Cleanliness and consumption

exploring material and social structuring of domestic cleaning practices

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ABSTRACT

In line with increasing international trends of energy efficient devices on the market and in households, domestic consumption of water and energy should be decreasing. However in Sweden, domestic per capita water consumption is not decreasing rapidly and energy consumption is actually increasing. This suggests that physical contexts are not the only factor shaping resource demand. People are also influenced by collective conventions; what we think is normal has a significant say in what we do, and the resources we consume in the course of everyday life. This paper explores the way context shapes what people do from both a material infrastructures and social infrastructures perspective, using cleanliness in Sweden as a case study. Firstly material infrastructures in Sweden are mapped, including device ownership, water, energy and time consumed related to cleanliness. Secondly qualitative interviews with Swedish people aim to show the social structuring of cleanliness. Understanding the interplay between physical and social structures has potential implications for decreasing resource intensity in everyday life.

Key Words: cleanliness, consumption, energy, mixed methods, social practices, sustainability, Sweden, time use, water

1 INTRODUCTION

Recent increases in everyday expectations have resulted in an acceleration of resources consumed in pursuit of the shifting goal-posts of social normality (Gronow and Warde, 2001, Shove and Warde, 2002). Much of today's resource consumption stems, not from a conspicuous, status seeking drive, but rather from everyday activities and adhering to social standards in routinised activities (Shove, 2003, Wahlen, 2011). Mundane household consumption, particularly laundry, has come increasingly onto the international sustainability and domestic resource consumption agenda. For example, see (Hustvedt et al., 2013, Laitala et al., 2011, Kruschwitz et al., 2014, Yates and Evans, 2016). Laundry is a pertinent example due to its resource intensity, arising from water used and disposed of in washing, energy needed to power machines, and chemicals used to remove soils and stains. 'Maintenance is often the most energy-demanding stage during clothing's lifecycle' (Laitala et al., 2012). Laundry is not only influenced by technological infrastructures, but also social conventions; so understanding what cleanliness means is a critical consideration in reducing the environmental impact associated with laundry practices (Jack, 2013a). Both physical and also social structuring of practices require investigation (Hansen, 2016). A promising avenue for resource intensity reduction lies thus in understanding the expectations and ways that accepted modes of existence come into being, propagate and abate. Questions that arise accordingly are: What mechanisms have a bearing on everyday practices? Does practice change come from increasing technological efficiencies and physical limitations? Or is it perhaps our social context - what family, friends and colleagues think of as conventional that guides cleaning practices?

To unravel how material and social contexts influence practices empirically, this paper uses the example of cleanliness in Sweden. This is done in two stages: firstly mapping the physical context, access to devices, water and energy consumption over the last thirty years, and secondly mapping doings, using data from existing surveys and also interviewing Swedes about present routine cleanliness practices. The interviews go further in-depth to explore the meaning and pressures underlying cleanliness. By focusing on washing up, laundry and personal hygiene, three resource-consuming activities in the home linked to ideas of cleanliness, this paper gives insight into the different ways that both material and social structures influence cleaning practices. Physical infrastructures provide a tangible proxy of changing conventions: measurables like water, energy and time are the sediments of changing social normality and can help make collective conventions tangible. This investigation of collective conventions using the case of Swedish cleanliness aims to contribute to understandings of how ideas translate into practices and attendant resource consumption, and the relationship between material and social infrastructures. While Sweden is a specific case, laundering is an increasing global phenomenon. Possession of laundry machines is increasing by 1% per year internationally (Euromonitor) combined with an increasing global population. This suggests a continuing escalation of domestic laundry activities. The combined data set provides an original account of laundry routines, potentially valuable in sustainability transitions.

2 METHODS

This paper explores the question of material and social structures through a Swedish case study on laundering practices. A case study methodology was chosen due to it's usefulness in understanding complex issues (Flyvbjerg, 2006). Sweden is a promising and novel case in researching everyday, mundane consumption, as it is one of the few countries in the world with an abundance of potable

water. It is also a country rich in statistics and collecting the data for this paper was possible through Sweden's publicly available and well-resourced central bureau of statistics, *Statistiska centralbyrån*.

The various data sources were assembled during a two-year stay in Sweden. Both statistical and interpretive data were gathered to examine different impacts that material and social structures have on practices. Statistical information was gathered from surveys and reports published by Statistiska centralbyrån and supplemented with scientific articles published on household consumption patterns in Sweden. Interpretive data came from interviews with everyday Swedish people, and the immersion in Swedish culture during the two-year period. Living, working and participating in the day-to-day running of a Swedish household provided first-hand insights of various washing customs and local ways of doing cleanliness. During the study period the author was also learning Swedish language, which proved invaluable in accessing statistical information and other reports published in Swedish.

Time use data is taken from three reports[1] released by Statistics Sweden. These three time use reports have a measurement of *personlig hygien, av- & påklädning* (personal hygiene and dressing), *tvätt, strykning* (washing, ironing) and *diskning, avdukning* (washing up, clearing the table). Energy and water use, along with device ownership and efficiency data was collected from The Swedish Energy Agency, *Energimyndigheten, a* Swedish water agency, *Vatten Syd,* as well as scientific reports and publications. The data was combined using spreadsheeting software to provide an aggregated picture of how devices, time, water and energy consumption all change over time.

This broad picture was then explored using in-depth interviews (Minichiello et al., 2008) with fifteen Swedes in March and April 2015. The purpose of the open-ended interviews was to flesh out some of the more general patterns from the time-use data with narratives, and to obtain more nuanced accounts of the way social structures are experienced in everyday life as: '[g]ood narratives typically approach the complexities and contradictions of real life' (Flyvbjerg, 2006). While laundry is a highly embodied activity, insights into practical activity can be gleaned verbally (Martens, 2012, Hitchings, 2012). The interviews were useful in not only finding out about the doings, but also participants' subjective understandings of said doings. Participants were recruited with a snowballing technique, and a variety of opinions that represented everyday people at different life stages was aimed for. Amongst the sample were a primary school teacher, new parents, a pensioner, university student, store manager, yoga teacher and a nurse. After a trial of four interviews was initially analysed, interviewing proceeded aiming for stratified participation until saturation was neared at the 15-interview mark. More interviews may have added greater weight to the emerging findings, however there are diminishing returns so any line between enriching the data set and squandering time might be considered 'inevitably arbitrary' (Mason, 2010). The modest aim with the interviews was not only to identify any culture-specific anomalies affecting the statistical data but also to fill out the broader quantitative data with richer narratives. Interviewees were 9:6 women:men, aged from 23-65 and grew up in Sweden. Interviewees are referred to using pseudonyms to protect their privacy. Interview recordings were listened to several times and summarised transcripts were produced. Emerging themes were then identified both through the transcription process and also using NVivo qualitative analysis software. This was done firstly through creating codes for areas of interest, and

[1]I tid och otid, En undersökning om kvinnors och mäns tidsanvändning 1990/91 *(In time and untime, research on women and men's time use 1990/91);* Tid för vardagsliv, Kvinnors och mäns tidsanvändning 2000/01 *(Time for everyday life, womens and men's time use 2000/01);* and Nu för tiden: En undersökning om svenska folkets tidsanvändning år 2010/11 (*Nowdays: research on Swedish peoples time use 2010/11)*

then creating further codes for comments that reoccurred during the coding process. Through both predefined and in vivo coding conventions were actively sougnt, while also making space for them to surface in the data.

To reveal conventions, harmonisation ideas of normality were focussed on. This of course is relative, to a person from another century, cleanliness practices probably look quite similar between Australians and Swedes, however we probably think our nuanced differences substantial. During the interviewing process the way respondents thought about different ways of doing was gauged by both listening and challenging interviewee's notions of normality using simple questions like 'Is it?' or 'Do you really think so?'. In the sample there were observable convergences, but there were also variety in what was seen as acceptable. This points to simultaneity of narratives, performers can choose from various socially desireable storylines in giving accounts of their cleanliness. A further interest was ways that respondents saw infrastructures, ways that they accede to or subverted physical things, and if they could be self-reflexive and critical of both material and social cleanliness structures.

As sustainability is a normative concept the one question on water, energy and chemical use was saved until last. This question was framed in a way that would not prompt respondents to give socially desireable answers, in an attempt to delve below the correct attitudes and professed courses of action that may have slim realisation in reality (Lindén, 2009, Klepp, 2003). Moments of change were also elicited, either through asking participants to reflect on their experience of intergenerational differences, or describing points in their life where cleanliness norms had been renegotiated. The interviews provide greater insight into how changing patterns in cleanliness are experienced now.

The aim of the following sections is to present and refract these different data sets through each other and start to unpick different influences on cleanliness practices. By providing a snapshot into current laundry practices in Sweden and discussing the different elements involved, the hope is to inspire further critical questioning of mundane consumption practices, but also a deeper consideration of the role of material and social structures in shaping everyday practices.

3 The Swedish Case

Swedish households consume significant amounts of water, energy and time in the pursuit of cleanliness. About 38% of the total energy use in Sweden in 2014 derived from the residential and service sector, separate from industry and transport (Energimyndigheten, 2014), while electricity for washing and drying laundry currently comprises about 20% of this (Lindén, 2009). Nearly 70% of domestic water is consumed through washing-up, laundry and personal hygiene (Svenskt Vatten, 2009), while over 100,000 tons of cleaning agents are used in Sweden annually (Diurlin, 2015).

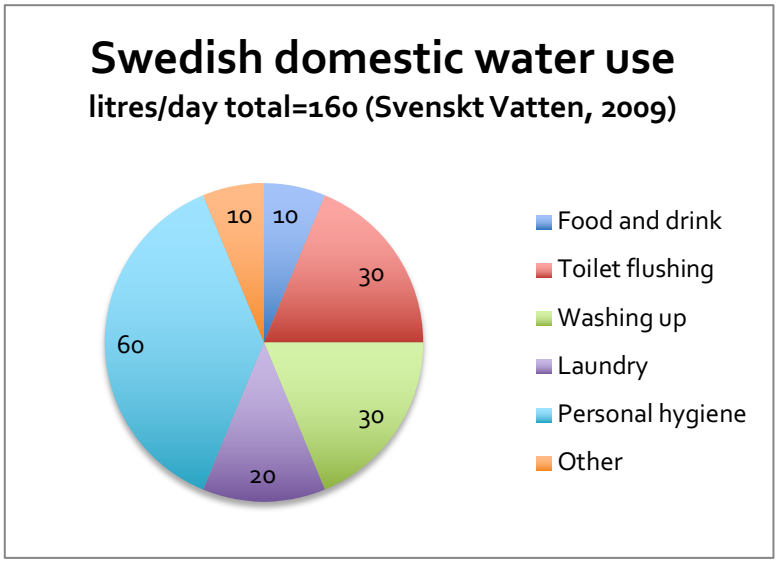

FIGURE 1 SWEDISH DOMESTIC WATER USE

3.1 DEVICES IN HOUSEHOLDS

Since the 1950s Swedish households have increased the number of domestic cleanliness devices. Over the same time period the energy and water efficiency of devices has increased radically. In Swedish apartments it is common to share a communal laundry where residents book a time to do laundry. These are usually in the basement and consist of semi-industrial washing machines, driers, drying cupboards and ironing facilities (Mont and Plepys, 2007). In detached residences most households now have their own devices (Zimmermann, 2009).

3.1.1 ACCESS TO DEVICES

In Sweden there is an accelerating access to washing devices. The average number of washing and drying appliances in homes has increased from 1 device in the home, (eg a washing machine) in 1950 to 3 in 2000 (eg a washing machine, a dishwasher and a tumble dryer) (Lindén, 2009). In 2009 it was estimated that on average apartments had 0.39 washing machines, 0.15 clothes driers and 0.51 dishwashers, while houses have 1.01 washing machines, 0.59 clothes driers and 0.9 dishwashers – see figure 2 number of devices in home from (Zimmermann, 2009). In 2005 63% of households had their own washing machine (Carlsson-Kanyama et al., 2005) while 57% of households had a dishwasher (ibid: 254). In 2015 it was estimated that 74% of the Swedish population had access to their own washing machines, while 66% have access to a dishwasher (SCB, 2015). This trend suggests that access to domestic cleanliness devices is nearing saturation.

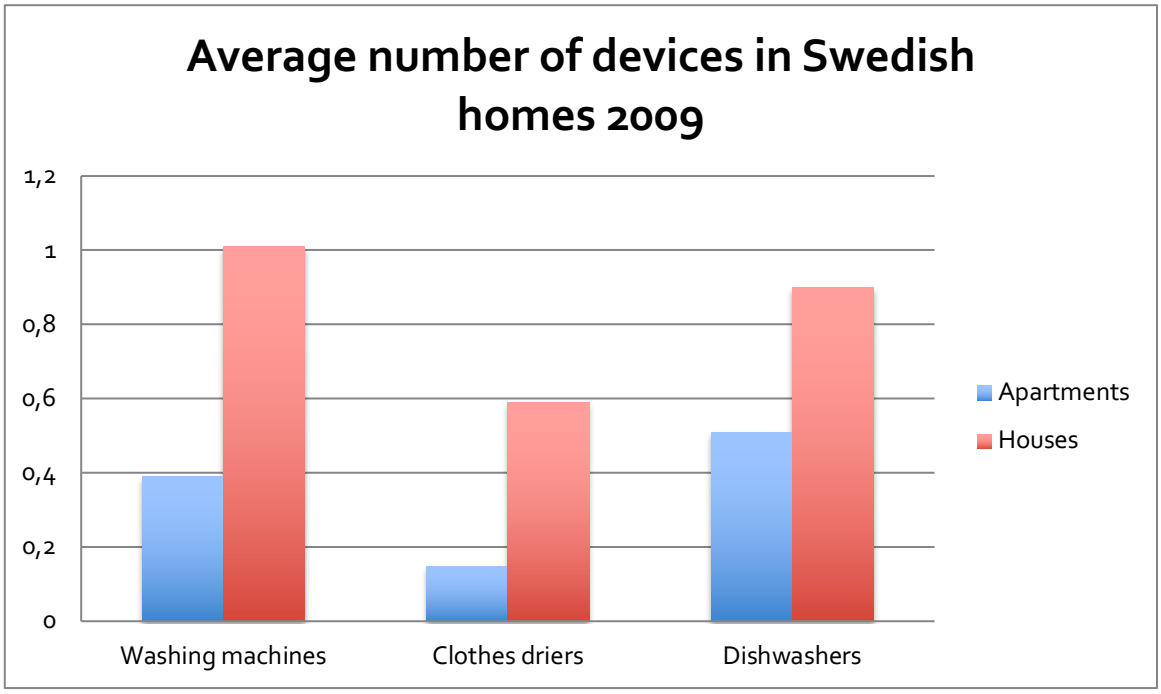

FIGURE 2 NUMBER OF DEVICES IN HOME

3.1.2 EFFICIENCY OF DEVICES

Cleanliness devices are becoming much more energy and water efficient since the implementation of the European Energy Label. Over the last 30 years average water consumption for a standard size dishwasher has been more than halved to around 13 litres per cycle and some use even less than 10 l to clean a whole load (Richter, 2010). Electrolux, a multi-national domestic appliance distributer, estimates that their efficient models of clothes washing machines have decreased water consumption from 40 l/kg in 1950 to under 10 l/kg in 2000 (Zattin, 2015), while electricity consumption decreased from 2.3 kWh/kg in 1950 to 0.3 kWh/kg in 2000 (ibid) – based on 1kg cotton washed at 90°C. In Sweden in 2009 the average age of washing machines was 6 years (Stamminger, 2009), with an annual per capita consumption of energy through washing machines of between 60-70 kWh (Zimmermann, 2009). Consumption of energy through driers per person had a greater variability, between 40-70 kWh/person/year (Zimmermann, 2009). Since the 1990s there has been a 'tremendous' decrease of electricity used for washing/drying laundry in Swedish households (Lindén, 2009).

3.2 COSTS/BILLS

Billing of electricity is not transparent in the Swedish context: 'those living in flats in Sweden commonly do not pay directly for heating energy and sometimes also not for electrical appliances. That does not encourage energy saving behaviour.' (Carlsson-Kanyama et al., 2005). Over the last five year electricity, gas and other fuels expenditure has been around 4% of total household expenditure (SCB, 2012), not a major part of the budget; 'the energy is mostly included, what I can see it's the standard rate, not what we are consuming, which is the biggest part of the bill. I couldn't

say I could do much about it.' (Inge, 49). Energy does not make up a hugely signification proportion of household cost, and thus does not demand a high level of consideration in everyday life.

3.3 Material stocks amounts and washability

Increasing garment stocks mean that people can go for longer without running out of clean clothes and that when they eventually do it is easy to throw everything in the washing machine. Young swedes (18-30) purchase on average three items of clothing per month (Gwozdz et al., 2013) and as people often wash when running out of clean clothes (Jack, 2013a) the increasing wardrobe size means that washing cycles can be longer. 'I do laundry once a month, or every 6th week or so. I have a lot of underwear.' (Linnea, 31). 'I have lots of clothes, and sheets and linen and towels. So when I wash I wash a lot. I usually don't run out of anything, so I don't have to wash that often.' (Fredrik, 33). Higher material stocks are compounded with increases in technology 'textiles have been improved so that they can be washed at lower temperatures and do not require ironing.' (Lindén, 2009), this means that clothing is designed to be washed with convenience, reinforcing the tendency to indiscriminately wash everything. 'If something was wrinkly I would just throw it in the wash and then hang it, I didn't even bother to have separate ways of dealing with my clothes'. (Fredrik, 33).

3.4 Household Size

Domestic resource demand is tightly linked, not just with growing population but also the number of occupants in one household. Individual water consumption differs significantly depending on the number of people in a household (Richter and Stamminger, 2012). In Sweden the trends is towards smaller households, and in 2014 already 70% of the population lived in households with 2 or less residents (Johansson, 2014). The more occupants in a single dwelling, the greater economies of scale, so the trend towards smaller households suggests an increase in domestic water and energy consumption.

3.5 Time Used in Cleanliness

Overall the Swedish population is spending less time on the three cleanliness areas: laundry and ironing, washing up and clearing the table, and personal hygiene and getting dressed, see figure 3 changes in time use. The time allocated to laundry is gradually decreasing (Information from Statistics Sweden, 1991, Statistics Sweden, 2001, Statistics Sweden, 2011). Time spent on personal hygiene decreases before increasing to slightly above 1990 levels. Time spent laundering is decreasing slightly from 13 to less than 10 minutes per day. Time spent washing up follows a similar trajectory with a decrease from 17.5 minutes per day in 1990 to just under 15 in 2010. Personal hygiene shows a different story with around 50 minutes a day spent on showering, brushing teeth, getting dressed etc., Personal hygiene in 2011 was split 59 minutes a day for ladies and 46 minutes a day for men.

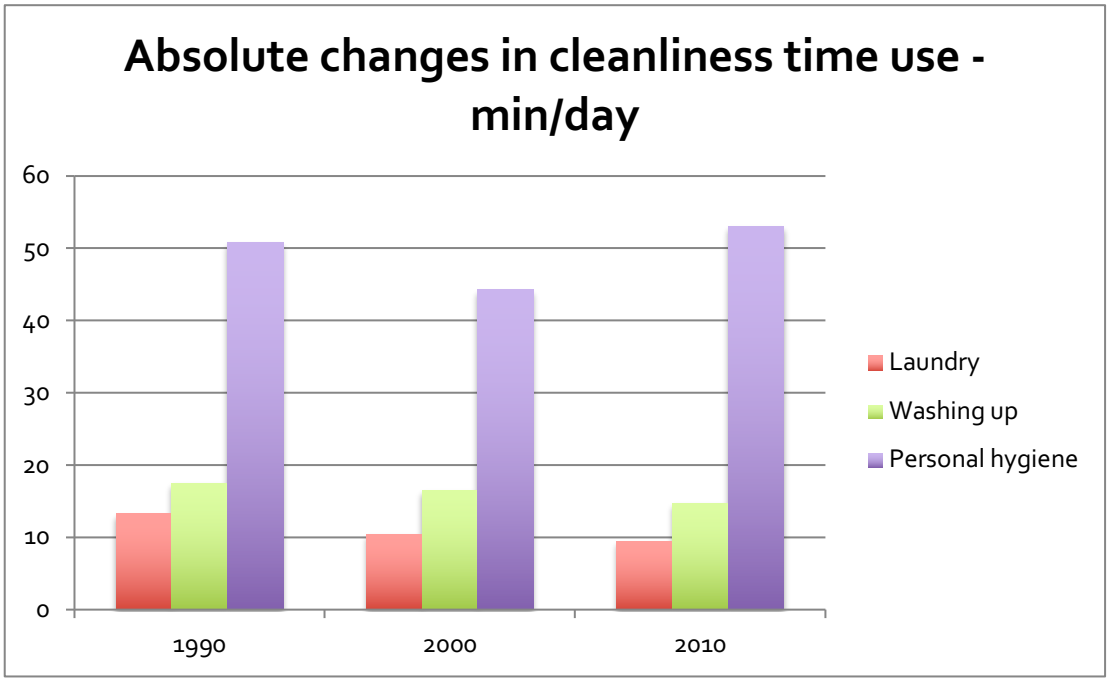

FIGURE 3 CHANGES IN TIME-USE

3.5.1 CHANGES IN CLEANLINESS TIME USE BY GENDER

Gender differences explain some of the decreases in time spent on laundry and ironing and washing up. Women reduced time spent on cleanliness activities bringing them closer to male time spent use, which itself does not change significantly over the past 30 years, see figure 4 changes in cleanliness time use by gender. This is evident looking at the time men spent washing up, which stayed steady around 10 minutes a day across the thirty years, while women decreased from 25 to 19 minutes a day. The same goes for laundering where women go from 23 to 15 minutes per day while men stay steady around 4 minutes per day. While men's time use doesn't change dramatically, women's times spent on both laundry and washing up does, which is responsible for the overall downward trend. While men's time spent on laundry and washing up hasn't changed over the last 30 years, there is the perception that housework is becoming more equal. 'For my two sons, they are more involved in taking care of the home, making food, looking after children and so on. My mother had to work and do all the things, cooking washing and so on. In my generations the husbands do something at home. And for my children and it's even more equal.' (Karin, 65). Personal hygiene was even further synchronised, women still spend more time, but trends are also reflected in male time use. Differences did not appear to be converging, as might be expected with an increase in male grooming. Instead the difference almost doubled over the last thirty years from six to twelve minutes a day, between the sexes.

Gender changes in cleanliness time use – minutes per day

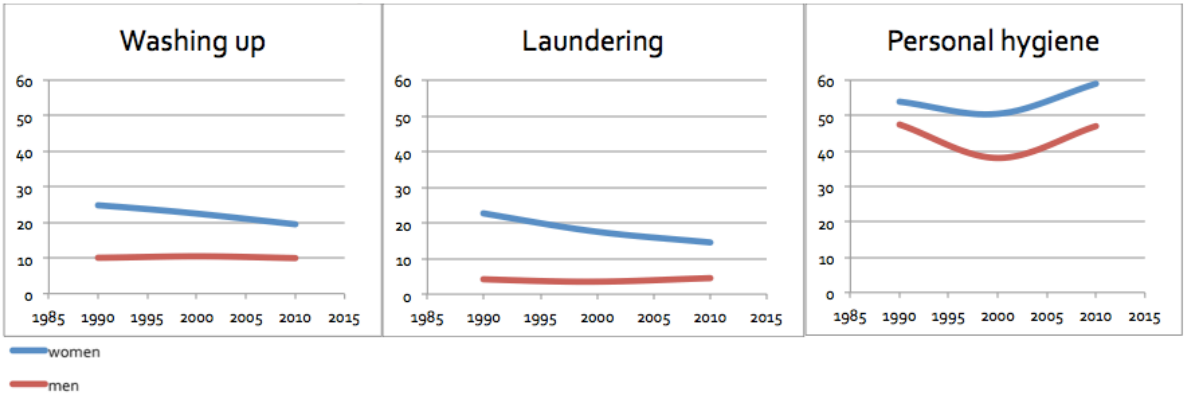

FIGURE 4 CHANGES IN CLEANLINESS TIME USE BY GENDER

This equalising trend fits with the overall population shifts – since the 1990s the share of housework done by men has increased from 38% to 44% of housework (Statistics Sweden, 2011). However men still spend more time in paid work and leisure than women, possibly explaining some of the remaining unequal division of housework.

3.5.2 Generational changes in time use

The gender imbalance in housework increases with age; women tend to spend more time on washing up and laundry across age and lifestyle stages. The starkest contrasts are between 20-24 year old males living with their parents - only a few minutes per day - and women older than 65 living with a partner - nearly 2.5 hours per day - (Statistics Sweden, 2011). As age increases so does the allocation of time to cleanliness activities, young people spend less time cleaning, suggesting a generational decrease in cleanliness. This could also be part of a rite of passage, in moving away from home and establishing one's own domestic rhythm. 'I lived in a small apartment, and it was a cave. I did what ever I wanted. Rarely did the dishes. Only changed sheets when I had to, which was never. My parents came over and they were shocked. My mother was extremely upset with me. But it was like 'This is my place! These are my rules. I can do what ever I want.' (Andreas, 26). The generational decrease in cleanliness is consistent with Carlsson-Kanyama et al. who found that older households (50-60) are more likely to engage in time consuming cleanliness activities like stain removal and airing (Carlsson-Kanyama et al., 2005), and less likely to wait for the washing machine to be completely full (ibid: 244), both suggesting more cleanliness work for older generations.

3.6 Patterns of practice

Cleanliness conventions are articulated through various practices performed in the home. Patterns of practices are explored in the following section using the same categories found in the Swedish time use reports: laundry, washing up and personal hygiene. Across the practices, the major trend is towards convenience, machine, while more accessible are becoming used less frequently and washing temperatures are reducing.

3.6.1 Laundry

In Sweden there has been a recent decrease in cycles per household per week. Laundry cycles drop from 3.5 loads per week in 2008 to just over 3 in 2011 (AISE, 2013) or from 4.7 in 2006 to 3.7 in 2011 (Stamminger, 2009). Young people have a lower laundering frequency, 16-30 year old Swedes wash on average only once a week (Gwozdz et al., 2013), compared to the overall Swedish average of 1.5 cycles per person per week (Schmitz and Stamminger, 2011). There is also a minor difference between house and apartment dwellers, people living in houses wash on average 1.4 times a week while those in apartments do laundry 1.3 times per week (Zimmermann, 2009). In Sweden there is a trend towards cooler washing temperatures since 2006 40 degree cycles have become the most popular setting with an average temperature drop from 49.8 in 2006 to 47.5 degrees in 2011 (Schmitz and Stamminger, 2011). The decrease in washing frequency appears to be correlated to the increase in publications available on the topic.

The interview data shows a wide range of laundry frequency; some participants wash a few times per week, others less than once a month. Some wash in a routine, the same time every week, others fit laundry around their schedules. 'Washing I do almost everyday, kind of randomly. Washing clothes. I don't have a fixed schedule, we have an apartment so I don't have to book time.' (Josefin, 45). 'Doing the laundry is usually when my underwear runs out. Sometimes I even start reusing underwear and socks.' (Gustav, 28). 'Laundry I do perhaps twice a week. When the basket gets full.' (Karin, 65). People who train tend to do laundry more often. 'I train a lot so generally my laundry basket becomes full within the week so it becomes a routine in the week. It's mostly Saturdays, mostly Sundays five to nine. I have a nice calm Sunday night, it's like my me-time at the same time.' (Andreas, 26). 'I sweat a lot when I do yoga so I need to wash those clothes.' (Henrik, 27). 'Since we do quite a lot of physical exercise there are quite a lot of clothes to wash, I often put it on in the night, and then hang it up in the morning and in the afternoon when I get back from work it's dry. So I think it's time efficient.' (Inge, 49).

The Swedish approach to washing is becoming more about convenience; throwing things in the washing machine, and less considered clothing care. Stain removal is 'seldom or never carried out' (Carlsson-Kanyama et al., 2005) and airing clothes/textiles is rare (ibid, 244). This is similar to Australia and the UK where consciously evaluating dirtiness matters less than washing things at specific intervals (Browne et al., 2014, Jack, 2013b). 'With our new machines it doesn't take much time. You don't have to bother with it, you just put it in and put on the machine, and you can go out and when you get back it's time to hang it up.' (Karin, 65). However using washing machines and dishwashers only when full is very common (Carlsson-Kanyama et al., 2005). 'I try to fill the washing machine to its limit.' (Sigurd, 23). The decrease in stain removal and airing could be due to the increasing access to washing machines and cheap electricity and water (Carlsson-Kanyama et al., 2005).

3.6.2 DISH WASHING

Dishwashing is closely associated with food preparation, and the two practices are often talked about in relation to one-another. 'After having cooked I try to clean up in the kitchen.' (Josefin, 45). 'I do dishes after I use them. I'm quite careful of doing dishes after I use them.' (Gustav, 28). 'I always do dishes at the same time I cook otherwise it's stressing.' (Aurora, 33). 'I have a dishing machine so I put the plates and cutlery there when I have used them. Every third or every fourth

day I put the machine on.' (Marie, 63). Washing up, while part of cleanliness, should also be considered as part of a wider practice of food preparation, and eating.

Swedish people rinse dishes in warm water before putting them in the dishwasher (Carlsson-Kanyama et al., 2005) and rinsing hand-washed dishes in running hot water is widespread (Carlsson-Kanyama et al., 2005) infact 59% of kitchen tap water use is associated with washing dishes (Richter and Stamminger, 2012). The three main reasons for washing by hand are needing the items immediately, items being too bulky for the dishwasher and not being suitable for the dishwasher (Richter, 2010). People in Sweden are more likely to let water run while doing the dishes than filling the sink (Richter, 2010) – this was evident in the data: 'When I'm doing dishes I let the water run until it gets warm, some times I leave it like that, not flushing very hard, but I still leave it on.' (Inge, 49). In line with survey data about half of the interviewees had dishwashers in their apartments, and most had positive feelings about them. 'We have a dishwasher, which is luxurious, very luxurious.' (Henrik, 27).

3.6.3 PERSONAL HYGIENE

There is limited information on ways that personal cleanliness is currently performed in Sweden. In 1987 a small sample of people (n=21) from the south of Sweden showered on average 11.6 times per week with a duration of 11 mins, and bathed 0.9 times per week with a 39 minute duration, in total 23 minutes per day getting wet (Erickson, 1987). In 2010 women spent nearly an hour on personal hygiene and getting dressed and undressed everyday, while males spent around 45 minutes. (see Gender changes in washing up, laundering and personal hygiene time use – minutes per day, p10). In the interviews many people shower once a day, often in the mornings. 'In the morning first, I always shower.' (Aurora, 33). 'I shower everyday. Brush my teeth two times a day. If I go to the gym I could even shower twice a day.' (Karin, 65). 'I always have a shower in the morning.' (Josefin, 45). Some people on the other hand shower more than once per day, while others showered less often. 'I shower twice, to three times a day. It's just because I need to wake up in the morning and I need to get tired in the evening and in-between I need to get clean.' (Henrik, 27). 'I take a shower, maybe not everyday, if I feel that I need it. Sometimes it could be three days, three four days.' (Emma, 32). 'I maybe shower twice a week… I don't really like showering. I think it's more a necessary, boring thing. I do it not to smell or have greasy hair.' (Linnea, 31).

Time spend on personal hygiene was a somewhat subjective element in washing. 'I say long showers, but I actually never take more than 5 minutes, that's a long shower for me.' (Aurora, 33). 'Usually it's quite quick, ten minutes to a quarter, I don't use shampoo every time, I use shampoo maybe once a week.' (Sigurd, 23)

3.7 SUMMARY

In summary Swedish households have increased their access to cleanliness devices, devices have become more efficient (water, energy, time), laundry loads per person have decreased recently

and time spent on cleanliness has also decreased overall since the 1990s. These trends are also reflected in domestic water (figure 5 domestic water consumption), but not energy consumption (figure 6 per capita energy consumption), making any exclusive relationship between increasing cleanliness practices and domestic energy consumption inextricable from other activities like cooking or entertainment. A possible conclusion is that cleanliness is a significant consumer of water in homes, so decreases in cleanliness are linked to decreases in water consumption.

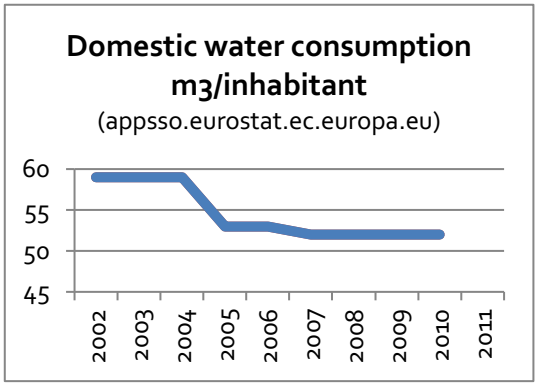

FIGURE 5 DOMESTIC WATER CONSUMPTION

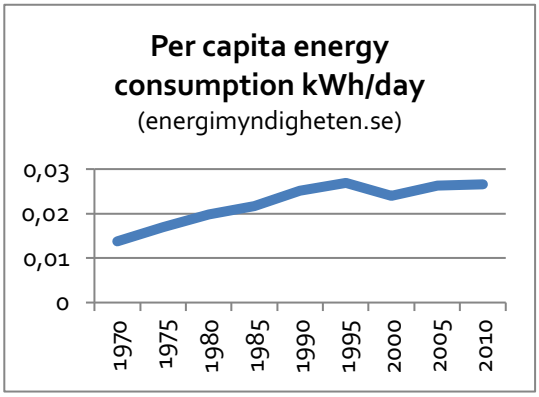

FIGURE 6 DOMESTIC ENERGY CONSUMPTION

4 PATTERNS OF CONVENTION

To explore the social structuration of cleanliness the zoomed-in (Nicolini, 2009) interview data helps illustrate how collective conventions are experienced in everyday life. During the interviews, a range of ideas, thoughts and feelings about cleanliness emerged. Prominent topics include: cleaning, people, use, thinking, time and cleanliness related practices such as shower and washing (see figure 7 NVivo word frequency illustration). Three key themes included: firstly, cleanliness is about context, fitting in and self-discipline; secondly, being clean is not always a highly sanitised state, but rather a state of balance with one's surroundings; and finally, cleanliness has a performative function and is part of preparation for social interactions. These possibly contradictory themes arise in similar iterations across the interviews.

FIGURE 7 NVIVO WORD FREQUENCY ILLUSTRATION FROM INTERVIEW TRANSCRIPTS

CLEANLINESS IS ABOUT FITTING IN AND HAVING PEACE OF MIND

The function of cleanliness was, at first, hard to define, but on reflection participants gave some interestingly congruent explanations of the social role of cleanliness. Cleanliness, they felt, could be about showing belonging and not breaching possible thresholds that may disgust others. 'Cleanliness shows that you can take care of yourself, which shows that you are sane and can adapt to the social norm. Which shows that you are not strange.' (Andreas, 26). 'If you've had a shower you're safe. At least you've had a shower so you can't smell. You know you're clean, you know you won't smell. A state of decency through being safe.' (Fredrik, 33). Doing cleaning and having a clean home was also seen as a source of peacefulness. 'I just feel more peace when it's done, when it's clean.' (Emma, 32). 'I think it's peaceful, for me it's peaceful, it feels good.' (Aurora, 33).

Different levels of cleanliness are seen as appropriate for various contexts. Going to work, for example, requires a greater level of personal grooming than going hiking. 'When I'm gardening I'm fine walking around with dirty hands, dirt on my clothes, maybe even on my face.' (Emma, 32). 'It can be fun to be dirty for a moment, if you're together with others in a group playing football and wrestling in the mud or on the beach and sandy with salt water all over you. Then it's okay.' (Andreas, 26). Context is acknowledged as quite prescriptive when reflected on, but it was not often considered otherwise. 'I don't think about cleanliness so much.' (Fredrik, 33). 'It's a

very non-thinking, very direct way of being.' (Gustav, 28), although not washing can be a source of disconcert: 'It feels when I'm clean I'm ready to meet other people, if I were to meet other people and I didn't feel clean I would sit and think about it the whole time.' (Emma, 32). Taken further this feeling could also be similar to the self-persecution - of trying to become the right sort of person – deferring to an imaginary other who is always judging you: this effect causes a state of constant anxiety to always be 'respectable.' (Skeggs, 1997).

4.1 CLEANLINESS NOT HIGHLY SANITIZED

The interview data revealed a myriad of ways of doing cleanliness that diverge from what the sample saw as mainstream cleanliness. Many felt that being clean was more about being in balance and not highly sanitised, sometimes in reference to good bacteria. 'Normal state is clean actually.' (Josefin, 45). 'Natural… something that is natural, sweat and things like that, if it's not poison, like in nature there is dirt, but for me that's clean anyhow.' (Sara, 34). 'In reality maybe cleanliness… it's more clean sometimes to have a more dirty environment, so it's not completely disinfected or sterile or anything.' (Sigurd, 23). 'When I learned about the body, we have a lot of bacteria in the body and it's important to keep that, not to eat too many medicines otherwise the bacteria dies.' (Marie, 63). Cleanliness was also acknowledged as relative. 'You have your view of what's normal and then you realise that other people might not have the same.' (Linnea, 31). 'The state of how clean something is can be on different levels, depending on who you are.' (Arne, 23). Interestingly, people feel that the modern propensity to wash is not entirely necessary. 'I think that we wash ourselves far too much nowdays. When I'm not working I do not take a shower everyday. It's not good for your skin to wash it everyday. The natural processes.' (Tuva, 53). 'I think we do too much to have things too sterile and I don't think that's too good…. I can't really see why we are so… I want to say hysterical, about hygiene.' (Inge, 49). These comments, while similar, took on a confidential tone, as respondents assumed that they were the ones diverging from normal. What is seen as normal cleanliness standards in mainstream culture was not the same as people take in everyday lives. This difference between collective convention and own practices was seen as a source of an impetus to clean, but also inner tension.

4.2 CLEANLINESS IS A PERFORMANCE FOR OTHERS

Even if people can be reflexive, and even critical of cleanliness, divergent thoughts are often discarded in deference to an abstract social paradigm. Having a shower is part of preparing to meet people, with various expressions of a similar underlying urge. 'Before I meet people I always shower.' (Andreas, 26). 'If I'm just working and nothing else I only shower after a couple of days. But if I'm seeing people, then I shower more often.' (Fredrik, 33). This can be felt quite strongly: 'I would never go to work without taking a shower or washing my hair. I do it everyday. It's like a ritual, preparing for work. Meeting other people.' (Tuva, 53). 'I think we have a norm, especially in Sweden we want to be normal and do as everyone else. It would be a shame if your friends or family thought you didn't take care of yourself or home.' (Karin, 65). Many expressed this urge; social interaction is very much a driving force of cleanliness performance.

5 Discussion

People were critical of the tendency to over-wash, but reported cleaning quite frequently anyway 'just in-case'. Routines and habits guide cleanliness practices, the norm is to wear things once or twice before putting them in the washing basket, and then do laundry with similar rhythms, be they daily (Tuva, 53), weekly (Andreas, 26) or monthly (Sara, 34). Habits are accelerated by convenience; it is easy to throw laundry into the machine, press the button and hang it out later, in-between other activities. Increasing efficiencies of time, energy, and water were compensated for by some through accelerating frequencies – the rebound effect. On the other hand, respondents who used the Swedish tvättstugor (shared laundries) reported a lower frequency, indicating higher agency of physical infrastructures, the less accessible facilities are the less frequent the laundering.

Being prepared for social encounters was a strong theme guiding personal cleanliness and influencing people to shower their bodies more frequently. This can be linked to social capital; people with high social capital have the liberty to be more reflexive and often feel less persecuted (Skeggs, 1997). All respondents had a shower in their home and reported various frequencies of showering: daily (Tuva, 58) to twice weekly (Fredrik, 33). Planning to meet people was an event that would trigger showering. The idea of wanting to be comfortable and confident in social settings, to not stand out, or become socially isolated was mentioned frequently, especially amongst the younger interviewees. Social legitimacy and confidence, not individual choices that conflict with social normality, could be the defining element here.

When asked about the water and energy implicated in laundry, Swedish respondents were often confused and requested that the question be repeated. Water is not limited in Sweden and people are not used to being aware of using it in everyday life. This sustainability slanted question often lead to reflections on different eco-labelling on cleaning products, of which nearly all respondents professed purchasing. For Swedish people sustainability is not so much linked to water consumption, but a whole host of activities. This suggests that having water saving ingrained into everyday life through the use of water and energy efficient devices could have greater potential.

This multifaceted data collection, discussion of collective conventions and attempt to observe their physical and social infrastructures provide some help in understanding how everyday life patterns and resource consumption are shaped. Social structures and institutions qua 'durable systems of established and embedded social rules that structure social interactions' (Hodgson, 2004) become the locus for new habits. Policy makers charged with planning equitable resource distribution cannot simply aim to ration supply nor brainwash 'consumers'. Rather they must take into account the material and cultural complexity in different approaches to channelling conventions in less resource intense directions. Given that habits can be shared among those living in a certain cultural sphere (Gronow and Warde, 2001) and can be described as possessing individuals rather than vice versa (Shove, 2009), they become a valuable focal point in considering new social systems. Instead of trying to make and break habits of individuals, the focus then shifts to promoting pro-environmental habits and adjusting material elements needed in the performance of environmentally degrading practices. Social structures are equally important here, and any concerted effort also needs to address collective conventions around practices, as existing habits and physical doings are much better at predicting future behaviour than 'values' or 'attitudes'. The methods used in this paper, looking at what people do through

time use and interviews, draw forth the habits and bodily routines over the socially acceptable intentions that have lower fulfilment in the physical world. Comparing the conventions and attendant doings with physical changes in the provision of cleanliness infrastructures shows that the two are intertwined and mutually constituting, so both should be incorporated in pro-environmental interventions. Once observed and brought into conscious reflection, conventions can be considered to incorporate resource saving strategies. By examining both material and social infrastructures, planning sustainable futures incorporates a more comprehensive view of social reality and consequentially a higher chance of realisation.

Understanding collective conventions enables us to observe the interplay between ideas, actions and resource consumption. The congruence of doings and meanings shared within a population results in an observable cleanliness culture possessing its own inertia. The (sometimes prescriptive) ideas about 'right' or 'expected' ways of doing can trump even an agent's rationality or physical limitations. Without entirely dismissing the agency of objects, emphasis should be given to the propensity of social infrastructures to shape practice, in tandem with objects and skills. Habits are also implicated: conventions manifest through repeated actions, and these propel social infrastructures in various directions, scripting and re-scripting normality. To address resource shortages, collective conventions could prove to be a useful concept in re-shaping mundane consumption practices.

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