

The Tradition and Transformation of “Japanese Bathroom Culture” —Portrayed through the Development of the *Sound Princess*—

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Abstract: Japanese women find the sound of going to the toilet ‘embarrassing’ and flushing the toilet to drown out this sound has taken place since the Edo period. Such a ‘*Bathroom Sound Culture*’ still exists today in the form of a device that plays the sound of flushing water. In this study we investigated the development of this device and in what situations women use it and how they feel when they do. The author contacted the company that developed the device by email and telephone, as well as undertaking a literature review to investigate changes made to the device after development. Finally, 100 Japanese women were surveyed. The device was found to be first manufactured in 1979 to conserve water. Nowadays, the device is smaller, attached to the toilet wall and a portable version is also available. Of the women surveyed, 99% had drowned out the sound when they went to the toilet and almost always used the device when available. In particular, they did so when in a public toilet with others present (88%); when in someone else’s house and they may be heard (74%); when defecating and likely to pass wind (49%); and when at home and others may hear (46%). These results suggest that Japanese women are particularly sensitive to the presence of others when they use the toilet and that out of respect for others, as well as to avoid their own particular sense of shame, drowning out the sound when they use the toilet has become a normal event in Japanese culture.

Keywords: Toilet, Device that mimics the sound of flushing water, Shame, Water conservation, Sound made when going to the toilet

日本における女性の「トイレ文化」の伝承と変容 —トイレ用擬似音装置の開発事例を通して—

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抄録: 女性が排尿時の音を「恥」と認識し、トイレの水を排泄と同時に流すことで消音する行為は、日本では江戸時代から行われてきた。このような「トイレ文化(“Bathroom Sound Culture”)」は、日本人女性の消音行為や排泄時の音を消音するためのトイレ用擬似音装置として現代まで伝承されている。研究方法は、トイレ用擬似音装置を開発した日本企業に開発経緯について電話およびE-mailによる聞き取りを行った。その後、開発された擬似音装置の変容について検討するために文献調査を行った。また、女性がトイレで消音行為を行う際の心理と消音環境を明らかにすることを目的として日本人女性100人に質問調査を実施した。

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トイレ用擬似音装置は節水目的に 1979 年に開発され、現在では装置は小型化し、トイレ内蔵型や携帯型も販売されている。排泄時の消音行為は 99%の対象者が経験し、擬音装置が設置されている場合には多用されていた。対象者が排泄時に消音する機会の多いトイレの環境は、1)公共のトイレで他者がいる場合(88%)、2)他人の家のトイレで排泄の音が外に聞こえる可能性のある場合(74%)、3)大便やおならなど大きな音のする可能性のある場合(49%)、4)自宅のトイレで他者に排泄の音が聞こえる可能性がある場合(46%)となった。女性の消音行為は、他者の存在を強く意識し、他者への配慮と排泄の音に対する特別な羞恥心による普遍的な文化であることが示唆された。

キーワード：トイレ、擬似音装置、恥、節水、排泄時の音

1. Introduction

In Japanese public toilets, such as those in offices and airports etc., a device about the size of the palm of the hand that mimics the sound of flushing water is often attached to the toilet wall (See Figure 1). It is also sometimes part of the *Washlet* system (an electronic bidet with wash, dry and massage function) that is often part of a modern Japanese toilet (See Figure 2). While most Japanese women already know what this device is for, many Japanese men and foreigners wonder why it is there. By either pressing a switch or moving one's hand over a sensor, the machine will play an electronic recording of running water for around 25 seconds. The device was developed for Japanese women to drown out the sound of their going to the toilet (in most cases for urination). If or when the device is not present, most Japanese women will flush the toilet during urination and then flush the toilet again to flush away their waste. This means that the toilet is flushed twice instead of the usual once and, as such, twice the necessary amount of water is used. To prevent this excessive water usage, as well as the accompanying costs, in 1979, a device called the '*Sound Princess*'⁽¹⁾ was developed that mimics the sound of flushing water when used¹⁾. It is now commonly found in female public toilets in schools and workplaces etc.

The present study outlines the cultural and historical aspects behind the development of the *Sound Princess* in Japan. The *Sound Princess* is a device normally found in new public toilets throughout the country with the aim of eliminating the sound when someone uses the toilet. In

order to obtain more information on the history behind the development of this essential device for Japanese women, as well as insight into



Figure 1 An example of a device called the '*Sound Princess*'⁽¹⁾ in a university toilet. When a hand is placed over the sensor, the sound of flushing water will be played for 25 seconds. If the switch below the sensor is pressed the sound will become quieter and then stop.

Japanese bathroom culture and why women feel embarrassed, the author contacted the company which developed the device and a literature search was also undertaken. Additionally, the tradition of Japanese bathroom culture and how it has changed over the years was also investigated by surveying women about how they feel when they try to drown out the sound of their going to the toilet and in what circumstances they feel the need to do it.

2 . Definitions: ‘Bathroom Sound Culture’

Historically, Japanese women have tended to flush the toilet twice when they go to the toilet, in particular when they urinate⁹. This is because they are embarrassed by the sound that they make and so flush to drown out the sound³. Thus, using the *Sound Princess* has become a habitual action for most Japanese women. Consequently, the term ‘*Bathroom Sound Culture*’ is used in this paper to represent the utilization of a device that mimics the sound of flushing water to drown out the sound of going to the toilet.



Figure 2 An example of the *Sound Princess* built into the *Washlet* system of a public toilet. When the ‘sound’ button is pressed, the sound of flushing water is activated.

3 . Literature review

1) About Japanese toilets

Until the Edo Period²⁾ toilets for common Japanese were quite simple devices and mostly consisted of two planks of wood on each side of a hole dug in the earth, over which people straddled their legs and squatted. In contrast to this, toilets for Shogun (Top military commanders) were the size of one small Japanese room (4.5 tatami mats)³⁾ and made completely from cypress wood. Toilets for the wives of Shogun were even larger, 2 adjoining rooms the size of 6 and 2 tatami mats, respectively. The opening of the toilet itself led down to a well which was said to be able to accommodate ‘10,000 years of human waste’ and as such was often called the “Ten Thousand Years^{4) 5)}”.

According to Amano et al.⁶⁾, Western style toilets were brought by Westerners to Japan during the Meiji Period. While they didn’t initially prevail among commoners, from 1917, when the company TOYO CERAMICS (now TOTO LTD) succeeded in sanitary ware manufacturing (toilet bowls, urinals, sinks etc.) ceramic Western-style and Japanese-style toilets (Figure 3) gradually



Figure 3 An example of a Japanese-style toilet in an elementary school.

made their way into the lives of common Japanese people. Western style toilets suddenly became popular in 1955 after the establishment of Japanese Public Housing which was provided to many citizens. Nowadays, Western-style toilets are preferred to Japanese-style toilets. According to a Land and Housing Survey of the Department of Statistics in the Ministry of Internal Affairs and Communications⁹⁾, 90.7% of the houses surveyed had a flushable toilet. Of these 89.6% were Western-style toilets. However, many Japanese-style toilets remain in public toilets. The reason for this is that many Japanese people believe that Western-style toilets are unhygienic because many different people sit on them⁴⁾.

2) A History of Japanese Bathroom Culture

So from when did Japanese women become conscious of the noise they made when going to the toilet? According to Watanabe⁹⁾, a leading authority on the manners of common Japanese in the Edo Period and author of the book *Pictures of Women's Toilets in the Edo Period and Bathroom Sound Culture Portrayed in Satirical Haiku*, this awareness was already in existence in the Edo Period. In the collection of satirical Haiku *Saibare*, published in 1796, the following Haiku appears, "women worry about the sound of their pee". It appears in a poem recounting an episode where a lady asked one of her maids to run the water in the hand basin while she went to the toilet. Furthermore, in another Haiku published in 1779, the following was casually written about the sound made when a woman went to the toilet, "The young bride tried to slow down her pee", and describes the efforts a new bride goes to, in order to hide the sound she makes when urinating. In the same way in a Haiku published in 1763, "The ordained nun made sure she peed quietly", implies that a newly ordained nun did not want to have others hear the sound of her urinating.

From the aforementioned examples, we can see that from the Edo period, women were worried about the sound they made when going to the toilet and thus went to great lengths so that others would not hear by running water in the

hand basin or releasing their urine slowly and without force. Thus, it seems that paying attention to the sound of going to the toilet was part of female modesty from this period onwards.

3) How women managed the sound of going to the toilet before the *Sound Princess* was invented

In women the urethra is about 3cm long. Compared to men who have a urethra of between 16 and 18cm, it is quite short¹⁰⁾. Because of this, urine travels faster in woman and this makes a sound. In the publication "*Toilet Humor- Behind the Scenes of History; Transcending Cultures and Ages*",¹¹⁾ a section on the noise made when women urinate is included. It states that the level of noise made when a woman urinates is around 75 phones, which is louder than a vacuum cleaner at 70 phones and slightly quieter than the noise found at a road intersection which is around 80 phones.

There were various ways women went about hiding the sound they made when they went to the toilet⁹⁾¹¹⁾. For example, when an upper-class woman went out somewhere, it is said that she used a fist-sized mound of mud tied to a clay jar with string. She would pour water into the clay jar at the same time as urinating to hide the sound and then dropped the jar on the mound of mud to further drown out the sound¹²⁾. It is also said that the person accompanying her continually ladled water into the wash hand basin to hide the noise. Furthermore, a sound absorbing jug made out of bronze is also said to have been used to drown out the sound. At the bottom of the jar there was a stopper-like tap, and when upper-class young women went into the toilet, they used to pull out the stopper and let the water run, which would in turn drown out the sound of going to the toilet. Furthermore, after they had finished in the toilet they would use the water from the jar to wash their hands. This type of jug still exists today in Yakage-cho, Okayama prefecture¹³⁾. Finally, other means of drowning out the sound that have been mentioned include using "Kaishi" a type of Japanese paper used in tea-ceremony. Women

would put Kaishi in the toilet to absorb the urine and thus make less sound¹¹⁾.

4) Shame at the sound of going to the toilet

The sense of shame that is accompanied by going to the toilet is physical shame. Togi¹⁴⁾ concludes that a fundamental, and it can also be said existential, requirement for physical shame, including sex, is secret desire. She states that physical shame is both emotional and something we are conscious of, but at the same time it is an emotion closely linked to the body. She also states that we can go as far as saying "It is our body that we are ashamed of" and it is a tentative, hesitant attribute that is included in shame in general. So the "sound" that results from going to the toilet is a sound that comes from our body and this shame is, as such, one kind of physical shame.

According to Sugawara¹⁵⁾, humans start to feel shame around the age of 5 years and it is from this age that they start to feel conscious of how others perceive them. It is thought that people tend to feel less shame as they get older. According to one survey by Sugawara, feeling self-conscious in public, in other words worrying about how others perceive them, tends to peak during adolescence, after which it decreases greatly. However, if men and women are considered separately, in women the sense of shame is more drastic. This is because women in particular tend to be ashamed about physiological phenomena. Some examples he gives include: "burping", "stomach rumbling", "passing wind", "snoring", "having a runny nose", "coughing", "sneezing", "yawning" and "hiccups". Of the aforementioned 9 phenomena, when he asked participants in one of his surveys to put them in order of shame if they occurred in front of someone in a train, the order he obtained was "passing wind", "having a runny nose", "snoring", "stomach rumbling", "burping", "hiccups", "yawning", "sneezing" and "coughing". When adjusting for age and sex, he found that for all ages, women experienced considerably more shame than men.

So is it only Japanese women that feel embarrassed about the sound they make when

going to the toilet? It seems that this is not the case. Feeling embarrassed about the noise made when going to the toilet differs between cultures and race. According to Hans Peter Duerr¹⁶⁾, ethnic groups that have a close connection with nature tend to feel more embarrassed. Such ethnic groups feel even more embarrassed about the sound of passing wind than defecating itself.

So as can be seen, feeling embarrassed about the sound made when going to the toilet is not just something Japanese women experience, but women from other cultures too.

4. A case study of the development of *Sound Princess*-like devices

1) Methods

In order to gain an understanding of the development of devices that mimic the sound of running water to be used by women when they go to the toilet, so called '*Sound Princess*' devices, in July 2002, the author contacted the Orihara Factory, one of the main producers of the device, by both e-mail and telephone. From an ethical standpoint, the author also received permission from the company to convey the content of the inquiry in her paper. To investigate the different types of devices and the transitions they have undergone, the author performed Google searches between July 2002 and September 2014. The keyword used in the search was the Japanese word for the device that mimics running water used by women in toilets '*toireyougionsouchi*'. The author then went to the homepages that were relevant to her research.

2) Results

(1) Background to the development of the *Sound Princess*

The author received a reply from the Orihara Factory regarding the background to the development of the *Sound Princess* which is also outlined on their homepage¹⁾.

The Orihara Factory manufactures devices to be used in the toilet or bathroom. In 1979, the vice president of the company, Seiichiro Orihara,

successfully developed a simple flush toilet that was able to conserve the amount of water used. Since this toilet used less water than a regular flush toilet, it was sold widely in the Chugoku area of Japan where many of the houses had not yet changed to flush toilets. Since the amount of water used was less, however, the sound it produced was also quieter and shorter in length than a regular toilet. Consequently, many Japanese women requested that the sound it made louder. But this would have defeated the purpose of the toilet, because in order to increase the sound, the amount of water used would have to be increased. Thus, Mr. Orihara proposed that a separate device be created that drowned out the noise made when women went to the toilet. And the device he developed based on this proposal became the prototype for the present-day 'Sound Princess'.

The mechanism it employs is similar to the circuit used in ICs, transistor radios and diodes and when the electrical current flows a sound is produced. It can be used with dry cell batteries or with an adaptor plugged into a 100 volt socket. The level of the sound that is produced is based on the results of original research done within the company and as a result a sound equivalent to 85 phones was developed, which is louder than the actual sound women make when they use the toilet. It was originally manufactured and sold under the name of 'Etiquette-tone'. From 1982 the number of orders increased and in order to save on the amount of water used during toilet visits, the company was inundated with orders from large companies with many female employees and because of this the device became popular all over Japan.

(2) Types of *Sound Princess* and how they have evolved

After the google search of the relevant Internet sites as of September 29th, 2014, 12 different types of devices sold over the Internet to mimic the sound of water flushing (This excludes variations on devices by the same manufactures) were identified. The price ranges from 582 yen



Figure 4 An example of the device on the wall of a hotel toilet. Above the device a notice has been placed which asks women to cooperate with water conservation and use the device if they want to drown out the sound when they use the toilet.

(about 6 US dollars) and 25,812 yen (about 260 US dollars). Brand names include 'Sound Princess', 'ECO Melody to Mask Toilet Sounds', 'Aquatone', 'Sound Celebratory', 'The Babbling Brook and Deodorizing Unit', 'Flush-sound', 'Device that Imitates Toilet Flushing Sound (See Figure 4)' etc. Only one of the devices plays the sound of a babbling brook and twittering birds for 40 seconds, while the others play the sound of flushing water.

There are also various versions of these products. For example devices that not only mask the sound of going to the toilet but get rid of the smell; those that come in the form of a mobile phone app; portable versions and small key-ring type versions.

5. Where and when women drown out the sound when using the toilet

1) Methods

To investigate where and in what situations Japanese women feel compelled to drown out the sound when they use the toilet, an anonymous questionnaire survey of 100 Japanese women aged 13 years and over was carried out using snowball sampling. Snowball sampling is a method used in social research, where existing study subjects recruit future subjects from among their

acquaintances. In this way the sampled group grow bigger like a rolling snowball. In the present study, the questionnaire was distributed to 10 women, who then distributed it to their friends, relatives and work colleagues until the sample size reached 100 participants. The survey took place between August 2002 and November 2003. Descriptive statistical analyses were performed. Survey items included 1. age; 2. past history of drowning out sound when going to the toilet; 3. present history and frequency of drowning out the sound when using the toilet; 4. reasons for drowning out the sound; 5. ways of drowning out the sound and toilet environment; 6. the actual toilet situation when drowning out the sound; 7. reasons why and when this behavior started; 8. whether this behavior also took place when the participants were abroad and how they felt about it.

2) Ethical approval

The purpose of the study was explained to the first 10 participants and oral informed consent was obtained. These participants then explained the content of the study to those they invited to take part in the study. Participation in the study was voluntary and returning the questionnaire was taken as consent to participate. For privacy, all questionnaires were returned in a sealed envelope. The questionnaire was anonymous and there were no detrimental effects regarding refusal to participate. Great care was taken with the storing of the questionnaires. For participants less than 18 years, consent was also obtained from the primary caregiver.

Table1 Age distribution of participants

Age	Sample (n=100) n (%)
13-19	5 (5%)
20-29	44 (44%)
30-39	15 (15%)
40-49	16 (16%)
50-59	16 (16%)
≥60	4 (4%)

3) Results

(1) Characteristics of the participants

Participants were 100 Japanese females aged between 13 and 70 years, living in and around the city of Sapporo in northern Japan. The return rate of the questionnaire was 100%. The age distribution of participants is shown in Table 1. Most of the participants were in their twenties (44%) with only 5% in their teens and 4% aged sixty or over.

(2) History of drowning out the sound when going to the toilet

Participants were asked whether they had previously drowned out the sound of going to the toilet by either flushing the toilet or using a device such as the *Sound Princess*. In total, 99% of participants answered they had.

Next, for those who presently drowned out the sound, 93% answered they 'always' or 'sometimes' did it, while 6% answered they never did it.

(3) Situations when and ways of drowning out the sound

Regarding the means women used to drown out the sound, of the 99 participants who answered they had past experience with drowning out the sound when going to the toilet, 75 participants (76%) answered they used the *Sound Princess*. Next, 42 participants (42%) answered they flushed the toilet if the *Sound Princess* was not available, while 18 participants (18%) answered they flushed the toilet even if there was a *Sound Princess* present. Finally, 13 participants (13%) answered they pulled the toilet paper holder at the same time. Multiple answers were possible.

In total, 60 participants flushed the toilet when there was no *Sound Princess* or even if there was one. Half of those who flushed the toilet even if there was a *Sound Princess* present answered they did so because "The sound the *Sound Princess* made was unnatural". Others answered that "Others would be aware that they were using the toilet", "The *Sound Princess* was too slow in starting" and "They just felt it was strange".

(4) Reasons why Japanese women felt the need to drown out the sound when they go to the toilet

Answers from 99 participants were analyzed and multiple answers were possible.

1. I feel embarrassed if others hear when I go to the toilet, 67 participants (68%).
2. It has become a habit and so I just do it, 23 participants (23%).
3. I felt like I was going to pass wind or make a large noise when I had a bowel movement, 17 participants (17%).
4. Since the sound resonates, I feel embarrassed even if others are not present, 15 participants (15%).

(5) The toilet environment when drowning out the sound of going to the toilet

For the 99 participants who answered they had previously drowned out the sound of going to the toilet, the toilet environment at the time was investigated. Multiple answers were possible. The following situations were presented to investigate the toilet environment and when drowning out the sound took place when others, including family members, may be present.

1. In public toilets when you are alone or others are present.
2. In your own toilet when you are alone, family members are presents or others (non- family members) are present.
3. At other people's houses when the sound of your going to the toilet may or may not be heard
4. When you may make a loud sound such as passing wind or having a bowel movement.

In total 99 participants answered and multiple answers were possible. Answers are in descending order for those who drown out the sound (See Table 2). In the space for comments some participants wrote that they didn't want male family members such as their husband or father to hear.

We also analyzed the responses to the above question in the 42 participants who answered that at present they "sometimes drown out the sound

Table 2 Toilet environment when drowning out the sound of going to the toilet (n=99).

Toilet environment	Participants (% of total respondents)
In a public toilet when others are present	87 (88%)
At other people's house when others may hear	73 (74%)
When a large sound might occur such as passing wind or during a bowel movement	49 (49%)
At home when others are present (and may hear the sound from the toilet)	46 (46%)
In a public toilet when alone	27 (27%)
At other people's house when it is not likely that the sound from the toilet will be heard	27 (27%)
At home when other family members are present and may hear	10 (10%)
At home when no one else is present	6 (6%)

Table 3 Toilet environment in Japanese women who sometimes drown out the sound when using the toilet (n=42).

Toilet environment	Participants (% of total respondents)
Don't do it if others are not present	27 (64%)
When it is quite and others may hear, then drown out the sound, but when it is noisy and others won't hear then don't	21 (50%)
When a large sound might occur such as passing wind or during a bowel movement	20 (48%)
Depends on who is also present	4 (9%)
Depends on the toilet location and building	2 (5%)

when they go to the toilet". As with the previous analysis, multiple answers were possible. The participants' results are presented in Table 3.

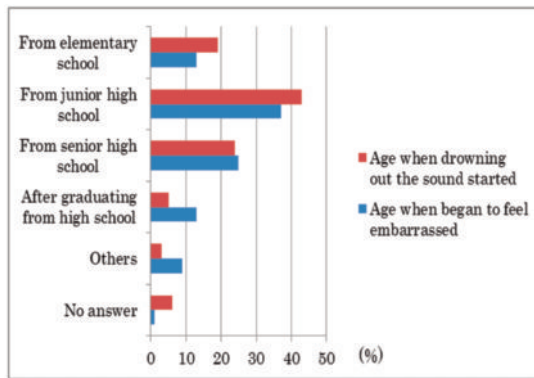


Figure 5 Age when drowning out the sound when going to the toilet began and when embarrassment started

(6) Age when drowning out the sound began and when feeling embarrassed began

Of the 100 participants who responded, most answered (37%) that they began to feel embarrassed when they were in junior high school. This was followed by when they were in high school (24%), when they were in elementary school (19%) and after graduation from high school (5%). The age at which they started to drown out the sound is shown in Figure 5.

(7) Reason why participants started to drown out the sound

Responses from 99 participants were analyzed. Multiple answers were possible and results are presented in descending order. Reasons for starting to drown out the sound (n=99)

1. Can't remember, but it just became a habit, 61 participants (62%).
2. Everyone seemed to be doing it so I just copied them, 32 participants (32%).
3. My friends did it, 13 participants (13%).
4. I thought about it and then did it of my own accord, 7 participants (7%).

(8) Drowning out the sound when abroad

Of the 100 participants, 72 had been abroad and 71 responded to the questions about their actions when abroad. In total, 36 participants (50%) also drowned out the sound when abroad. Of the other 35 participants (49%) who did not do it, the reasons given for this are as follows: “Foreigners didn't do it so I also didn't feel the

need to do it when I was not in Japan”. Of those who had spent more than one month living abroad, most of them felt strange when they returned to Japan and found others drowning out the sound and were surprised at Japanese bathroom culture.

6. Discussion

The results of this study show that 99% of participants engaged in the act of drowning out the sound when they went to the toilet. It suggests that for Japanese women doing this has become a deep-rooted habit. Furthermore, it reveals that for Japanese women using the *Sound Princess* has become a habitual action. From this we can assume that if the *Sound Princess* had not been developed, excessive amounts of water would have been used when Japanese women went to the toilet. Thus the development of the *Sound Princess* to address water shortages has contributed to a reduction in costs incurred by companies and institutions when women want to drown out the sound when they use their toilets. While 35 years have passed since the *Sound Princess* was developed, mainstream recognition of the device has increased and it has evolved in its function, shape and cost, with many models becoming smaller and cheaper. This shows that the *Sound Princess* is considered to be an essential device to relieve the embarrassment of women, regardless of their age, when they use the toilet and that it has been accepted as part of Japanese bathroom culture. According to Miyatake¹⁷ artifacts (technology or creations) are “all part of culture and if you have to talk about them to connect them with the newly created world, then it is also necessary that they can be put into historical and social context with regards to ‘lifestyle’ and ‘overall complexity’ etc.”. Thus, it can be said that the *Sound Princess* is an essential modern commodity that was developed out of necessity from a social context and the lifestyle of Japanese women.

I would now like to consider the reason why drowning out the sound has become a stipulated

part of Japanese bathroom culture which has been handed down from generation to generation. The result of this study shows that rather than believing that the sound they made when they went to the toilet was embarrassing, most of the participants felt a sense of shame or guilt if others heard the sound that they made. Thus, it can be said that the presence of another person who may hear the sound when Japanese women go to the toilet is the most relevant factor for the use of a *Sound Princess* like-device. The sound made when going to the toilet is accompanied with varying degrees of embarrassment or awareness depending on how it is perceived by that culture¹⁶. The psychology of wanting to erase a personal sense of shame along with consideration of others may be considered to be motivated, in large, by the psychology of shame and environmental factors.

The types of toilet environment where participants were most likely to drown out the sound included: 1. public toilets where others were present; 2. using the toilet at other people's house when others may hear; 3. when a large sound might occur such as passing wind or during a bowel movement; 4. at home when others are present (and may hear the sound from the toilet). The sound that is emitted when going to the toilet is one type of physical shame and it is a shame of a physiological phenomenon where the cause of the shame lies within the individual¹⁵. From the results of the study, attention should be paid to the fact that most Japanese women are likely to drown out the sound of their going to the toilet if they know others might hear. And from this it can be inferred that the reason most Japanese women feel the psychological need to drown out the sound when they go to the toilet, is because they are aware of the presence of others, including their family, and do not want these people to hear. Thus, the habit of drowning out the sound may have evolved from the Japanese characteristics of maintaining "Wa" (harmony), placing importance on the presence of others and the atmosphere of certain places. Japanese women are especially conscious of the sound they make when they go to the toilet being heard by others or resonating

outside of the toilet. And for this reason they go to great lengths to diminish this sound or erase this sound and it is from these endeavors that the practice of drowning out the sound has become a habit.

In this study, almost all the women in their twenties had this habit, but even for women aged 50 years or older, 84% also practiced drowning out the sound when they went to the toilet. From this it can be seen that as women get older they are less likely to drown out the sound, but even though frequency decreases, over 80% of women have this habit. Thus, the results show that the habit doesn't really decrease with age and women tend to drown out the sound they make when they go to the toilet, regardless of how old they are.

Regarding the age that the behavior first occurs, this study showed that it was most likely to begin during adolescence. Furthermore, the age at which women began to feel embarrassed about the sound they made tended to coincide with the time that they began to drown out the sound. During adolescence, the time spent with peers is great and it is also the time when women are most likely to use communal toilets. When the time spent with others becomes long, it is likely that women tend to be conscious of their surroundings, including their relationship with others and the atmosphere of their environment. Consequently, they are influenced by the behavior of their friends and others around them and this may lead them to their commencing the practice of drowning out the sound when they go to the toilet. The age range of participants in this study was large and as a result many of the participants many not have been able to clearly recall exactly when and why this habit began, but overall for most participants it was the influence of others that had the greatest effect on them. Furthermore, from the results of the study it can also be stated that Japanese bathroom culture is not something that is passed on from parent to child, but a habit that is deeply-rooted in the culture and acquired unconsciously. In addition, the results of the study show that the habit does

not only begin by mimicking the behavior of others, but also the presence of the *Sound Princess* makes women aware that this is indeed part of toilet etiquette in Japan.

From this it can then be inferred that the practice of drowning out the sound when going to the toilet in Japanese women is not only related to feeling embarrassed, but part of following a pervasive unspoken rule that is part of Japanese toilet etiquette. The fact that most Japanese women adhere to this practice from their teenage years, shows that Japanese bathroom culture transcends both age and time and continues to be practiced to the present day.

Almost half of the participants in the present study no longer participated in Japanese bathroom culture when they lived abroad. This shows that while most Japanese women adhere to the practice when in Japan, they no longer feel the need to drown out the sound when they go to the toilet. Furthermore, it shows that when the bathroom culture of other countries is different, they are also able to adapt to the bathroom culture of these countries too¹⁸⁾.

7. Strengths and limitations of the study

This was a cross-sectional study of only 100 Japanese women living in one area of Japan and as such, the results cannot be generalized to the population as a whole. Furthermore, it took place more than ten years ago and the results may not be applicable to Japanese women today. However, it does have some strengths. It is the first study to investigate the culture and history of Japanese *Bathroom Sound Culture* and, consequently, can also form the foundation for further large-scale studies.

8. Conclusions

The reason why the *Sound Princess* was developed and became popular, not only in the Chugoku region of Japan, but all over Japan, was not only due to the fact of the physical phenomena of women having short urethra, but also as a

means of saving water. The bathroom culture of Japanese women already existed during the 18th century in the Edo Period. When toilets changed from a well-type to a flush-type, Japanese women began to use the flush as a means of drowning out the sound when they used the toilet. While *Sound Princess* devices have been adapted to meet the needs to modern Japanese women by becoming more compact and diverse, their basic function has remained unchanged. Japanese bathroom culture has nothing to do with the age of Japanese women, instead it is an empirical value that has emerged from the customs of a group and passed down from generation to generation. Furthermore, this study has shown that the conscious practice of drowning out the sound when going to the toilet is a practice that makes women aware of other sounds around them and thus continues throughout a woman's life.

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Notes

- (1) The name of the trademark registered in 1988 for the device developed by TOTO Ltd. to erase the sound made when going to the toilet.
- (2) The Edo period was from 1603-1868 A.D
- (3) The size of one tatami mat is 0.88 m by 1.76 m.

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