a medium family size (4-6 members) and a small percentage of respondents have a large family size with more than 10 members.

Table 1
 Water Conservation Attitudes

Sr.	Statement	Group	frequency	Shah Jamal Colony	Najaf Colony
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 the moment	M	26	2.62	3.04
		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 preservation be contingent 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 might do 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
		W	31	3.68	3.38
18	I like to take wash 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 internal water use	M	42	3.84	2.72
		F	30	3.22	3.12
20	I feel that water is too cheap to be preserved.	M	15	3.80	3.12
		F	10	3.46	3.82
21	I always feel guilty to let the water runoff the earth pot.	M	31	3.45	3.18
		F	36	3.50	3.14

Table 1 shows the attitude of the respondents towards water conservation in slum household setups. 45% of respondents considered water conservation their responsibility, the majority of respondents were least concerned about water conservation. The 65% established that they feel guilty over the waste of water. Forty-one percent of respondents wanted to save water in their households. 35-36 % of respondents opined that they only save water if it did not cause any inconvenience, extra expenses, and time wastage to them. 42 % of respondents wanted to do water saving communications with their friends and family.

Table 2

t-test Results for residential type and Attitude to conserve. (N=200)

Variables	Small house (n=89)		Large house (n=111)		t (200)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Attitude	72.00	9.50	71.23	8.75	.588	.23	-1.30	3.34	.08

Table 2 displays the mean difference between the types of houses and attitude. The attitude of single-story houses is significantly diverse with a Mean of 72.00 and Standard Deviation of 9.50 as compared to the dual story with a Mean of 71.23, Standard Deviation as 8.75, with $t=.588$, and a level of significance as .23. This

outcome displays that inmates in small residences showed a better attitude to safeguard water than people in large residences. The effect rate (Cohen's *d*) of .08 is very minimal.

Table 3

t-test Results for income group and Attitude to save water. (N=200)

Variables	Low income (n=112)		Middle income (n=88)		<i>t</i> (200)	<i>p</i>	95% CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
Attitude	72.54	9.32	70.55	9.06	1.51	.11	-.603	4.59	.21

Table 3 showed the mean-variance in the income level and attitude. A statistically important change is visible in low income (10,000- 30,000) ($M=72.54$, $SD=9.32$) than medium salary group (31,000-60,000) ($M=70.55$, $SD=9.06$), ($t=1.51$, $P=.11$) in attitude. Low-income households showed an attitude to conserve water, a difference was found in low and middle-income groups with effect size as .21.

Table 4

t-test Results for marital status and Attitude towards conservation. (N=200)

Variables	Married (n=157)		Unmarried (n=43)		<i>t</i> (200)	<i>p</i>	95% CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
Attitude	71.74	9.06	70.80	9.36	-.585	.003	-2.24	4.13	.10

Table 4 shows the mean-variance in the scoring of marital status that married inmates attitude to save water is ($M=71.74$, $SD=9.06$) as compared to single inmate as ($M=70.80$, $SD=9.36$), at ($t=-.585$, $P=.003$). Married inmates in households show a better attitude to save water than unmarried persons with a small *d* value as .10.

Table 5

The Difference between Occupation and attitude, to conserve water (N=200)

Outcomes	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Effect of profession on Attitude to conserve water	6	45.8	76.30	.908	.490

Table 5 showed that there is a statistically non significant change exhibited in job and water protecting attitude with [F (6, 180) as .908, ' P ' as .490]. The occupation of the respondents has nothing to do with the attitude to conserve water.

Table 6

The difference among the size of family and attitude to conserve water (N=200)

Outcomes	df	SS	MS	F	P
Effect of family size on Attitude to conserve water	2	14.01	7.00	.081	.922

Table 6, presented that there is no noticeable influence found between family size and attitude of the households to conserve water [F (2, 195) = .081, P=.922].

Discussions

According to Barata et al. (2012), Cardon (2006), and Campbell et al. (2010) that income, family size, residential type, and occupation influence the person's attitude to conserve water, and Willis et al. (2009) said that this attitude act either positively or negatively towards the environment.

This study asks whether households shoulder the responsibility to conserve, realize the significance, and faces the challenges to persuade other people to save water, make the effort to adopt water conservation practices. Half of the sampled residents felt it was their responsibility to safeguard water for others' use while the other half were not concerned about saving water. It was realized by the maximum people that water scarcity upsetting their household practices. But most of the households do not feel guilty to waste water by their family members. It is a good sign that people have a positive attitude to protect water. And it is also a sorry state of affairs when households only conserve if conservation activities do not cause them any inconveniences, no cost, and no time wastage. People are constructive in their attitude as they wanted to persuade people around them to realize the importance of water and to sustain it for future use because according to them conservation is the only solution to sustain water for the coming generations. If a culture to conserve water was engendering among families and in big community, it might inspire enthusiasm among people to save water (Spinks et al., 2011). The people who distinguish themselves from their community and felt it's their ethical responsibility to conserve are more likely to protect water at the domestic level. These findings are in line with the social practice perspective wherein it was stated that social surrounding does impact the attitude of people to adopt the water-saving and consuming practices of people in their surroundings because persons and environments are vital in everyday practices (Hargreaves, 2011).

The finding of the study was that married men and women are better at saving water than unmarried inmates, the reason behind coming of such findings that married persons have a lot of water responsibilities to perform at home, so they are more conscious about the use of water. Moreover, women have to do household chores, look after the kids and manage home affairs, mostly acts depending on the water so they have to show water curtailment behavior and attitude. But this

finding is contrary to the findings of Aprile and Fiorillo (2016) who stated that the wedded, separated, and widower hoarded a lesser amount of water than unmarried.

The residents with more family members showed the attitude to use more water in their practices of clothes washing and showering. Gregory and Di (2003), Randolph and Troy (2008) evident that the behavior of saving waterfalls with a number of family members and the existence of adolescents. This finding is also supported by Makki et al. (2011). The types of residence also influenced water conservation does. The Finding of the study that people in small houses saved more water than people in large residences. Two groups (small house, only floor with three rooms) and (big house, dual floors) were generated to investigate the critical connection. This finding is supported by Mondejar-Jimenez et al. (2011) that water consumption in small houses is lesser than water use in big houses.

As per findings, no link was established between occupation and attitude. Occupation status is also not an important determinant. Job is interrelated with a likelihood to use water at a 1% significance level, this finding is contrary to Clark and Finley (2007), who established in their research a strong connection between two variables.

The result suggests that wages either low or medium have an important and undesirable relationship with water-saving. Persons who have earned more consumed more water. This finding is in line with De Oliver (1999) who also proven that with higher-earning, people consumed more water.

Conclusions

One cannot deny the significance of water towards the growth and development of the economy of Pakistan as it is a strong essence of the economy. Due to extensive population explosion and enlarged water consumption, currently, water supply is unable to meet country demands. This study concluded that whether people facing water scarcity or not, they must adopt an attitude towards the water-saving practices besides other natural resources with practical intent. Literature around the globe do endorsed that there should be a practice among people to conserve water resources as a remedy to sustain it (Chang, 2013; Spinks, et al, 2011). Besides, preferences towards varied activities to protect water also differ as per areas in Lahore region. There was an extreme surge in the development of the population with a growing rate of narrowly 3 percent last year in here (Amin, 2018). If this same growth rate persists, then the urban and rural population will be similar until 2030 (Scanlon, Cassar, and Nemes, 2004). The excessive use of water for useless activities like watering outdoor plants with clean water, cleaning vehicles, courtyards, and roads with clean and fresh water rather than with gray water are a common practice in developing countries, especially in urbanized zones within which water use practices of high-income groups may directly influence the water availability for the economically poorer class.

Recommendations

In Pakistan, it is the need of the hour that government should be made a water policy with a major emphasis on conservation and sustainability. Besides that, all people come together and take significant steps to save water in our day-to-day water practices like hand washing, soap applying, turn off the water taps. Inmates should repair the dripping or leakage in domestic fixtures. There should be an indigenously developed water conserving behavior. Community cognizance agendas should be deliberated. As a welfare state, we must program a campaign to conserve water with a motto to save Water; save Pakistan. It is deemed a necessity to scrutinize the present water resources and endorsing complete preservation and managing policy to catering the future requirements.

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