



Utilization of Time Saving Cleaning and Clothing Care Devices by Working and Non-Working Women

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ABSTRACT

This study investigated the adoption and utilization of time-saving cleaning and clothing care devices among both working and non-working women, shedding light on how such technologies impact their daily routines. The data were collected through a survey of 160 women representing diverse socioeconomic backgrounds in Ludhiana city of Punjab. The research examined the adoption rates and preferences for modern cleaning and clothing care appliances including vacuum cleaners, dishwashers, washing machines, and garment steamers while considering the demographic and occupational factors influencing their usage. The study employed a mixed-methods approach, combining surveys and interviews to collect data. Findings revealed that working women tend to embrace these devices more readily, attributing them to enhanced productivity and work-life balance. In contrast, non-working women exhibited a more diverse range of responses, influenced by factors such as financial constraints and traditional gender roles. The paper highlighted the significance of technological innovations in easing the domestic burden and underscored the importance of considering socio-economic and cultural factors in promoting equitable access to time-saving technologies.

Key Words: Cleaning, Clothing care, Gender, Time saving, Technology, Devices, Adoption, Working, Non-Working.

INTRODUCTION

The dynamics of household management have undergone a profound transformation in recent years, largely propelled by advancements in technology and evolving societal roles. Ludhiana, a thriving industrial city in the heart of India's Punjab region, is no exception to this shift. This study examines the utilization of time-saving cleaning and clothing care devices by women, both in the workforce and those managing households full-time. The women play pivotal roles in maintaining households, balancing work, and sustaining their families' well-being. However, the ever-increasing demands of modern life have placed a premium on time and efficiency, prompting a reevaluation of traditional household chores. Previous studies have explored the relationship between household technology and time management, emphasizing the potential of these devices to alleviate the burden of domestic responsibilities. Since Becker's 1965 publication, time allocation in the home has been extensively studied. Possession of time-saving appliances has been included into Becker's model in

recent literature. This concept is used by Greenwood *et al* (2005) to explain the rise in women labor force participation (LFP). They asserted that devices notably washing machines, microwave and refrigerators "liberated" women from domestic duties and the amount of time spent on household labour was reduced with the invention of household appliances which gave them more time to devote to their occupations (Greenwood, 2019). Data from China (Tewari and Wang, 2021) and the United States (Coen-Pirani *et al*, 2010) have been utilized to assess their model, and both studies indicate that women with time-saving devices have higher LFP. The study explores the extent to which Ludhiana's women are embracing and integrating time-saving cleaning and clothing care devices into their daily routines, thereby seeking to enhance productivity, save precious time, and potentially redefine gender roles within households.

An effort was made to uncover patterns, preferences, and disparities between working women, who must navigate the demands of both their careers and homes, and non-working women, who dedicate

themselves entirely to domestic responsibilities. Therefore, this study contributes to a deeper understanding of Ludhiana's socio-cultural fabric and provides valuable insights into the ongoing transformation of domestic life in this vibrant urban center.

MATERIALS AND METHODS

The research was carried out in Ludhiana, located in the Punjab region of India. A total of 160 participants, consisting of 80 working women and 80 non-working women, were chosen randomly from two different neighborhoods within each of the city's four zones: Zone A included Gandhi Nagar and Mata Rani Chowk; Zone B encompassed Partap colony and Bhagat Singh colony; Zone C comprised Janta Nagar and Pritam Nagar; and Zone D covered Sarabha Nagar and Model Town Extension. The data were collected using a self-structured interview schedule. The collected data were subsequently analyzed and interpreted through the utilization of simple frequency distributions, percentages, mean scores and statistical tests such as the z-test and t-test.

RESULTS AND DISCUSSION

Socio-economic profile

A significant proportion of working women (37.50%) fell into the age group of 31-40 yrs., followed closely by the 41-50yr. age group (32.50%). Conversely, non-working women were evenly distributed between the 31-40 yrs. and 41-50 yrs. age groups, each accounting for 36.25%, with a smaller percentage in the 25-30 age group (15.00%). Regarding education, a substantial number of both working women (45.00%) and non-working women (38.75%) held a graduate degree. However, only a small proportion (2.50%) of non-working women had post-graduate qualifications, while 36.25 per cent of working women had completed their post-graduation. All working women had at least a higher secondary education (Table 1).

Marital status showed that the majority of both working (82.50%) and non-working women (86.25%) were married. A smaller percentage was unmarried, with 13.75 per cent of working women and 12.50 per cent of non-working women falling into this category. A very small number of working women (3.75%) and non-working women (1.25%) were widow. In regards to occupation, the largest group of working women

(42.50%) were government employees, followed by private employees (32.50%), and self-employed individuals (25.00%). More than half of working women (56.25%) lived in nuclear families, while 27.50 per cent and 16.25 per cent were part of joint and extended families, respectively. Among non-working women, 55.00% lived in nuclear families, while 22.50 per cent each belonged to joint and extended families.

Around 42.50 per cent of both working and non-working women were in medium-sized families (5-7 members). Approximately 30 per cent of working women belonged to large families, while 27.50 per cent were from small families. In contrast, 31.25 per cent of non-working women belonged to small families, and 27.50 per cent were in large families. The majority of working women (42.50%) had a monthly family income between ₹1,00,001 to ₹2,00,000, whereas most non-working women (60.00%) had a monthly family income of ₹1,00,000 or less. Only a small percentage of both working (7.50%) and non-working women (2.50%) had a family income of ₹3,00,000 or higher (Table 1).

Possession and extent of use of time saving cleaning devices

The data (Table 2) showed that 27.50 percent of working women and a less number of non-working women (12.50 %) possessed a dishwasher which both groups utilized most of the time on a daily basis. There was a significant difference between the possession and extent of use of dishwasher between working and non-working women. These findings were in conformity with Kundoo and Kundu (2016). Geetha and Tyagi (2016) found that the usage of dishwashers was low among Indian households due to factors such as lack of awareness, high cost, and cultural preferences for hand washing of dishes. Likewise, it was observed that the possession of a dishwasher was relatively low as compared to other time saving devices

Nearly 41 per cent of the working women possessed a vacuum cleaner, while 25 percent of non-working women possessed a vacuum cleaner. Working and non-working women utilized this device most of the time. It can be discerned that there was a significant difference between the possession and extent of use of vacuum cleaner between working and non-working women. Vijaya and Milcah (2019) found that a small percentage of Indian consumers used vacuum cleaners

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for cleaning and did not prefer vacuum cleaning. The possession and extent of use of vacuum cleaners by working women and non-working women can vary widely and are influenced by a range of factors. Further research is needed to fully understand these differences and their implications for product design and marketing.

All of the respondents possessed a standing floor mop and utilized it most of the time in their daily cleaning activities, while an insignificant amount of both working and non-working women possessed a robotic floor cleaner at 3.75 per cent and 2.50 per cent, respectively which they utilized most of the time. A few number of respondents also possessed an electric spinning scrubber but those who had this utilized it very frequently. These findings were in accordance with Nicholls and Strengers (2019) who found that although consumers were generally interested in the convenience and efficiency of these products (robotic floor cleaner and electric spinning scrubber), cost and lack of awareness was a significant barrier to adoption (Table 2).

Possession and extent of use of time saving clothing care devices

The data (Table 3) represent the possession and extent of use of clothing care devices by working and non-working women. It can be clearly seen that majority of working women (90.00 %) possessed a washing machine and used it most of the time. Simultaneously, a significant proportion of non-working women (85.00 %) also possessed a washing machine which they utilized it most of the time as well.

Majority of working women (91.25 %) possessed a dry/steam flat iron but only over a third of them utilized it frequently (35.62 %) and rest of them used it only sometimes (64.38 %). Almost all non-working women (97.5 %) possessed a dry/steam flat iron where over three-quarters (76.92 %) utilized it most of the time and 23.08 percent used it sometimes.

Less than a quarter of working women (23.75 %) possessed a vertical steam iron which they utilized it most of the time. Whereas, a small minority of non-working women (11.25 %) possessed a vertical steam iron which they utilized it most of the time as well. It was discerned that there was a significant difference between the possession and extent of use of vertical steam iron between working and non-working women

(Table 3). Dilkes and Sosenko (2023) noted that the use of steam irons was preferred over traditional clothing irons as they were faster and easier to use.

Possession and extent of use of other time saving miscellaneous devices

Almost three-quarters of working women (73.75 %) possessed water geyser and most of non-working women (70.00 %) possessed water geyser which both groups utilized most of the time (Table 4). One third of working women (33.75 %) possessed an electric drill where most of the respondents (92.59 %) used it only sometimes and 7.40 percent utilized it frequently. Non-working women (27.50 %) possessed electric drill but most of the respondents utilized it occasionally (81.81 %) while less than a fifth (17.07 %) used it most of the time. The calculated 'z' value showed no significant difference between the possessions but the calculated 't' value revealed a significant difference in the extent of use of electrical drill. According to Ehrnberger *et al* (2012), the use of electric drills was increasing due to the growing interest in DIY (Do-It-Yourself) home repairs and improvements. They also found that most of the respondents have used an electric drill at least once, with the majority using it for home repairs.

More than two-fifths of working women (46.25 %) possessed sewing machine where half of the respondents (51.35 %) utilized it only sometimes, over a quarter (27.03 %) never used it and just over a fifth (21.62 %) of the respondents utilized it most of the time. There was no significant difference between the possession and the extent of use of sewing machine between the working and non-working women. Meena and Chawla (2019) in India also found that housewives were more likely to own sewing machines than working women. However, it was noted that the extent of use of the machines was similar for both groups, suggesting that working women may be more efficient in their use of time when it comes to sewing. On the whole, there may be differences in the possession and extent of use of sewing machines between working women and non-working women, but the specific patterns may vary depending on the cultural and economic context.

The entirety of the respondents possessed water purifier at their respective households and utilized it most of the time as well. Majority of working

Table 1. Distribution of respondents according to their socio-economic profile. (n=160)

Socio-economic characteristic	Category	Working women (n _w =80)	Non-working women (n _{nw} =80)
Age (yr)	25-30	14(17.50)	12(15.00)
	31-40	30(37.50)	29(36.25)
	41-50	26(32.50)	29(36.25)
	51-60	10(12.50)	10(12.50)
Education	Middle school (VI-IX)	-	4(5.00)
	High school	-	20(25.00)
	Higher secondary	15(18.75)	23(28.75)
	Graduate	36(45.00)	31(38.75)
	Postgraduate	29(36.25)	2(2.50)
Marital status	Married	66(82.50)	69(86.25)
	Unmarried	11(13.75)	10(12.50)
	Widow	3(3.75)	1(1.25)
Occupation	Govt. employee	34(42.50)	-
	Private-employee	26(32.50)	-
	Self-employed	20(25.00)	-
Family type	Nuclear	45(56.25)	44(55.00)
	Joint	22(27.5)	18(22.50)
	Extended	13(16.25)	18(22.50)
Family size	Small (1-4)	22(27.50)	25(31.25)
	Medium (5-7)	34(42.50)	33(41.25)
	Large (>7)	24(30.00)	22(27.50)
Family income (₹) (monthly)	1,00,000 and below	24(30.00)	48(60.00)
	1,00,001-2,00,000	34(42.50)	22(27.50)
	2,00,001-3,00,000	16(20.00)	8(10.00)
	3,00,001 and above	6(7.50)	2(2.50)

women (88.75 %) possessed electric kettle/boiler and 60.56 per cent of these respondents utilized it most of the time, less than one-fourth (22.53 %) utilized it sometimes and more than a fifth of the respondents (16.90 %) never used the water kettle/boiler they possessed. More than two-thirds of working women (67.50 %) possessed smart speaker and most of them used it frequently while slightly more than a third (35.18 %) never used it. Just over half of non-working women (51.25 %) possessed smart speaker where majority of them used this device most of the time and less than a fifth (17.07 %) used smart speaker only sometimes. The calculated 'z' value showed a significant difference between the possessions but the calculated 't' value revealed no significant difference in the extent of use of smart speaker (Table 4). These findings are in accordance with a study by Pandey and Paul (2021). This study explored the adoption of smart speakers in Indian households and finds that smart speaker usage is more prevalent among working professionals than non-working women. Garg *et al* (2021) found that working professionals use smart speakers more frequently and for a wider range of activities than non-working respondents.

CONCLUSION

This study provided valuable insights into the possession and extent of use of time-saving cleaning, clothing care, and miscellaneous devices among working and non-working women. Notably, the study revealed a significant difference in the possession and use of cleaning devices such as dishwashers and vacuum cleaners, emphasizing the impact of women's employment status on the adoption of household technologies. The findings underscore the need for increased awareness about the benefits of certain devices, as evidenced by the low possession rates of dishwashers and robotic floor cleaners.

In the realm of clothing care, the study highlighted the prevalence of washing machines among both working and non-working women, emphasizing their time-saving benefits. However, variations in the possession and usage patterns of flat irons and vertical steam irons suggest the influence of lifestyle and employment status on device preferences. The exploration of miscellaneous devices revealed diverse possession rates and usage patterns for items such as water geysers, electric drills, sewing machines, and smart speakers. The findings underscored the dynamic interplay between cultural, economic, and lifestyle factors that shape the choices of working and non-working women in adopting time-saving technologies.

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Table 2. Possession and extent of use of cleaning devices by working and non-working women. (n=160)

Cleaning Devices	Working women (n _w =80)					Non-working women (n _{nw} =80)					z test	t test
	Possessed	Extent of use				Possessed	Extent of use					
		Most of the time	Sometimes	Never	Mean Score		Most of the time	Sometimes	Never	Mean Score	Possessed	Extent of Use
Dishwasher	22 (27.50)	22 (100.0)	-	-	3.00	10 (12.50)	10 (100.0)	-	-	3.00	2.37**	0.23**
Vacuum Cleaner	33 (41.25)	33 (100.0)	-	-	3.00	20 (25.00)	20 (100.0)	-	-	3.00	2.18**	0.63**
Standing Floor Mop	80 (100.0)	80 (100.0)	-	-	3.00	78 (97.50)	78 (100.0)	-	-	3.00	1.42	1.42
Robotic Floor Cleaner	3 (3.75)	3 (100.0)	-	-	3.00	2 (2.50)	2 (100.0)	-	-	3.00	0.45	0.45
Electric Spinning Scrubber	4 (5.00)	4 (100.0)	-	-	3.00	2 (2.50)	2 (100.0)	-	-	3.00	0.83	0.83

(Figures in parentheses indicate percentages)

** Significant at 5% level

Mean score range (1-3)

Table 3. Possession and extent of use of clothing care devices by working and non-working women.

(n=160)

Clothing Care Devices	Working women (n _w =80)					Non-working women (n _{nw} =80)					z test	t test
	Possessed	Extent of use				Possessed	Extent of use					
		Most of the time	Sometimes	Never	Mean Score		Most of the time	Sometimes	Never	Mean Score	Possessed	Extent of Use
Washing Machine	72 (90.00)	72 (100.0)	-	-	3.00	68 (85.00)	68 (100.0)	-	-	3.00	0.95	0.95
Dry/Steam Flat Iron	73 (91.25)	26 (35.62)	47 (64.38)	-	2.36	78 (97.5)	60 (76.92)	18 (23.08)	-	2.77	1.42	0.20
Vertical Steam Iron	19 (23.75)	19 (100.0)	-	-	3.00	9 (11.25)	9 (100.0)	-	-	3.00	2.08**	0.65**

(Figures in parentheses indicates percentages)

** Significant at 5% level

Mean score range (1-3)

Table 4. Possession and extent of use of other miscellaneous devices by working and non-working women.

(n=160)

Other misc. devices	Working women (n _w =80)					Non-working women (n _{nw} =80)					z test	t test
	Possessed	Extent of use				Possessed	Extent of use					
		Most of the time	Sometimes	Never	Mean Score		Most of the time	Sometimes	Never	Mean Score	Possessed	Extent of Use
Water Geyser	59 (73.75)	59 (100.0)	-	-	3.00	56 (70.00)	56 (100.0)	-	-	3.00	0.53	0.77
Electric Drill	27 (33.75)	2 (7.40)	25 (92.59)	-	2.07	22 (27.50)	4 (18.18)	18 (81.81)	-	2.18	0.86	2.01**
Sewing Machine	37 (46.25)	8 (21.62)	19 (51.35)	10 (27.03)	1.95	48 (60.00)	26 (54.17)	17 (35.42)	5 (10.47)	2.44	1.74**	0.18**
Water Purifier	80 (100.0)	80 (100.0)	-	-	3.00	80 (100.0)	80 (100.0)	-	-	3.00	-	-
Electric Kettle/Boiler	71 (88.75)	43 (60.56)	16 (22.53)	12 (16.90)	2.44	66 (82.50)	31 (46.97)	18 (27.27)	17 (25.76)	2.21	1.13	1.29
Smart Speaker	54 (67.50)	35 (64.81)	19 (35.18)	-	2.65	41 (51.25)	34 (82.93)	7 (17.07)	-	2.83	2.09**	1.31

(Figures in parentheses indicate percentages)

** Significant at 5% level

Mean score range (1-3)