AEG

THE TRUTH ABOUT LAUNDRY

August 2024
Version 1.0

Love clothes for longer edition

ABOUT THIS REPORT

According to WRAP, a UK based climate action NGO, extending clothing life presents the single largest opportunity to reduce the carbon, water and waste footprints of clothes[1].

This is the fourth pan-European study into the environmental impact of laundry behaviors and attitudes commissioned by AEG. The findings in the report are based on quantitative data collected from 14,000 adults across 14 European countries comprising Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and the UK.

This edition focuses on clothing care and, in particular, how to extend clothing life.

[1] WRAP, Design-extending-clothing-life

Contents

Introduction

The fashion industry's impact on the environment is well-documented, and the statistics remain alarming. Responsible for more annual greenhouse gas emissions than all international flights and maritime shipping combined[2], and contributing to 10% of global carbon emissions[3], its influence on the planet is only expected to grow.

Why we should care:

80bn

New clothing items purchased annually.[6]

36%

Decrease in clothing utilization[7]

In 2020, textile consumption in Europe ranked fourth globally in terms of environmental and climate change impact, third in water and land use, and fifth in raw material use and greenhouse gas emissions[4]. Predictions suggest the situation will worsen before improving. Global apparel production is projected to surge by 63% by 2030[5], equivalent to over 500 billion additional T-shirts. This is significant considering consumers already purchase more than 80 billion new clothing items annually[6].

Despite increased consumption, the number of times garments are worn before disposal is declining. Between 2000 and 2015, clothing utilization decreased by 36%[7], with some garments discarded after just seven to ten wears[8].

Extending the lifespan of clothing makes sense financially, socially, and environmentally. So why are clothes being discarded prematurely? This report, now in its fourth consecutive year and part of what is almost certainly, the largest ongoing study of laundry attitudes and behaviors across Europe, seeks to answer that question and more. We hope you find it useful.

[2] Ellen MacArthur Foundation, A new textiles economy: redesigning fashion's future (2017)

[3] Textiles and the environment: the role of design in Europe's circular economy — European Environment Agency (europa.eu)

[4] Ibid

[5] According to the Pulse of Fashion in 2017

[6] https://fashionunited.com/global-fashion-industry-statistics

[7] Ellen MacArthur Foundation, A new textiles economy: redesigning fashion's future (2017)

[8] Barnardo's, Survey of 1500 women as part of #MyBarnardosDonation – Campaign (2 015); Morgan, L.R. and Birtwistle, G., An investigation of young fashion consumers' disposal habits (2009)

About Electrolux Group

Electrolux Group is a leading global appliance company that has shaped living for the better for more than 100 years. We reinvent taste, care and wellbeing experiences for millions of people, always striving to be at the forefront of sustainability in society through our solutions and operations. Under our group of leading appliance brands, including Electrolux, AEG and Frigidaire, we sell household products in around 120 markets every year. In 2023 Electrolux Group had sales of SEK 134 billion and employed 45,000 people around the world. For more information go to www.electroluxgroup.com

Present in over 120 markets

Sales of 134 billion SEK during 2023

45,000 employees

Foreword

Who would not like their clothes to last longer and also live more sustainably? The answer, from our latest research, is the vast majority would. This, our fourth edition of the Truth about Laundry, explores what is holding us back.

Our relationship with clothing goes beyond mere practicality; it encompasses environmental stewardship and responsible consumption. The fashion industry's impact on our planet is substantial, from the excessive use of water and chemicals in production to the colossal volumes of textiles ending up in landfills and incinerators each year. As consumers, we hold significant power to influence change through our everyday choices, starting with how we launder our clothing.

By adopting mindful laundry practices—such as using lower temperatures, shortening cycle duration and reducing detergent usage —we can drastically lessen the carbon footprint of our clothing care routines. These seemingly small adjustments not only help preserve the quality and lifespan of our favorite pieces but also contribute to conserving precious resources and minimizing pollution.

Furthermore, changing our laundry habits aligns with a shift towards a more sustainable lifestyle overall. It encourages us to prioritize quality over quantity, investing in well-made garments that can withstand the test of time. When we treat our clothes with care, mend them when needed, and embrace timeless styles, we inherently reduce the demand for fast fashion and its detrimental effects on the environment.

On a personal level, rethinking our laundry practices fosters a deeper appreciation for the value of our wardrobe. It encourages us to savor each garment, recognizing the craftsmanship and effort that went into its creation. Through this lens, laundry becomes not just a chore but an act of mindfulness—a way to honor the resources that went into making our clothes and the planet that sustains us.

In this report, you will find practical advice, tips, and insights on how to optimize your laundry routine for longevity and sustainability. By making conscious choices about how we care for our clothes, we can contribute to a better future for ourselves and generations to come.

Sarah Schaefer

Vice-President Sustainability,
Electrolux Group

Foreword

In 2021 we published the results of a LCA (Life Cycle Assessment) study conducted on an AEG machine, comparing the Global Warming Potential (GWP) of a 40°C versus a 30°C wash[9]. The findings were clear: reducing the wash duration and temperature from 40°C to 30°C can significantly reduce the GWP by approximately 20-25%.

In practical terms, this means a single household could mitigate emissions simply by adjusting the machine dial. Expanding these insights across Europe to all households that currently wash at 40°C or higher, could have staggering potential. By shifting washing habits to lower temperatures, millions of kilograms of emissions could be spared across Europe each year.

This year we have gone further. We have established a new metric – the Care Index – that can evaluate different treatments and their impact on clothing deterioration. This methodology provides clear, evidence-based insights into how different washing programs affect garment lifespan, addressing consumer concerns about clothing durability and supporting the company's sustainability objectives.

Our study compared the impact of two washing cycles on several fabric types, reflecting two of the most popular owned items in the world – a cotton t-shirt and a pair of denim jeans. Our study showed that by using gentler washing programs the lifespan of these garments can be extended by over 50%.

Building upon this, we have developed the Care LCA model to quantify the environmental impact of different washing treatments on a garment's overall footprint. Similar to the Care Index, the Care LCA has a dual purpose: to provide reliable information that can guide consumer behavior and to measure the reduction in environmental impact achieved through AEG's innovative wash cycles and technologies.

The key message is to reduce the significant environmental footprint associated with garment production, we need to keep garments in use for longer. The two simplest ways of achieving that are to firstly, wear clothes more times in between washes and, secondly, wash them in gentler conditions. Namely, lower temperatures and shorter cycles.

This isn't just about saving resources though —it's about fundamentally reshaping how we approach clothing care for a more sustainable future.

Elisa Stabon (M.Sc Chemistry)

Head of Product Experience, Product Line Care, Electrolux Group

[9] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_TheReport-1.pdf

THE CARE INDEX

AEG

CHALLENGE THE EXPECTED

The Care Index

AEG has established a new methodology that can compare the impact of different washing treatments on the durability of clothes. Central to its development was answering two critical questions – one emanating from the Group's Sustainability Framework[10] and the second, relating to specific consumer needs.

Within its framework, the group has a goal of helping to make clothes last twice as long with half the environmental impact. The question to answer was therefore whether we could define how much longer clothes can last by applying different laundry behaviors.

Secondly, when considering consumer needs, and according to our own research, people wash their clothes for various reasons, from removing stains and odors to enjoying the sensation of freshly scented garments[11]. Despite these differing needs, laundry is often viewed as a chore and usually performed as quickly as possible[12].

Even so, the common expectation is that washing should not compromise the integrity and longevity of clothes, even when it's done in a hurry. While some wear and tear are inevitable with conventional washing, the second question to answer was whether this deterioration could be measured, and when is it considered acceptable?

To address these questions, we developed a robust laboratory methodology to produce measurable outcomes. Over the past seven years, we conducted numerous trials to refine this approach, making it versatile for various applications. Our research concluded that washing at lower temperatures and using shorter cycles can significantly extend the lifespan of clothes. This improvement can be measured by using the Care Index.

[10] https://www.electroluxgroup.com/en/better-living-35202/

[11] https://admin.betterlivingprogram.com/wp-content/uploads/2023/04/AEG-TRUTH-ABOUT-LAUNDRY-2023.pdf

[12] https://www.tandfonline.com/doi epdf/10.1080/15487733.2020.1785095?needAccess=true or https://www.vox.com/the-goods/21523419/laundry-hate-chore-washing-machine

The science behind the Care Index

The Care Index is an internal metric designed to compare the gentleness of two different washing treatments and quantify their impact on clothing deterioration, ultimately affecting garment lifespan.

In practical terms, the Care Index measures the number of laundry cycles needed to reach a specific level of color change—an indicator of the end of a garment's life—compared to a reference washing program.

$$\text{Care Index} = \frac{\text{N° washes selected cycle}}{\text{N° washes reference cycle}}$$

To determine the number of washes required to reach a garment's end of life, AEG researchers developed an internal protocol using a variety of fabrics. These fabrics were intentionally dyed and printed to represent different clothing types—such as t-shirts, polo shirts, and jeans—and the common dye varieties available on the market. The study focused on a 4 kg daily load, which is the most common laundry size washed in Europe, as evidenced by external research[13].

Through extensive laboratory testing, various scenarios were considered, with fabrics undergoing a sequence of washing treatments. Color changes were measured at different intervals using the standard Gray Scale methodology. The color degradation was regularly monitored throughout the testing phase. A fabric's end of life was determined when it reached a predefined level of color degradation. This level was identified by asking more than 600 panelists to provide feedback on fabric pictures, with different degrees of discoloration, to assess their acceptance limit before clothes disposal.

Steps run repetitively while monitoring the color degradation over time.

[13] https://link.springer.com/article/10.1007/s11367-023-02189-3 Mind the (reporting) gap—a scoping study comparing measured laundry decisions with self-reported laundry behaviour

How much longer can clothes last?

As previously mentioned, by applying the Care Index methodology the impact of different washing treatments on clothing durability can be compared.

Here, we present the results obtained from two relevant washing cycles: the Cotton 40°C cycle and the 59-minute cycle at 30°C. These cycles were chosen to assess the impact of wash temperature and cycle duration on garment longevity. Both cycles are available in AEG washing machines: the Cotton 40°C cycle is the most commonly used by European consumers[14], while the 59-minute cycle at 30°C is noted for its ability to effectively remove stains at lower temperatures and within a shorter time frame.

[14] https://admin.betterlivingprogram.com/wp-content/uploads/2023/04/AEG-TRUTH-ABOUT-LAUNDRY-2023.pdf

Longevity estimation

Applying the AEG protocol, we estimated that a t-shirt washed daily using the Cotton 40°C cycle will last for 23 cycles before it is considered for disposal, according to our research into color degradation acceptance levels, as previously mentioned. However, by opting for the gentler 59-minute cycle at 30°C, the garment's lifespan extends by over 50%, adding 13 extra washes. A similar trend was observed for polo shirts, with their lifespan increasing from 29 to 42 cycles when switching to the 59-minute cycle.

The impact extends to denim as well. A pair of jeans subjected to a regular 40°C cycle would typically be discarded after just 20 washes[15]. However, by switching to a 30°C cycle lasting 59 minutes, their lifespan increases by over 50%, with the same level of wear achieved after 31 washes.

These findings highlight the significant benefits of choosing gentler washing programs in extending the life of clothes, underscoring the value of the Care Index as a tool for evaluating and enhancing garment care.

Overall, the Care Index serves as a cutting-edge indicator to support the development of new technologies and washing cycles. It allows us to assess the gentleness of different treatments and estimate the end of life of a garment, paving the way for smarter, gentler, and more efficient laundry practices.

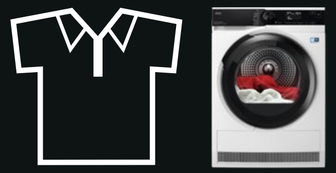
[15] http://mistrafuturefashion.com/wp-content/uploads/2015/06/Environmental-assessment-of-Swedish-fashion-consumption-LCA.pdf

T-shirt

Cotton @ 40° — 23 washes

59 minutes @ 30° — 36 washes

= Care index 1.57



Polo shirt

Cotton @ 40° — 29 washes

59 minutes @ 30° — 42 washes

= Care index 1.45

Jeans

Cotton @ 40° — 20 washes

59 minutes @ 30° — 31 washes

= Care index 1.55

The implications for clothing life and resource minimization

Building upon the scientific data from the Care Index, AEG has developed the Care LCA (Life Cycle Assessment[16]) model to quantify the environmental impact of different washing treatments on a garment's overall footprint. Similar to the Care Index, the Care LCA has a dual purpose: to provide reliable information that can guide consumer behavior and to measure the reduction in environmental impact achieved through AEG's innovative wash cycles and technologies.

This type of LCA will demonstrate the extent to which lowering wash temperatures and reducing cycle durations can affect the overall emissions associated with laundering clothes. It's not just theoretical—it's tangible proof of the transformative impact that simple changes in laundry habits can have on the environment.

The Care LCA goes beyond the washing machine. It considers the full lifecycle of selected clothing items (t-shirt, polo-shirt and jeans), and compares their environmental impacts across predefined impact categories.

[16] Life Cycle Assessment (LCA) is a recognized scientific method to measure environmental performance of products.

Continued

By encompassing all lifecycle stages, from fiber sourcing to garment disposal, this LCA approach underscores the importance of extending the life of garments during the Use Phase, where washing machines play a pivotal role.

Similar approaches have been advocated by institutes and researchers in the field of fashion, who are actively combatting greenwashing and promoting sustainability[17].

To make sure that we can confidently use the Care LCA results to provide useful information to our customers, we are now going even further.

After developing the methodology internally, we are actively collaborating with an external partner to validate our approach and findings. This rigorous validation process underscores our commitment to delivering accurate and reliable data to support informed decision-making towards a more sustainable future.

[17] Sustainable Fashion - Could it all be in the hands of the Consumer? — Veronica Bates Kassatly and https://www.wrap.ngo/taking-action/textiles/initiatives

KEY FINDINGS OF OUR RESEARCH

AEG

CHALLENGE THE EXPECTED

Key findings #1

8 Out of 10 consumers do care about clothes and extending clothing life

In order to encourage people to care more for their clothes, so that they can last longer, we wanted to establish whether people care enough about their clothes in the first place. The journey towards positive change can be more straightforward the more engaged people are to begin with. The good news is that more than 8 in 10 Europeans (84%) say they care about looking after their clothes and 39% of them feel very strongly about it.

If people are conscious about taking good care of their clothes, does this extend to wanting to make them last longer? Our previous research[18] says yes, with 83% wanting to extend clothing life and a further 86% recognizing that making clothes last longer is good for the environment.

39%
feel very strongly about caring for their clothes.

86%
recognize making clothes last longer is good for the environment.

[18] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

Key findings #2

Millions of clothes are either incinerated or end up in landfill each year because of avoidable laundry mistakes

Two thirds (66%) of Europeans have experienced that sinking feeling of opening the appliance to find an item of clothing shrunk or misshapen. Nearly three quarters (74%) have also experienced color fading. Color fading, according to independent analysis[19] of clothes that weren't good enough to resell or pass on, was one of the main reasons, along with piling, behind people discarding clothes.

The primary cause of these laundry mistakes often lies in selecting programs with excessively high wash or drying temperatures. Once colors fade, there's no guaranteed way to reverse the damage, leading to the disposal of millions of clothing items each year. This issue is far from insignificant.

The average European[20] throws away over 6.5kg[21] of clothes[22] each year, 87% of which are either incinerated or end up in landfill. It's the equivalent of nearly 13.5 tons of clothes being discarded every day, long before the majority needs to be[23].

87%

Europeans discard an average of 6.5kg of clothing, which is equivalent to 13.5 tons a day.

[19] https://environment.ec.europa.eu/news/fast-fashion-common-reasons-garments-are-discarded-2022-11-16_en

[20] EU Monitor, The impact of textile production and waste on the environment

[21] Wood Mackenzie presentation, Product developments in manmade fibres: Is cotton able to compete? (2016)

[22] Excluding footwear

[23] Fashion Revolution

Key findings #3

The majority of Europeans want to know more about how to extend clothing life

If the majority of adults care about extending clothing life, might it stand to reason they know how to? Not according to our research. Nearly 9 out of 10 Europeans (87%) say they want to know more about how to prolong clothing life.

According to WRAP[24], extending clothing life can deliver exponential savings on carbon, water, waste, and can reduce the number of items which end up in landfill or are incinerated.

While extending clothing life is ultimately about wearing items more, the critical piece is in knowing how to best care for them. 58% of Europeans think that clothes generally wear out too quickly but too few of them consider the impact of laundry practices.

87%

want to know more about how to prolong clothing life.

58%

think clothes generally wear out too quickly.

[24] https://www.wrap.ngo/resources/report/design-extending-clothing-life

Key findings #4

People do not know which factors have greatest impact on clothing life

Nearly two thirds (62%) of Europeans do not realize the way they launder has a major effect on how long their clothes last. People most commonly think that fabric quality has the biggest influence.

While it certainly plays a role, we will see from the Care Index that adjusting temperature and cycle duration can increase the life of a T-shirt and a pair of jeans by over 50%.

Only 12% of Europeans think that cycle duration has an impact on clothing life when it can have a substantial influence. Less than a fifth (16%) thought detergent type and 59% do not realize the number of times you wash a garment ultimately reduces its life.

12%

think that cycle duration has an impact on clothing life.

59%

do not connect wash frequency to garment lifespan.

Key findings #5

Autopilot laundering sees spike but signs of positive change are encouraging

74%

Nearly three quarters of Europeans stick to the default wash temperature.

As the Care Index has shown, two of the key influences on extending clothing life according to our methodology are temperature and cycle duration. Generally, the cooler and shorter the wash, the longer the item of clothing will last.

According to AEG's own data, the most commonly used setting, on a washing machine, tends to be a 40°C cottons setting where the cycle duration can often be between 90 and 120 minutes, if not longer.

Ideally, people should therefore be considering whether the default setting is appropriate or not. In future they might also consider choosing an appliance that has the lowest optimal setting as default. For example, across three of their newest ranges, AEG has over 70% of programs default to 30°C or 20°C.

However, do consumers know what the default settings for temperature and cycle duration are and, if they do, do they realize they can be changed?

Nearly three quarters of Europeans (74%) stick to the default wash temperature with nearly a third (30%) not knowing they could change it. It's an increase of 5% on last year. It's a similar story on cycle duration with 78% deciding to stick to the default (+5% on last year) with 35% not knowing it could be changed.

However, even though laundering using default settings – or autopilot laundering – is on the increase, positive change has been recorded. Since our 2023 report there has been a 13% increase in the number of people actively reducing wash temperature (17% vs 4%) and a 9% increase in people reducing washing time (13% vs 4%).

1.0

ALL ABOUT CLOTHES

AEG

CHALLENGE THE EXPECTED

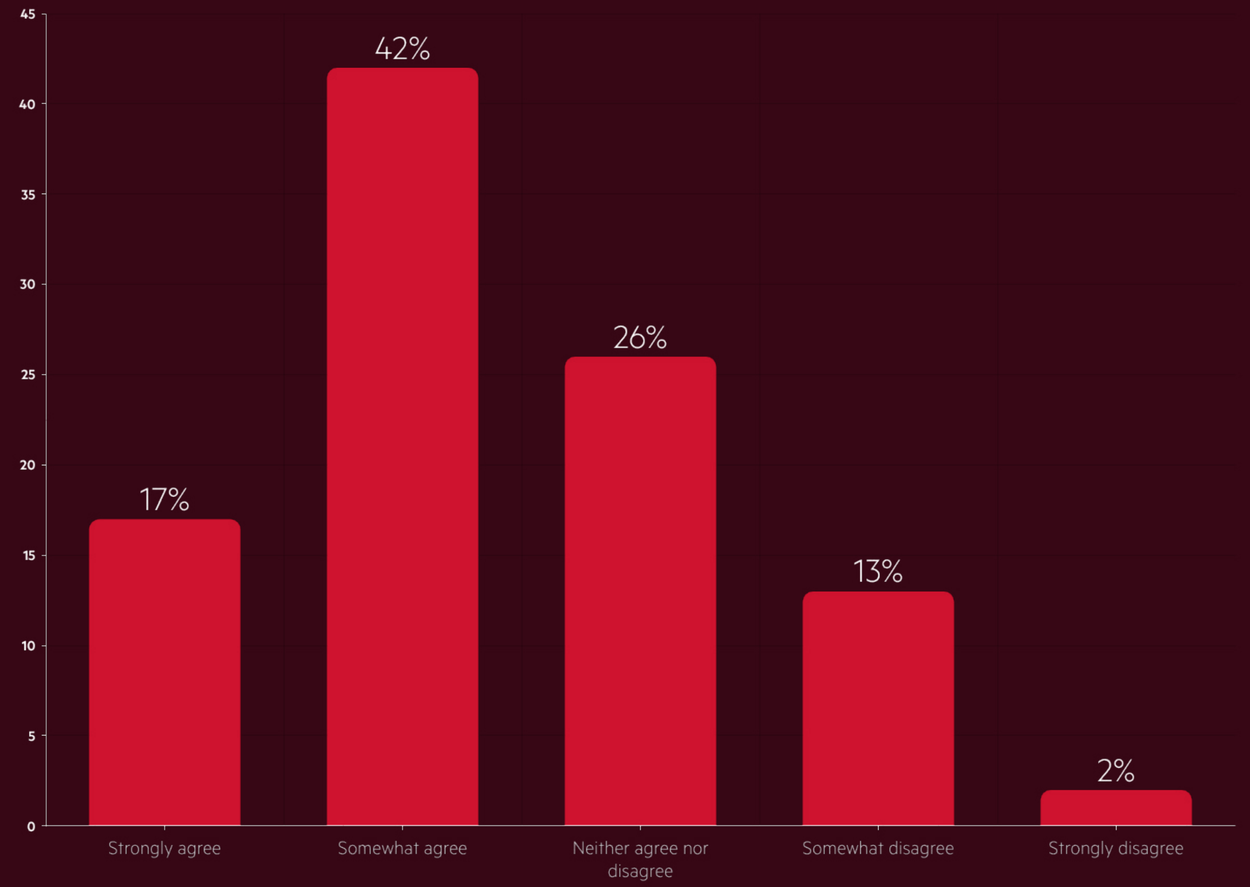
1.1 Clothing wear-out

The prevailing sentiment among Europeans is that clothes deteriorate too rapidly, with 58% holding this view, and 17% expressing strong agreement. However, age plays a significant role in shaping opinions on this matter. For instance, 70% of individuals aged 25–34 agree with this sentiment, whereas fewer than half (47%) of those aged 55–64 share the same perspective.

58%

of Europeans hold the view that clothes deteriorate too quickly.

Q. To what extent do you agree or disagree with the following statement: "I think clothes generally wear out too quickly"?

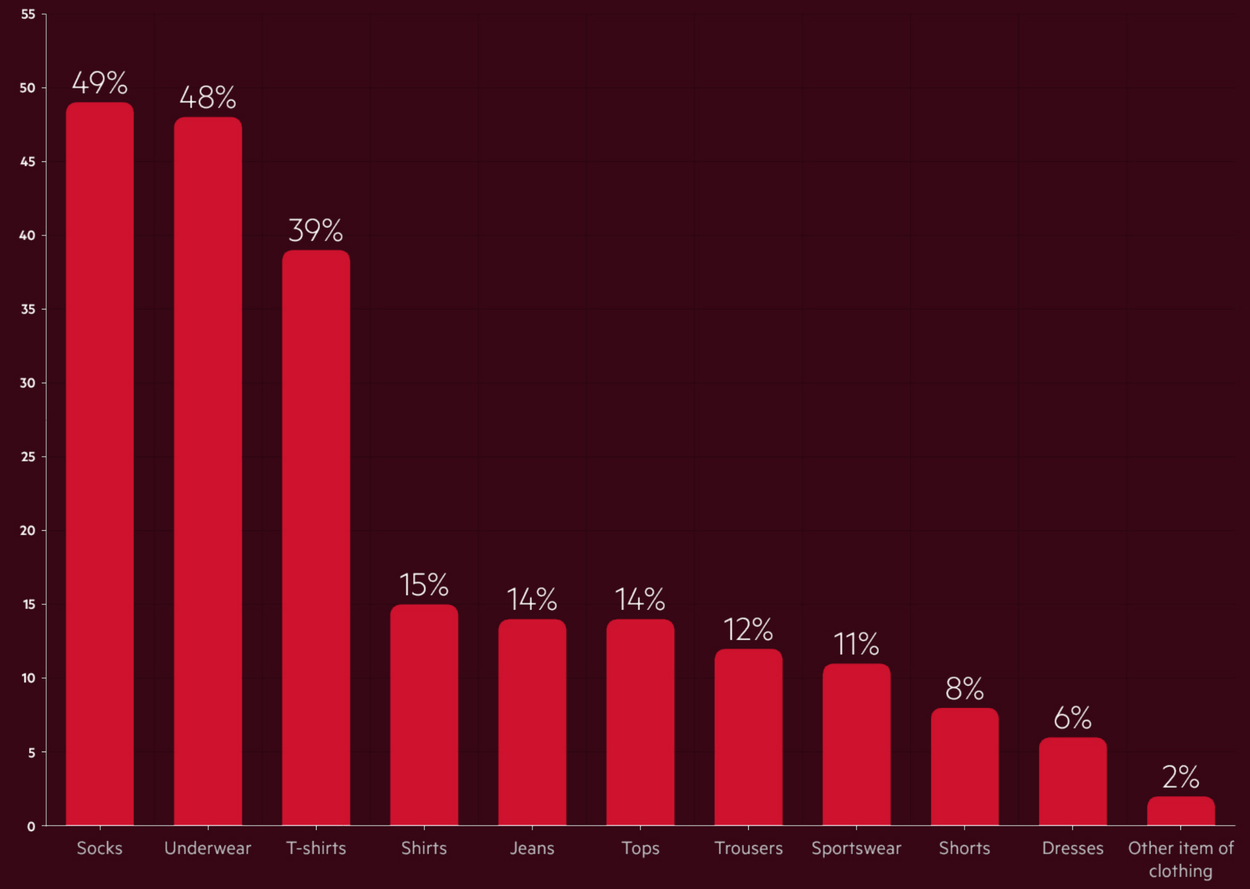


1.1 Continued

In terms of which items of clothes wear out the quickest, according to our 2021 Truth about Laundry[25], apart from socks and underwear, it was t-shirts, jeans and tops which topped the list.

[25] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

Q. Which items of clothing do you find wear out the quickest (i.e. have the shortest lifespan)?



1.2 Do cheaper clothes last longer?

There is a commonly held view within fashion and lifestyle media particularly, that equates higher price tags with better quality. However, our research challenges this widely held belief, particularly among Europeans. Surprisingly, only 41% of respondents believe that pricier clothing items last longer, while 35% argue that they endure just as well as their less expensive counterparts.

But what does science say? A study investigated the physical durability of women's black cotton T-shirts after laundering and how consumers' perceptions of quality and wear expectations relate to the price of the garment . The T-shirts ranged from $4 to $100. It concluded there is a disconnect between perceived quality based on price and the actual physical performance of the garments.

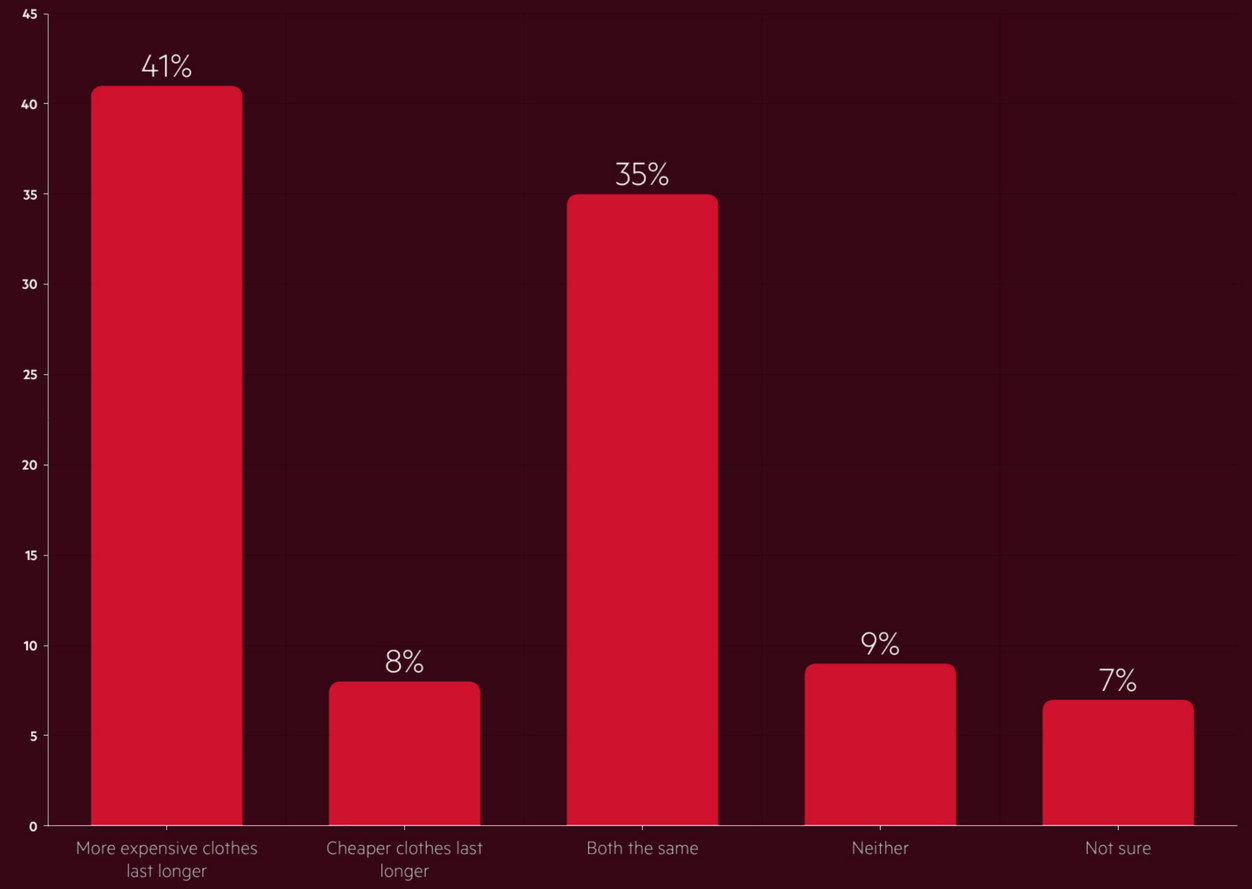
For example, consumers expected lower-priced T-shirts to change in color and shape after laundering, typically within 1 to 10 washes. However, color did not change a perceptible amount until 30 washes for all the T-shirts. Unlike higher priced T-shirts, however, lower priced T-shirts did display other changes after a low number of washes such as unravelling of seam stitching.

41%

believe more expensive clothes last for longer than cheaper clothes.

[26] https://www.mdpi.com/2071-1050/12/21/8906

Q. Do you think that more expensive clothes last for longer or cheaper clothes last longer?



1.2 Continued

When the performance of the two lowest-priced T-shirts were tested (A: $4 and B: $9), they responded very differently to laundering. The $9 T-shirt (B) changed the most when laundered. It was also the least well made. In contrast, the cheapest T-shirt (A) was more durable with respect to all aspects of durability except width change, where there was no significant difference between T-shirt brands.

Beyond the choice of pricey versus budget-friendly attire, there's been a surge in the popularity of buying pre-loved or secondhand clothes across Europe in recent years. According to a report by Oxfam[27], if every adult in the UK purchased half of their wardrobe secondhand, it could prevent a staggering 12.5 billion kilograms of carbon dioxide emissions from entering the atmosphere.

From our research, 42% of Europeans have purchased a pre-loved clothing item in the past year, with the trend particularly pronounced among the younger demographic, where 59% of 18–24-year-olds have embraced secondhand shopping.

59%

of 18-24-year-olds have purchased a pre-loved item of clothing in the past year.

[27] https://www.oxfam.org.uk/mc/37tj7n/

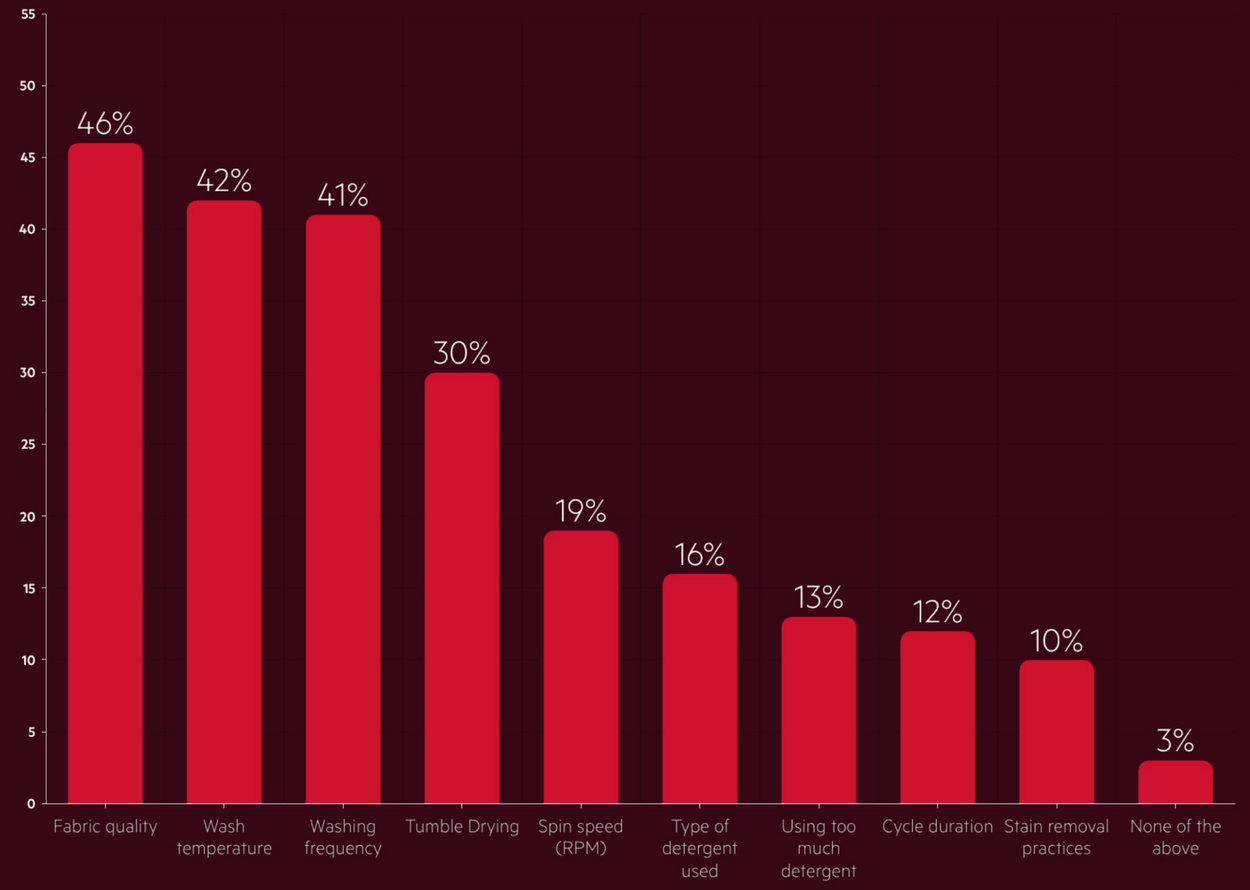
1.3 What leads to wear and tear?

Understanding what leads to wear and tear on clothing is crucial for extending their lifespan. The Care Index has, we believe for the first time, quantified the reduction in clothing life resulting from using a regular 40°C cotton cycle. It shows that simply switching to a 30°C wash and opting for a shorter cycle can significantly prolong a garment's durability. Moreover, it's important to note that warmer washes not only lead to greater color loss but can also result in significant microfiber release[28].

The type of detergent used is another factor. Many powders contain bleach, which is highly effective for whitening but can cause brightly colored clothes to fade, thus impacting a garment's overall appearance and increasing the likelihood of it being discarded early. Despite their effectiveness in cleaning, powders can often have a greater impact on Global Warming Potential (GWP)[29] and can negatively affect textiles and their care. Furthermore, using excessive detergent can intensify these negative effects.

According to our latest research, most Europeans are not fully aware of these factors contributing to clothing wear and tear. While 46% of adults believe fabric quality plays the most significant role, wash temperature (42%) and wash frequency (41%) also rank high in their perceptions. Conversely, factors such as the type of detergent used (16%), excessive detergent usage (16%), and cycle duration (12%) are less recognized by the public.

Q. Which, if any, of the following factors do you think makes the biggest contribution to the wear and tear of clothes? [select up to 3]



[28] https://doi.org/10.1016/j.dyepig.2019.108120

[29] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

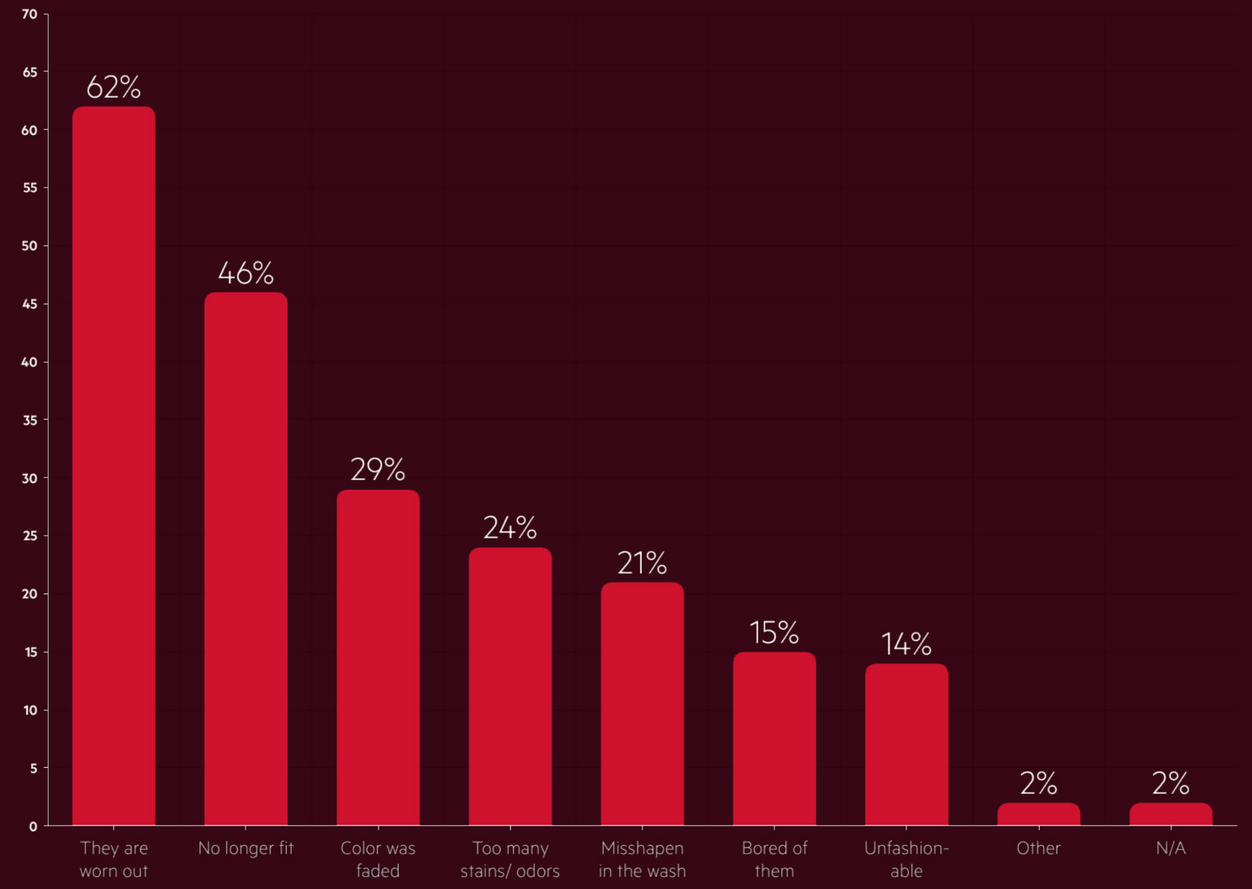
1.4 Why do we get rid of clothes?

In its Clothing Durability Report, WRAP[30] highlighted the significance of color in consumers' decision-making processes when purchasing new clothes. Not only does color influence initial buying decisions, but it also plays a pivotal role in determining when a garment is perceived as reaching the end of its lifespan. The report emphasizes that even though garments may still function perfectly well in terms of technical performance, the fading of deep colors and discoloration of light shades can give the impression of aging.

Additionally, other research underscores that fading and pilling are major reasons prompting individuals to dispose of their clothing[31].

According to consumers, just under half (46%) reported clothes no longer fitting as a key reason for not wearing /discarding clothes. But overridingly, the majority of reasons given are heavily influenced by laundering practices. Factors such as garments becoming worn out (62%), experiencing color fading (29%), acquiring stains or odors (24%), and becoming misshapen in the wash (21%) all contribute to decisions regarding clothing retention or disposal. Notably, these issues can be mitigated, and clothing lifespan extended, through adopting different laundering approaches. Better care could also help to fuel the second-hand clothing market.

Q. Excluding socks and underwear, what is the main reason for you stopping wearing/discarding items of clothing? [select up to 3]



[30] http://www.wrapni.org.uk/sites/files/wrap/Clothing-Durability-Report-LCA.pdf

[31] https://environment.ec.europa.eu/news/fast-fashion-common-reasons-garments-are-discarded-2022-11-16_en

2.0

WASH TEMPERATURES

AEG

CHALLENGE THE EXPECTED

2.1 The benefits of turning to 30°C and below

The temperature we choose to wash our clothes is one of the most impacting factors influencing clothing longevity, energy costs and therefore the carbon footprint when it comes to laundry.

Benefit#1 – Increases clothing longevity

Washing at 30°C or lower increases clothing life. It's that simple. The Care Index confirms this, demonstrating that washing a cotton-colored T-shirt at 30°C for 59 minutes can increase its lifespan by over 50%.

Benefit#2 – Combatting Waste and Color Fading

The impact of garment disposal is staggering, with millions of tons being incinerated or ending up in landfills every year[32]. A significant contributor to this waste is the rapid fading of colors, often accelerated by higher washing temperatures. In addition to the Care Index, studies from Leeds University and Procter and Gamble reveal that washing at 40°C for 85 minutes results in greater color loss and transfer compared to a quick, cold cycle at 25°C for 30 minutes[33].

Benefit#3 – Reduces energy costs

Up to 85% of an appliance's environmental impact occurs in the home[34]. Research has also shown washing clothes at 30°C rather than higher temperatures will save around 40% of the energy used each year[35].

2.1 Continued

Benefit#4 – Reduces Global Warming Potential (GWP)

A simple adjustment in washing temperature can have a profound impact on reducing emissions. Lowering the wash temperature from 40°C to 30°C decreases the Global Warming Potential (GWP) by approximately 25% during the use phase. By making this switch, households could save up to 27.2 kilograms of CO_2 equivalent emissions per year, contributing to a better future[36].

Benefit#5 – Reduces microplastic release

Laundering synthetic clothes accounts for 35% of primary microplastics released into the environment. A single laundry load of polyester clothes can discharge 700,000 microplastic fibers that can end up in the food chain[37]. Wash temperature and cycle load are significant factors with the majority of microplastic fibers released within the first few times of a new garment being washed[38].

[32] Ellen MacArthur Foundation, A new textiles economy: redesigning fashion's future (2017)

[33] https://www.sciencedirect.com/science/article/pii/S0143720819320431?via%3Dihub

[34] Based on Electrolux Group Life Cycle Assessments across global product categories and markets. Data available upon request

[35] Energy Savings Trust, Save Energy in your Home

[36] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

[37] https://www.europarl.europa.eu/news/en/headlines/priorities/fighting-plastic-pollution/20181116STO19217/microplastics-sources-effects-and-solutions

[38] European Environment Agency (2022) Microplastics from textiles.

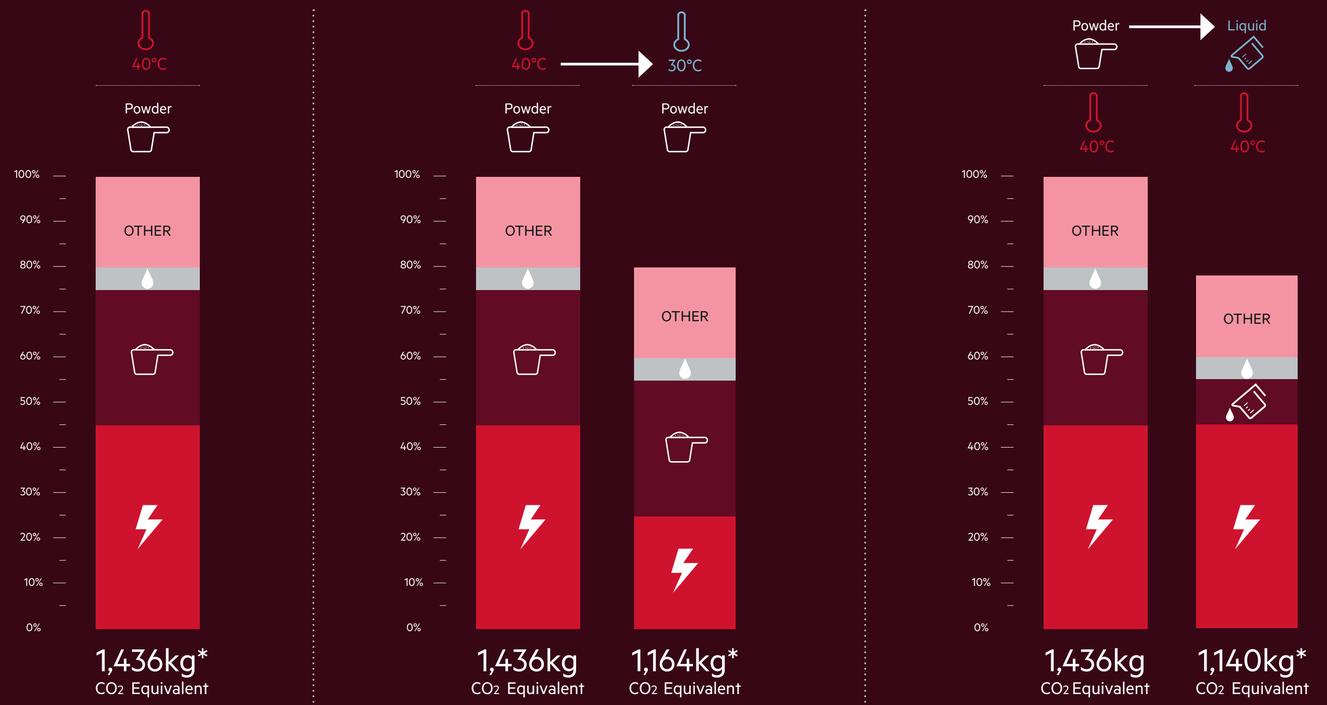
2.2 Are defaults influencing Europe's hotwash preference?

This is our fourth year of monitoring wash temperatures across Europe. We have done that through both quantitative means, by asking which temperature people usually use, and qualitative means. Quantitatively, we've surveyed individuals to understand their typical wash temperatures, while qualitatively, we've analyzed data from connected appliances within the Group. In 2023 alone, this connected data enabled us to analyze millions of wash cycles.

While our data sets consistently show a decrease in the use of hotter wash temperatures over the past four years, they also underscore the enduring preference for washing at 40°C and above. Over half of European households primarily opt for temperatures of 40°C and higher.

In 2021, we demonstrated that a reduction in wash temperature from 40°C to 30°C could yield a substantial environmental benefit, saving over 27 kilograms of CO_2 equivalent per household annually (refer to illustration). Considering that 44% of households, based on the mean average from both data sets, predominantly wash at 40°C, the potential CO_2 savings, solely within the EU and UK, could amount to as much as 2.7 million tons per year if they transitioned to 30°C.

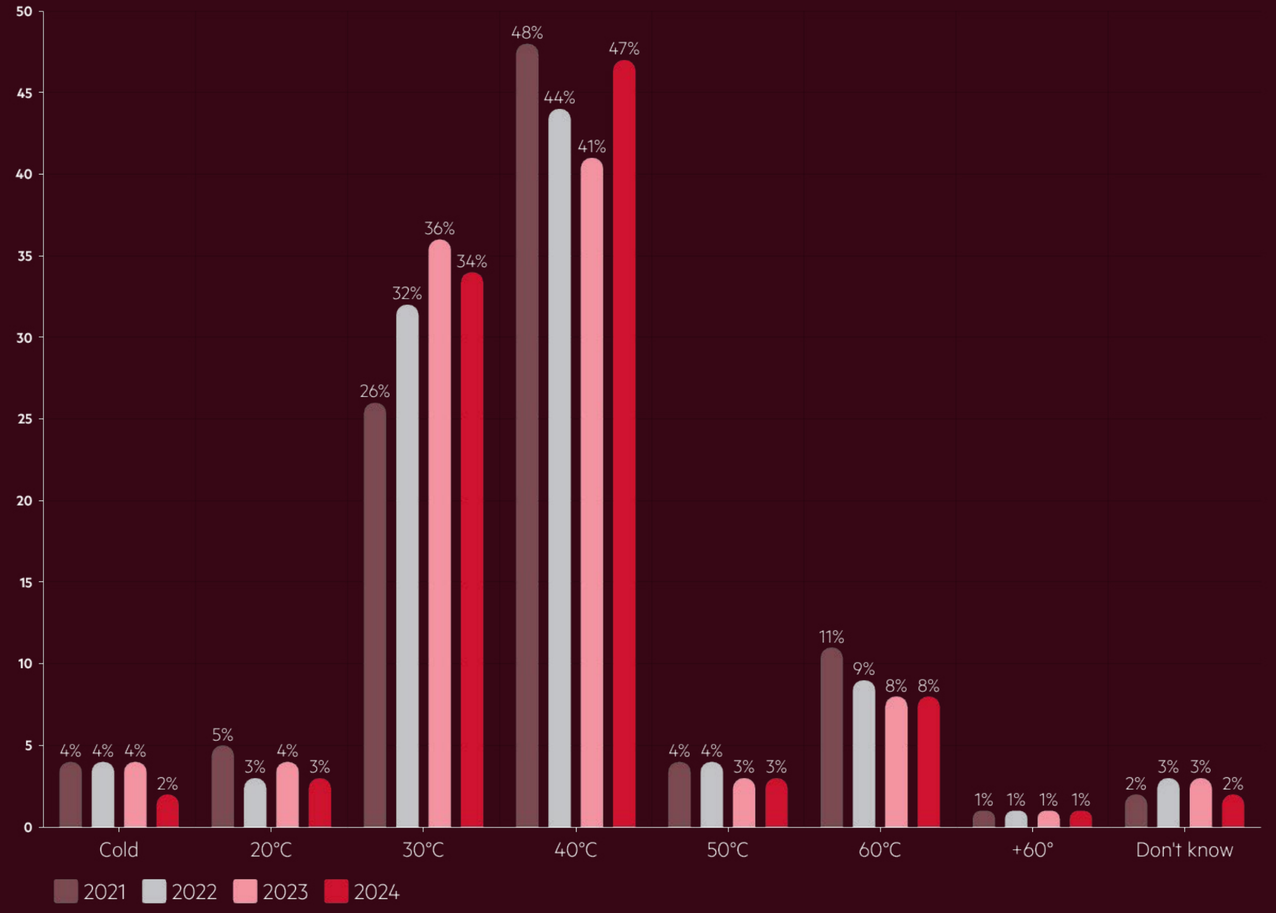
Global Warming lifecycle impacts vs key factors in use phase of a washing machine. Source: The Truth About Laundry, 2021



2.2 Continued

So, why haven't more households embraced the 30°C option? It's worth noting that, according to AEG's own data, the most commonly used laundry cycle across Europe is a 40°C cotton cycle. Could the preference for hotter washes simply stem from default settings on washing machines and a tendency for consumers to engage in autopilot laundering, where they aren't fully consciously aware of their choices?

Quantitative data drawn from responses from 12,000 to 14,000 adults across 12 to 14 European countries



2.3 Autopilot laundering

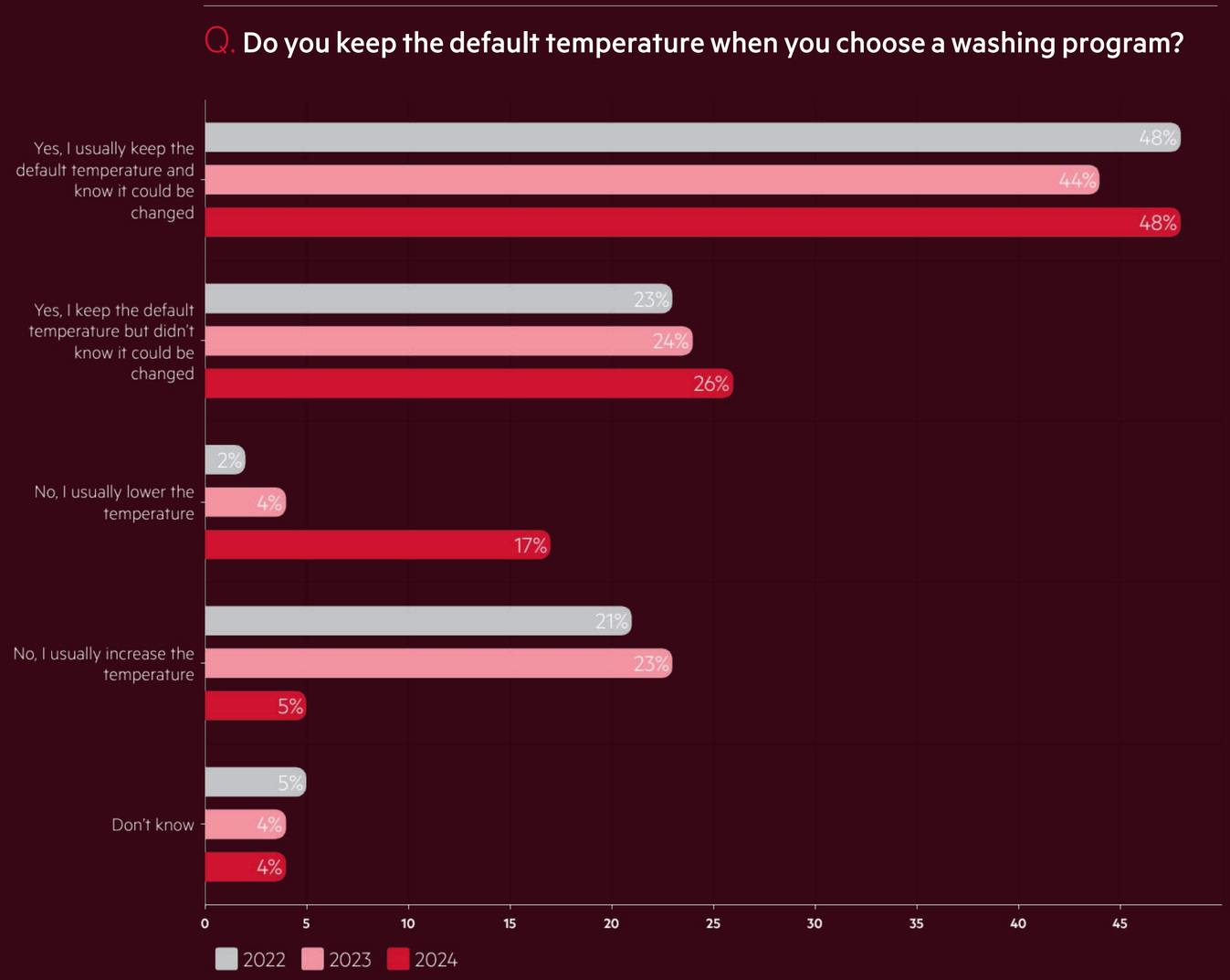
The 40°C cotton cycle reigns as the favored laundry choice among European adults. However, this preference comes at a cost—it accelerates clothing wear and intensifies global warming potential compared to washing at 30°C[39]. Unless specific hygiene standards or heavy soiling necessitate it, a 30°C wash is absolutely fine for everyday wear. So, what's behind Europeans' steadfast adherence to higher temperatures?

One contributing factor is autopilot laundering—a hurried approach to laundry, often without much consideration, leading individuals to stick with default settings. Nearly three-quarters of Europeans (74%) typically maintain the default temperature, with 48% aware of the option to adjust it but opting not to do so. This trend has persisted stubbornly over the past three years. In response, in its newest range, AEG has nearly 70% of programs default to 30°C or 20°C.

There's been a positive shift, however, with 17% of people now actively choosing lower wash temperatures—an encouraging increase from the 4% reported last year.

74%

typically maintain the default temperature.



[39] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

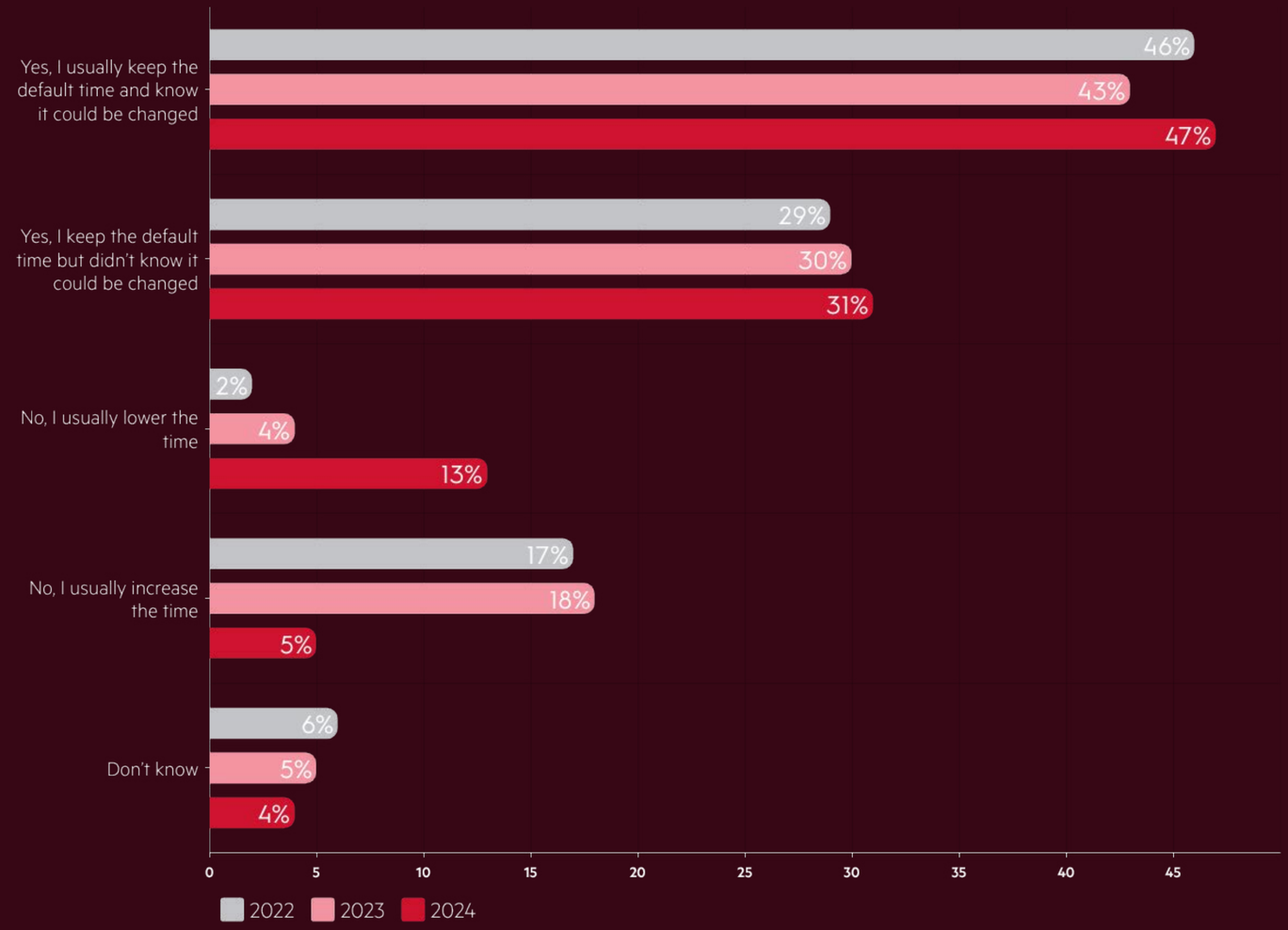
2.3 Continued

A similar pattern emerges with cycle duration, where 78% of adults adhere to default times, with nearly half (47%) aware of the option to adjust but choosing not to. Yet, there's a glimmer of progress, with 13% now actively reducing cycle duration—a notable 9% increase from last year.

78%

stick to default cycle duration.

Q. Do you keep the default time when you choose a washing program?



2.4 Perceptions out of sync with actions

When surveyed about the effects of washing at lower or higher temperatures on clothing longevity, a majority (54%) expressed belief in the benefits of lower temperatures. Nearly a third (31%) either believed it made no difference or were uncertain. Reflecting on their most recent experience washing at 30°C or lower, 66% either expressed satisfaction with the outcome or didn't give it much thought. Only a minority reported issues: 14% found stains remained, 12% felt their laundry wasn't sufficiently clean, and 11% noted lingering odors.

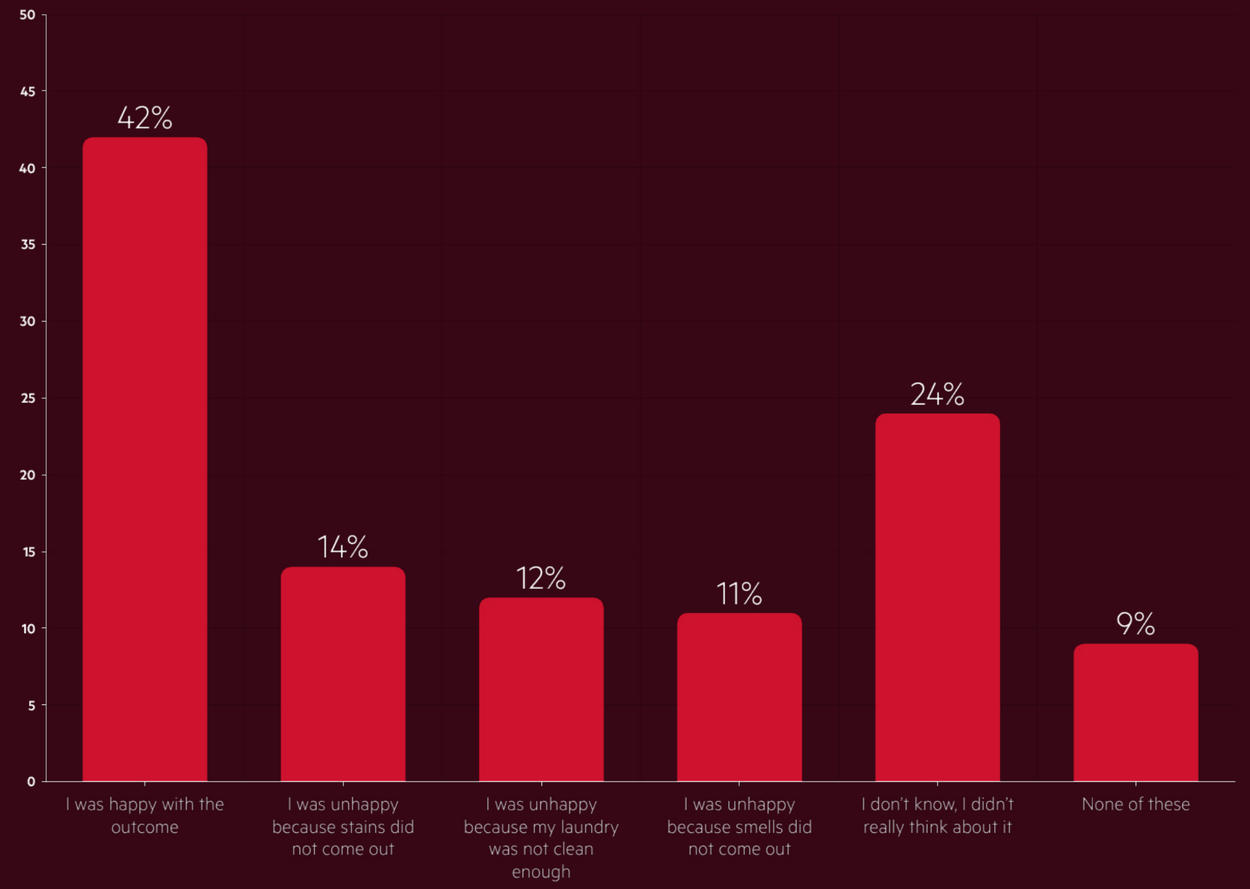
31%

were uncertain that lower temperatures could improve clothing longevity.

37%

reported negative experiences washing at lower temperatures.

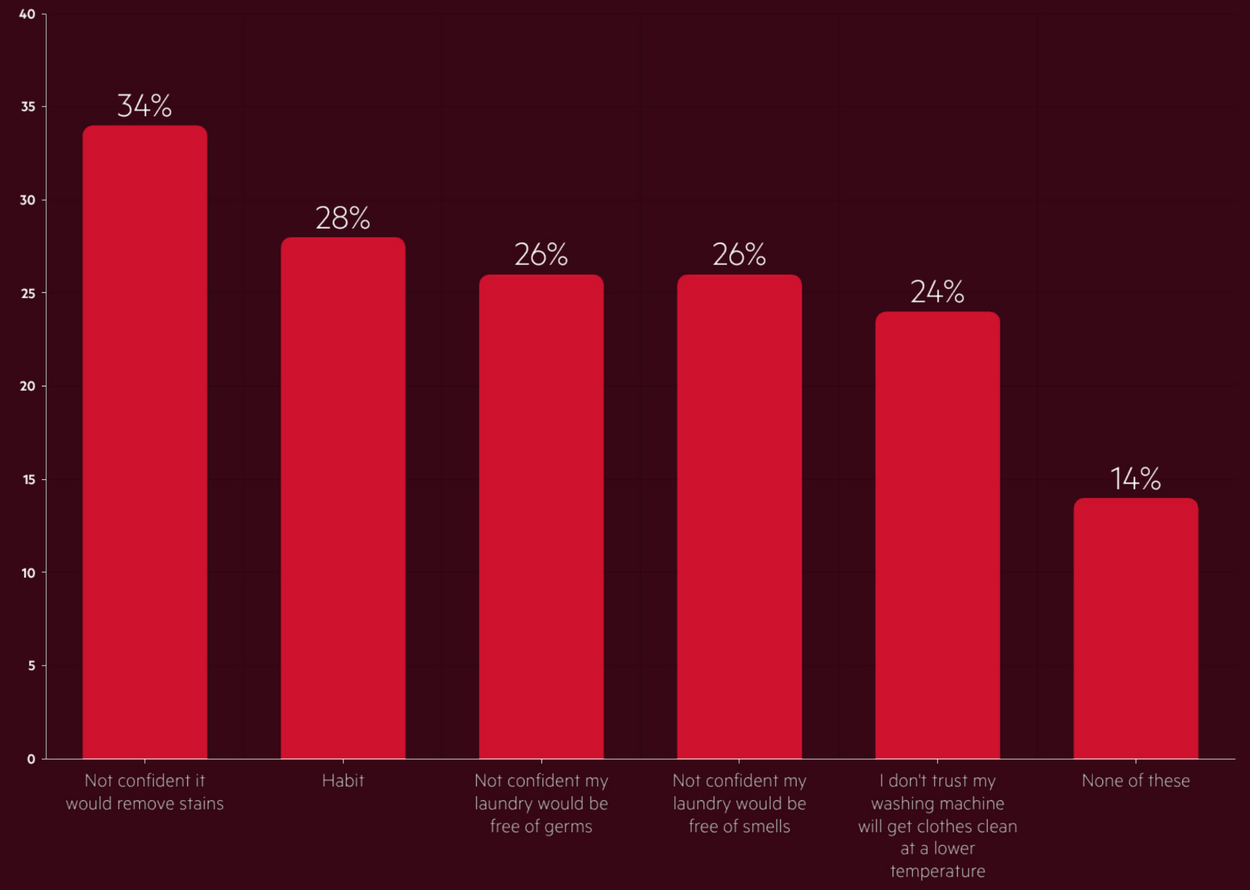
Q. Please think back to the last time you washed at 30 degrees or lower. Which, if any, of the following describes the outcome? [Select all that apply]



2.4 Continued

Despite a degree of awareness of the positive impact on clothing lifespan and generally positive experiences with lower temperatures, there are still barriers in the way of change. Some barriers are habitual, with 28% of adults attributing their reluctance to wash at lower temperatures to sheer habit. Others are rooted in perception rather than experience. A comparison between the table below and the previous findings reveals clear disparities between the perceived and actual outcomes of washing at 30°C.

Q. Which, if any, of the following stops you from washing clothes at lower temperatures, such as 30 degrees or less, more often? [Select all that apply]



28%

of adults are reluctant to wash at 30° due to habit.

2.5 What would encourage temperature change?

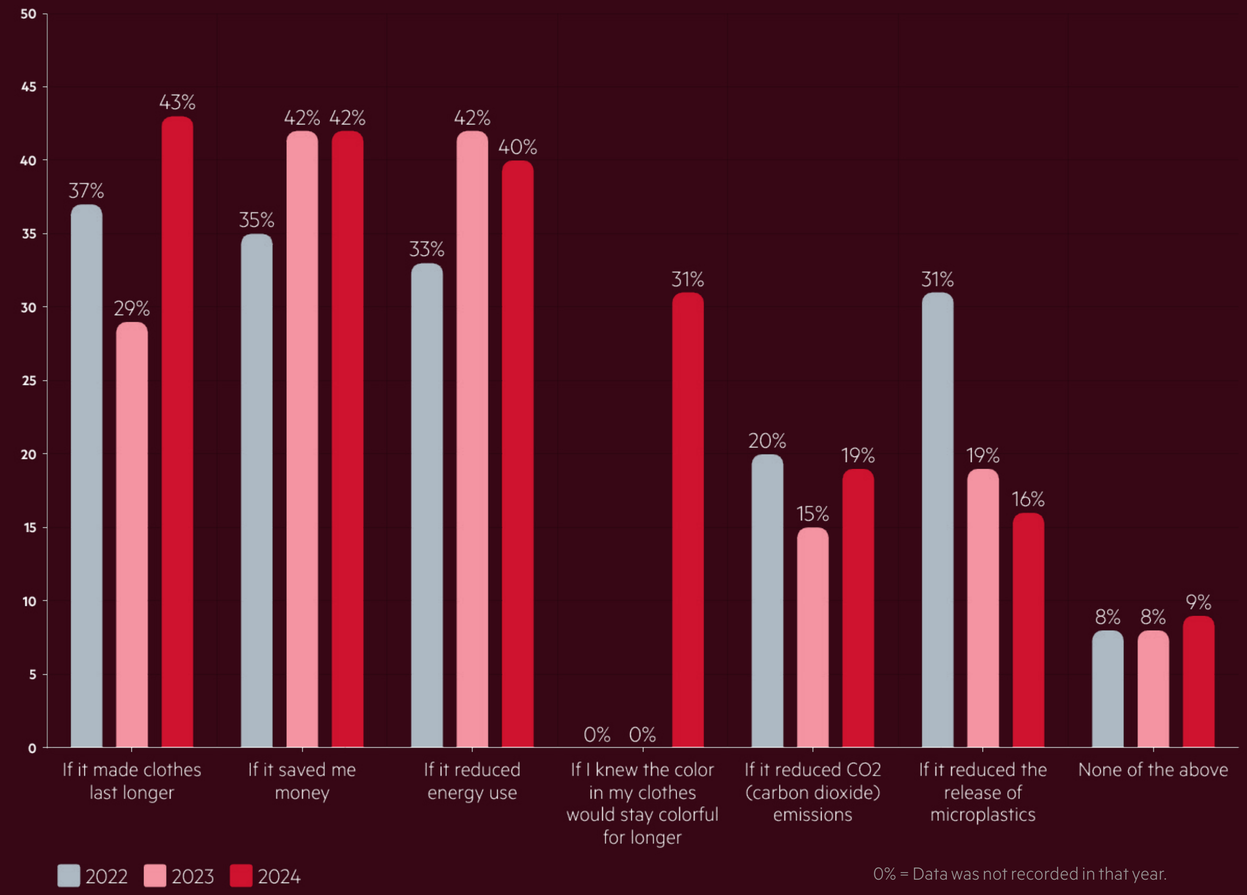
Over the past three years, we've been investigating the factors that would encourage individuals to wash at lower temperatures more frequently. In 2022, 37% of Europeans identified "extending clothing life" as the primary benefit. However, in 2023, concerns regarding energy conservation and cost savings took precedence. In our latest research, while monetary (42%) and energy-related benefits (40%) remain significant, the desire to prolong clothing lifespan has surged from 29% to 43%.

There has been a surge in the desire to prolong clothing life:

FROM **29%**

TO **43%**

Q. Which, if any, of the following benefits would encourage you the most to wash at lower temperatures (i.e. 30°C or less) more than you currently do? [Select up to 2 options]

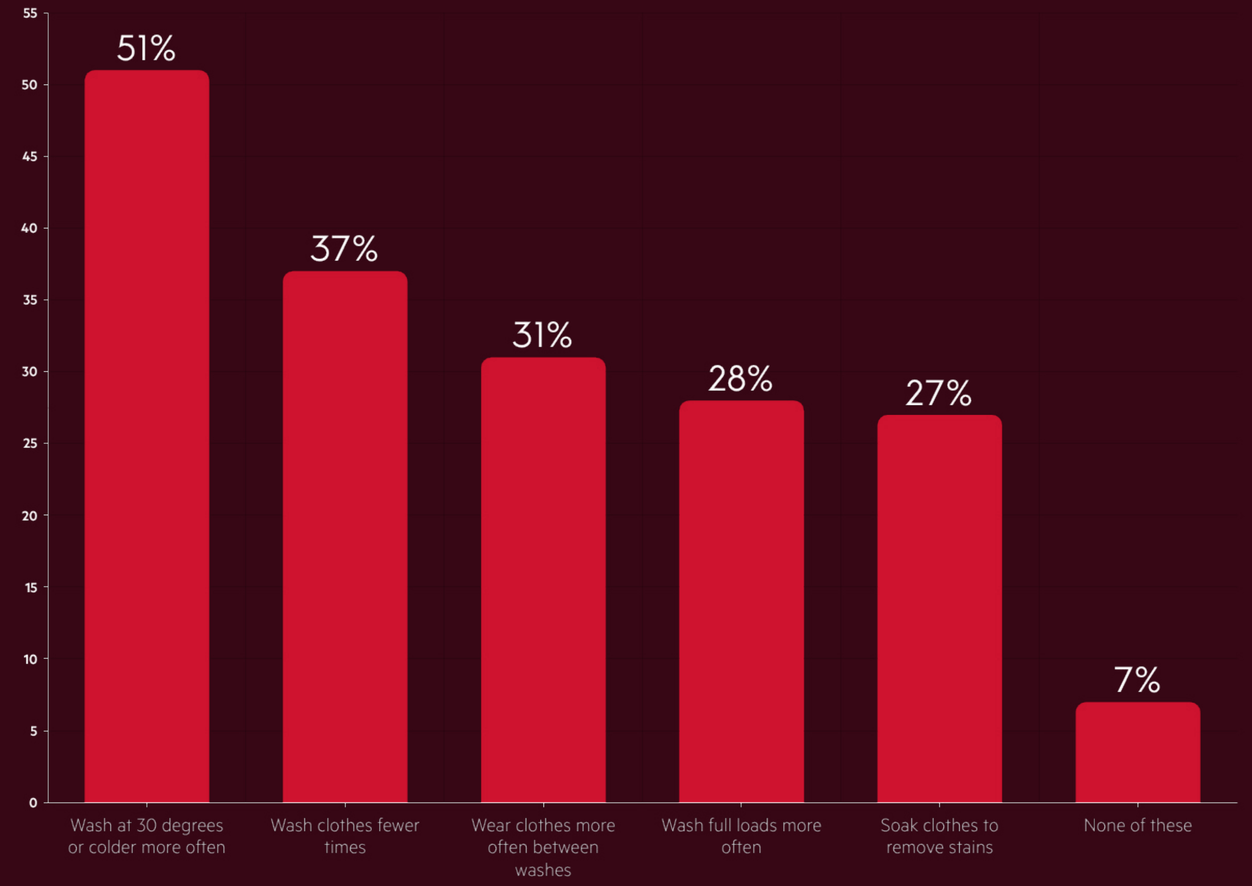


0% = Data was not recorded in that year.

2.5 Continued

When asked what they would be willing to do more of to extend clothing life, over half (51%) expressed willingness to wash more frequently at 30°C or lower.

Q. Which, if any, of the following would you be prepared to do (more of) if it meant your clothes lasted longer? [Select all that apply]



3.0

LAUNDRY BLUNDERS AND TECHNOLOGY

AEG

CHALLENGE THE EXPECTED

3.1 Laundry blunders and technology

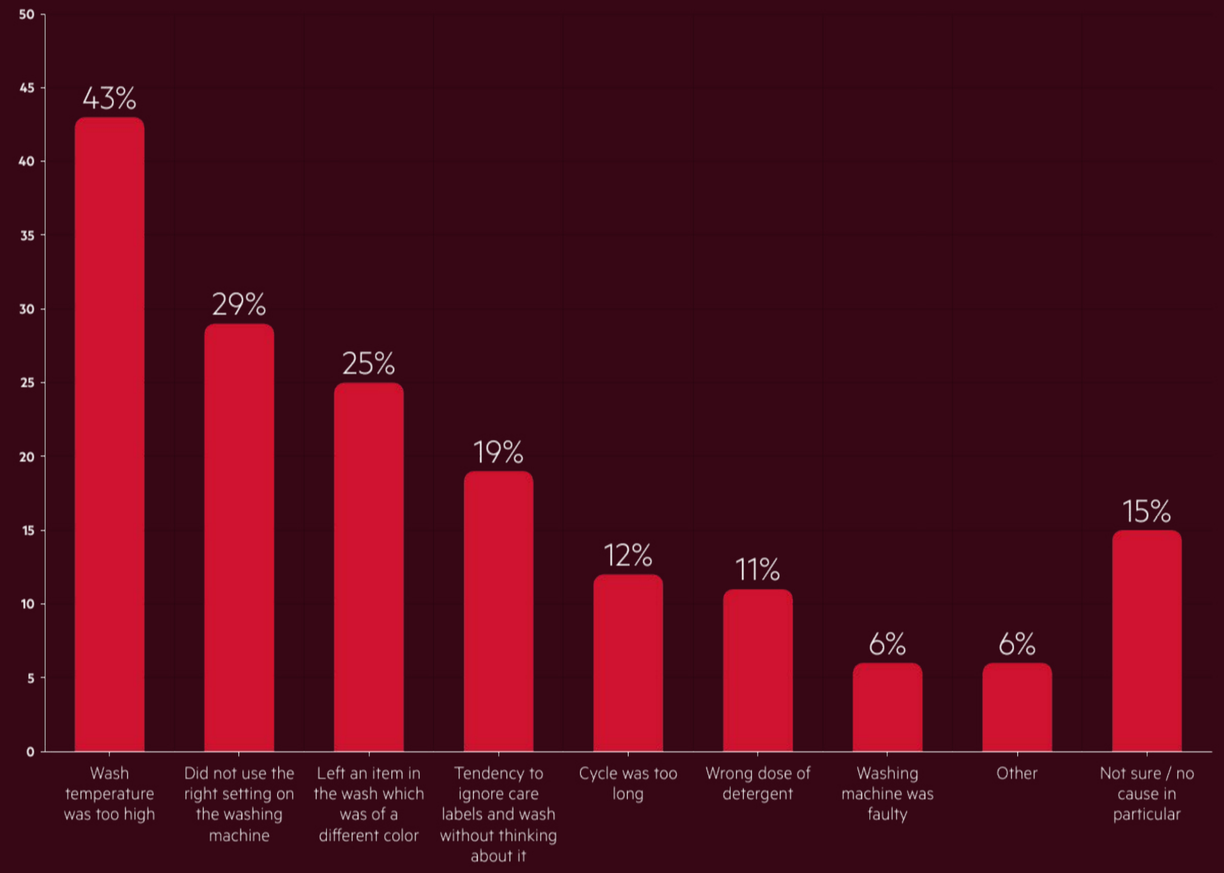
35% of Europeans claim to have never experienced shrinking an item of clothing in the wash or dryer. A significant majority (74%) have witnessed color fading from their clothes, while over half (54%) have encountered misshapen garments upon removing them from the drum.

When asked about the reasons behind these 'laundry blunders', only 6% attributed them to appliances. Excluding the 15% who were unsure, nearly 80% acknowledged that the blunders were a result of their own actions. The most common reason cited was the temperature being too high.

74%

have witnessed color fading from their clothes.

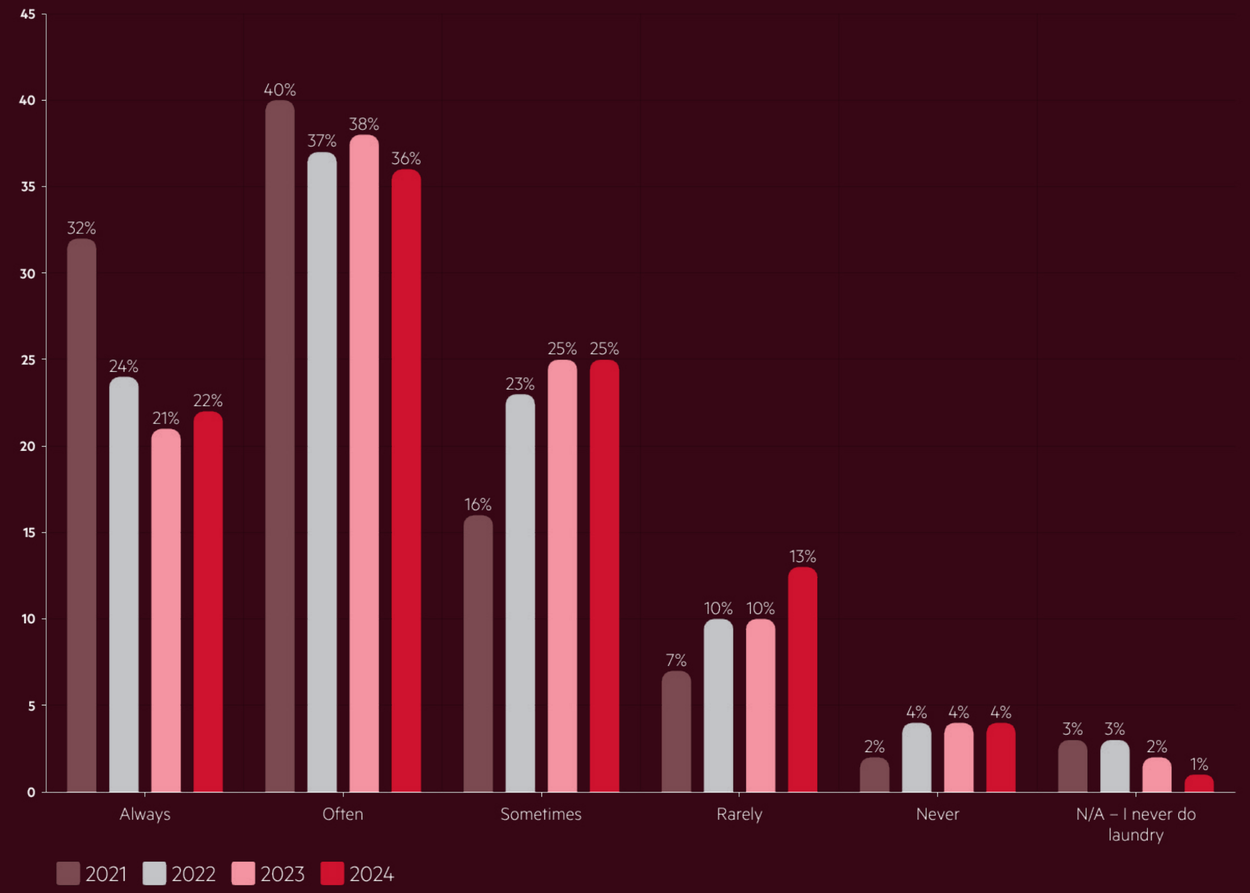
Q. What do you think was the cause of your clothes becoming shrunk, misshapen, or faded? [select all that apply]



3.1 Continued

Given that excessive temperature is often the primary cause of clothing damage, we sought to understand how often people adhere to care label instructions. Our research indicates a steady decline in following care labels, with 10% fewer people since 2021, consistently adhering to the provided guidance. It's essential to note that the temperature indicated on a label signifies the maximum temperature for washing, not necessarily the recommended temperature.

Q. How often do you follow the washing instructions on the care label when doing laundry?



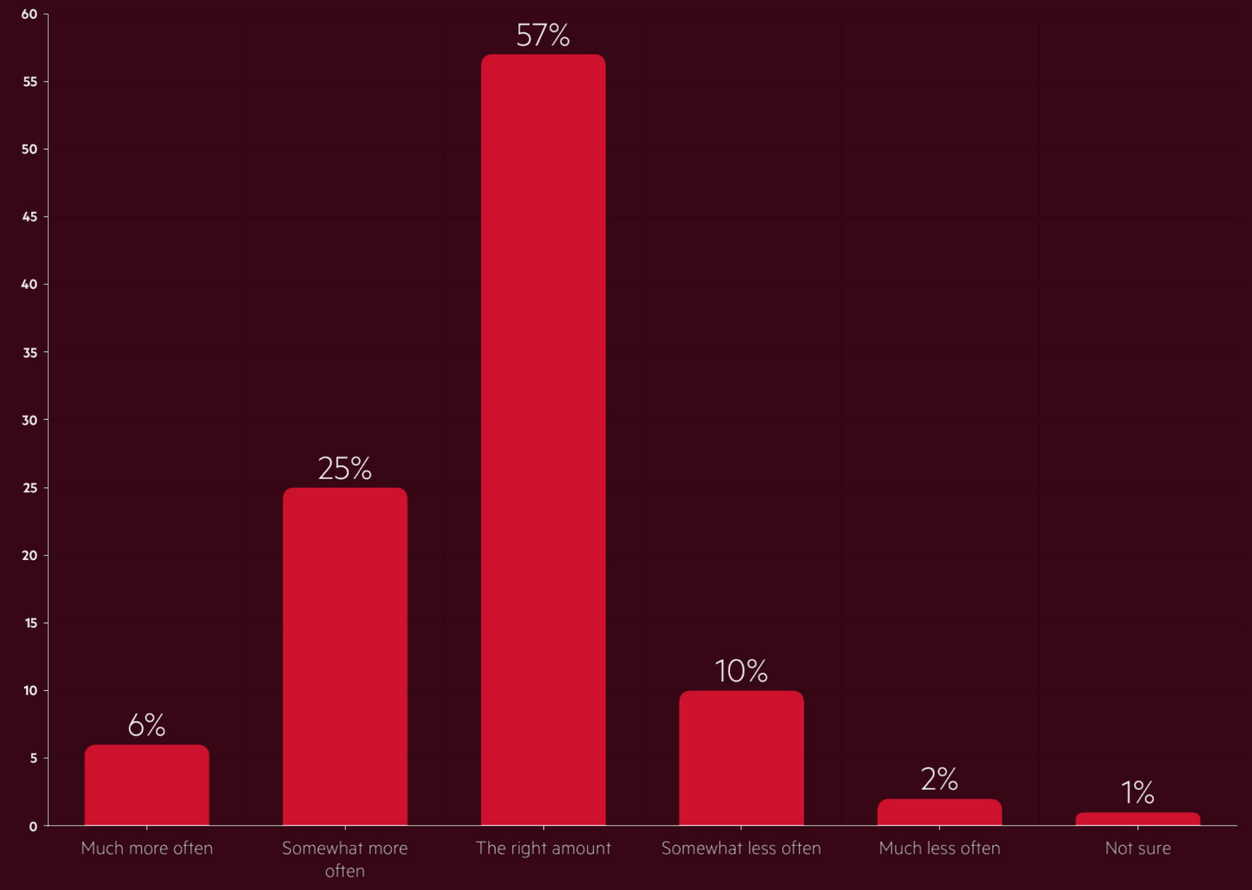
3.2 Wash frequency

With each wash, an item of clothing not only wears out more rapidly but also heightens the risk of laundry mishaps. A recognized way of extending clothing longevity is to wear clothes more often between washes. Consider jeans as an example. Estimates vary between 3 billion and 4.5 billion pairs of jeans are bought each year, globally. Levi's, one of the world's largest jean brands, recommends washing jeans "once every ten times at most [40]".

Yet our research has shown 65% of Europeans launder their jeans after just 5 or fewer wears[41], with 54% also opting for wash temperatures of 40°C or higher.

When we asked whether people think they wash their clothes too often or not, 57% said just the right amount and 31% admitted to washing too frequently.

Q. Do you think you wash your clothes more often or less than they need?



65%

of Europeans launder their jeans after just 5 or fewer wears.

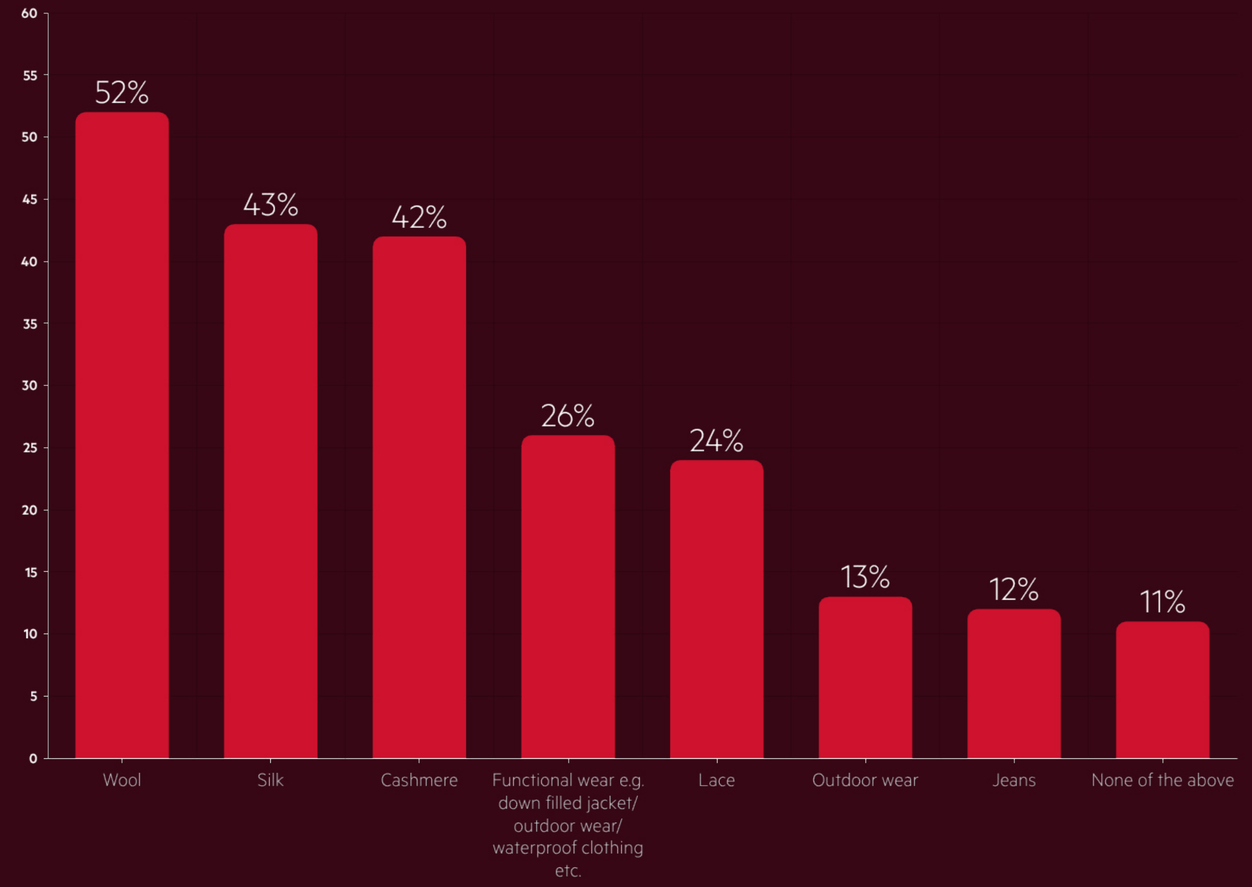
[40] Levis how to wash and care for your denim.

[41] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

3.3 Fabrics we're most nervous about washing

One significant reason for premature garment damage may stem from how we launder certain fabrics. Our research indicates that the fabrics people are most apprehensive about laundering in a washing machine are wool, followed closely by silk and cashmere.

Q. Which, if any, of the following fabrics/materials are you nervous about laundering in a washing machine? [select all that apply]

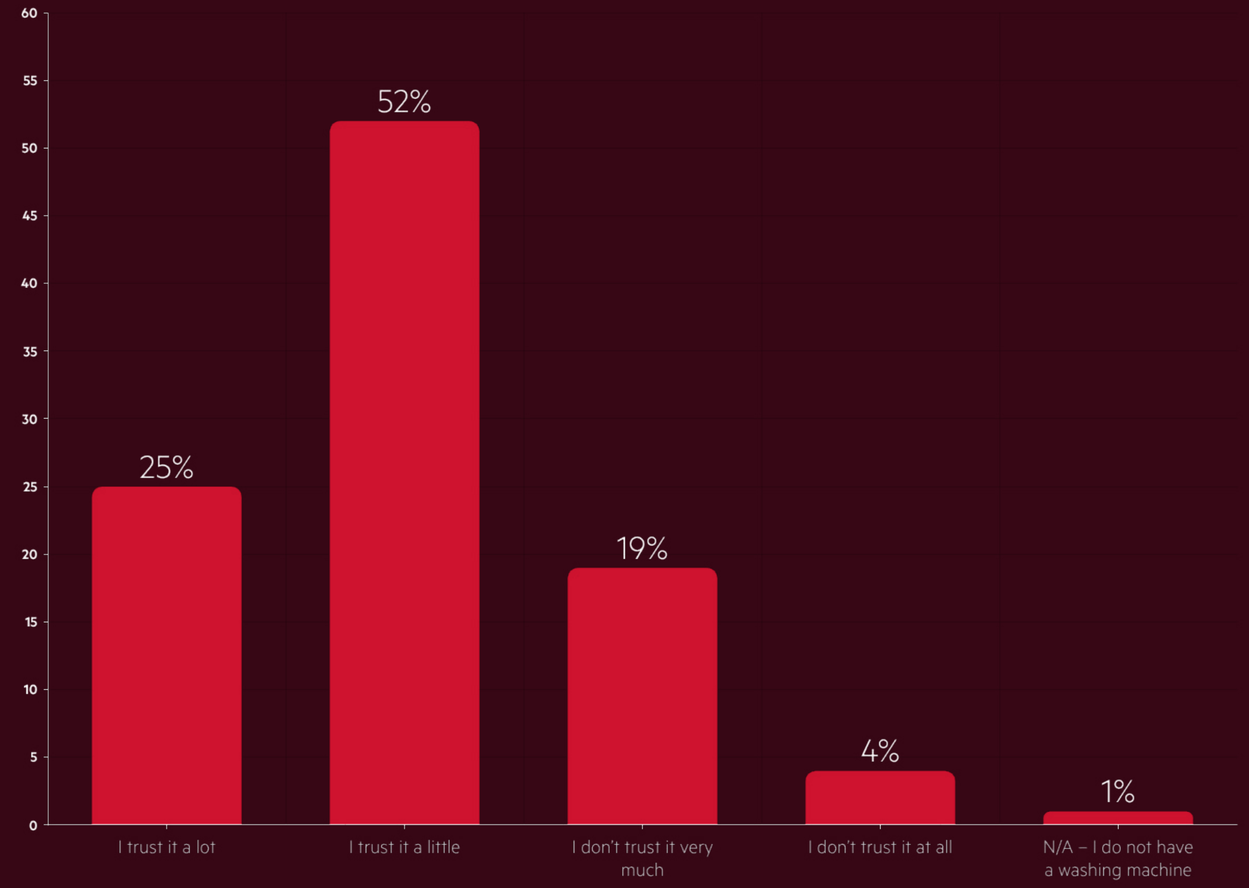


3.3 Continued

While modern appliances often feature specific functions for delicate fabrics, our findings suggest that apprehension surrounding laundering delicates still exists. 77% of respondents expressed a degree of trust in their machines when washing delicates, with a quarter (25%) stating a high level of trust.

However, unraveling our nervousness around laundering delicates reveals a multifaceted issue. When asked why they don't trust their machines, nearly half of all adults (48%) cited a reluctance to risk damaging their clothes. Additionally, 25% expressed concerns about the expense of their garments, while another 25% had experienced damage to an item in the past. Only 15% attributed their lack of trust to an aging machine, and 9% reported not having a delicates setting available.

Q. How much do you trust your washing machine, if at all, when it comes to cleaning delicate fabrics such as silk and wool?



25%

only a quarter of respondents trust their machine a lot when washing delicates.

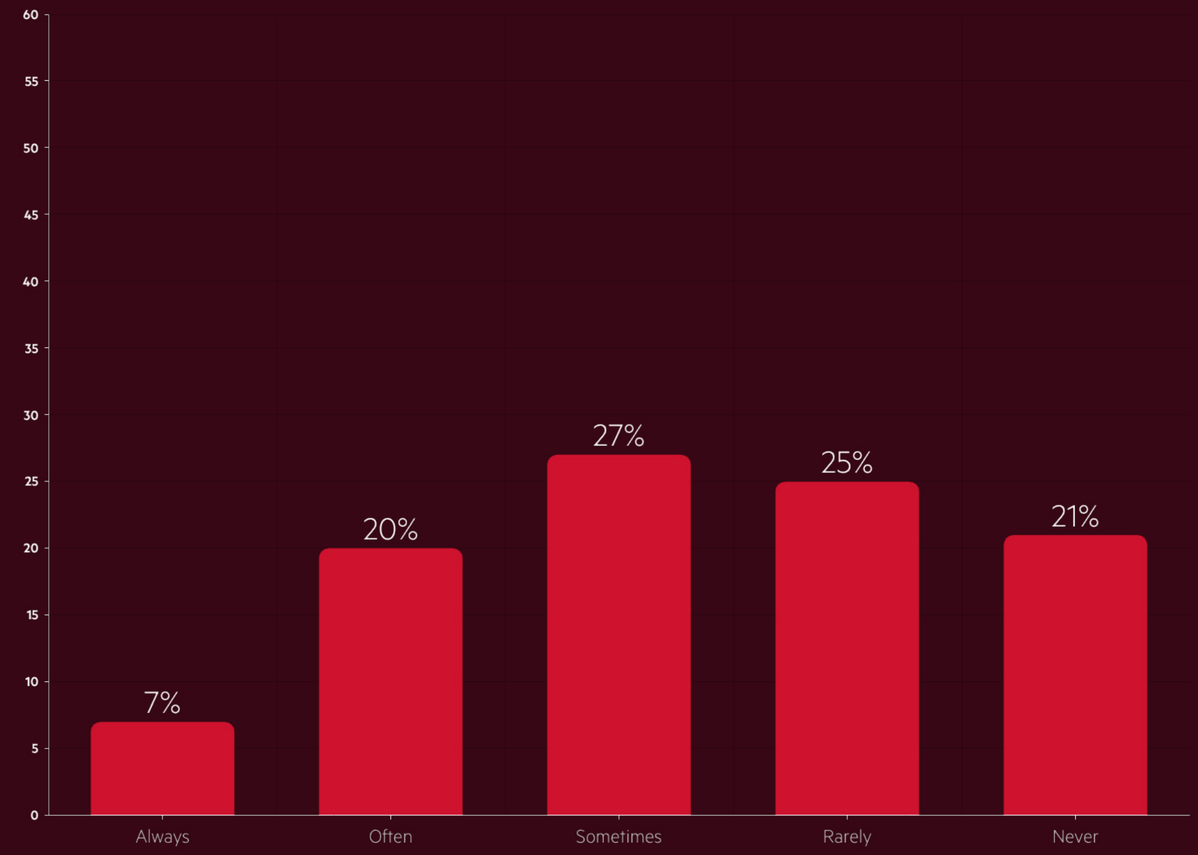
3.4 How well are we utilizing technology?

In 2021, 45% of Europeans expressed uncertainty about fully utilizing the technology their appliances offered[42]. However, considering the prevalent reliance on default programs and reluctance to utilize appliances for delicate fabrics, this figure now seems underestimated. Additionally, 92% reported finding it easy to follow instructions, although over a fifth (22%) admitted to never reading them.

This year, our research delved deeper into how often people consult instructions when it comes to selecting the optimal setting. Choosing the right setting not only helps to mitigate laundry mishaps but it can also make clothes last longer and conserve resources. Only 7% reported always referring to the instructions, with an additional 20% indicating they do so often.

Like other aspects of our laundry research, disparities exist between self-reported behavior and actual practice. While respondents find appliance usage straightforward and claim to have read the instructions, our data from connected appliances, alongside insights from partners and qualitative data, suggest that many fail to fully realize the technology's potential.

Q. Thinking about the instruction manual that came with your washing machine, how often do you refer to it when it comes to choosing the best setting for your laundry?



[42] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

3.5 Could steam technology accelerate change and cut down on blunders?

A popular “laundry hack” involves steaming garments in the shower, which allegedly reduces the need for ironing. However, this method is time-consuming and can consume significant water and energy. What if this concept was integrated into laundry appliances? Could steam technology revolutionize laundry practices?

In our research, we highlighted some the benefits of using a steam function to respondents. These can include using less water per cycle, as well as diminishing wrinkles so minimizing the necessity for ironing.

When asked whether they would seek out a steam function in their next washing machine purchase, over half (57%) expressed likelihood, with this figure rising to 62% among individuals aged 25 to 44.

The implications of steam technology on reducing wash frequency and water usage could be profound. Garments like shirts and T-shirts could be worn multiple times before washing, leading to significant resource savings. Moreover, the benefits extend beyond just shirts—steam technology could play a pivotal role in reshaping the behaviors of the 65% of adults who launder their jeans after only five wears or less[43].

[43] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

4.0

LAUNDRY GUILT, ENERGY AND THE RISE OF ECO

AEG

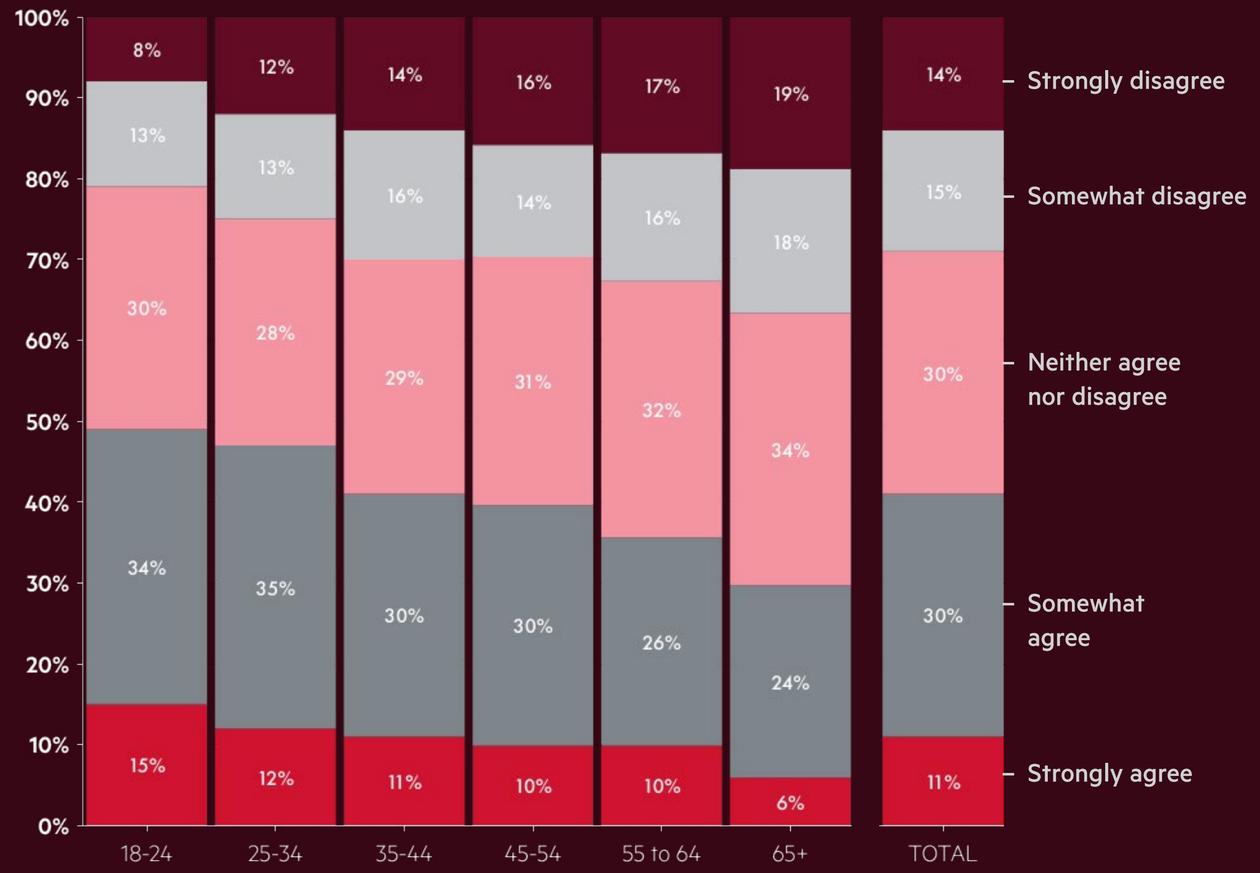
CHALLENGE THE EXPECTED

4.1 Laundry Guilt

We've been monitoring people's attitudes towards the environmental impact of laundry for the past four years. It's a gauge of their awareness of the ecological implications. Interestingly, there has been a decline in the level of guilt associated with laundry. This decline could perhaps be explained by lower levels of media exposure given to laundry induced microplastic pollution.

However, there is reason for optimism, particularly regarding the sentiments expressed by younger generations. Nearly half (49%) of 18- to 24-year-olds and 47% of 25- to 34-year-olds report feeling a degree of guilt about the environmental impact of laundry.

Q. To what extent do you agree or disagree with the following statement: 'I often feel guilty about the impact that doing laundry has on the environment/planet'?



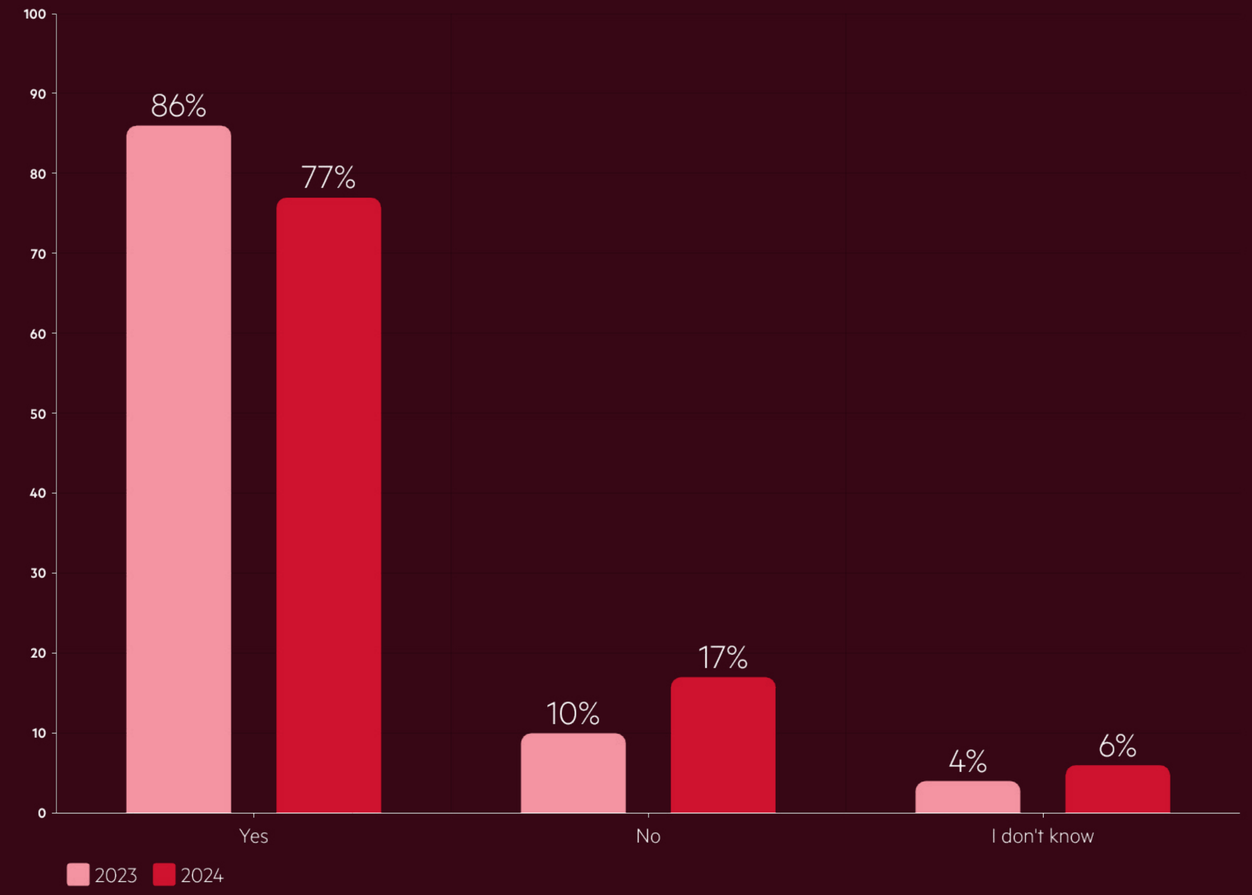
4.2 Energy

Last year's report centered on resource efficiency, driven partly by concerns over escalating energy costs and their impact on laundry attitudes and behaviors. At that time, a significant majority of Europeans (86%) indicated efforts to reduce in-home energy usage. Despite a 9% decline over the past twelve months, energy reduction remains a priority for 77% of Europeans.

77%

of Europeans prioritize energy saving.

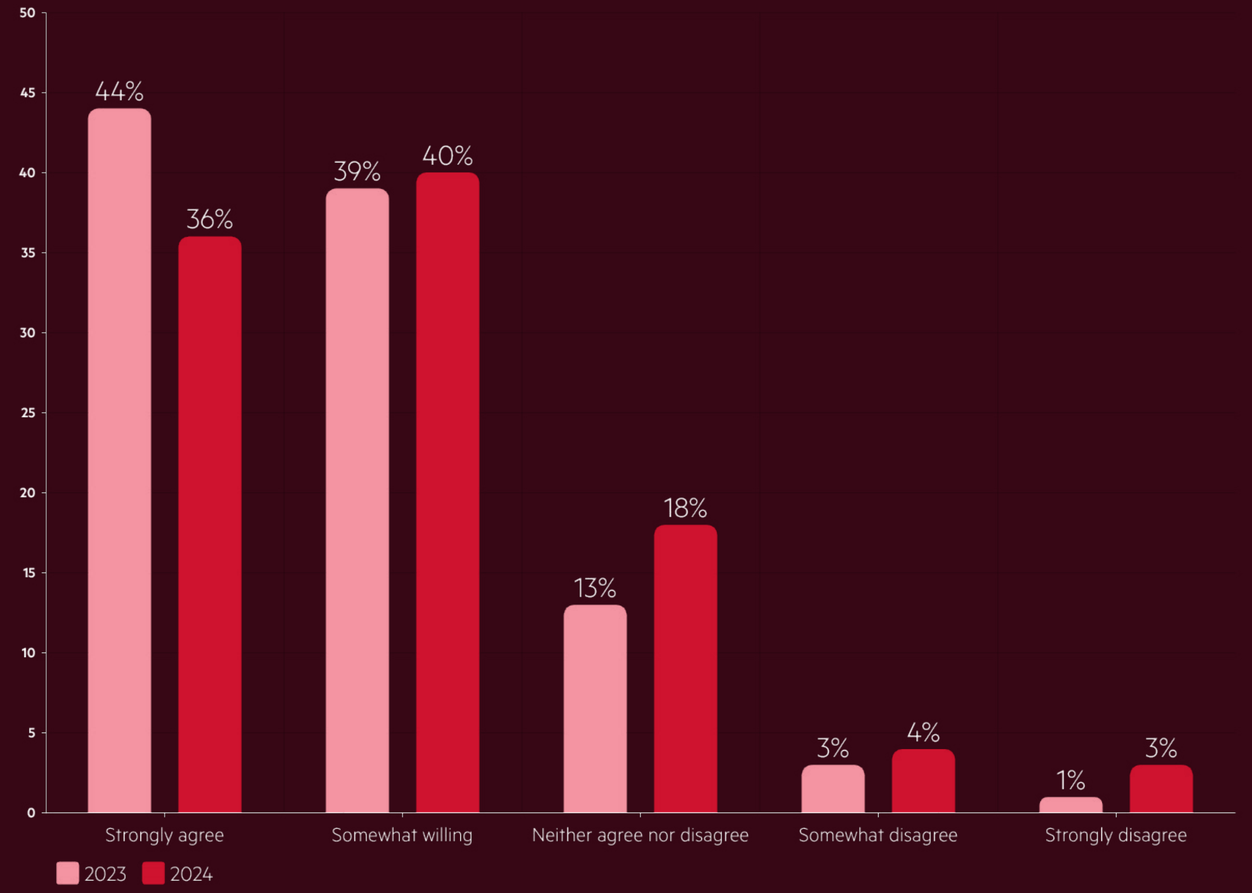
Q. Have you made an effort in the past 12 months to reduce the amount of energy you use at home?



4.2 Continued

Similarly, the focus on energy usage with appliances has persisted. In 2023, 44% of adults acknowledged that the energy crisis had significantly increased their awareness of energy consumption when using appliances. This figure has now decreased to 36%, with an additional 40% expressing partial agreement. This trend may suggest that although energy prices have generally stabilized across Europe, consumers may remain uncertain about their long-term stability.

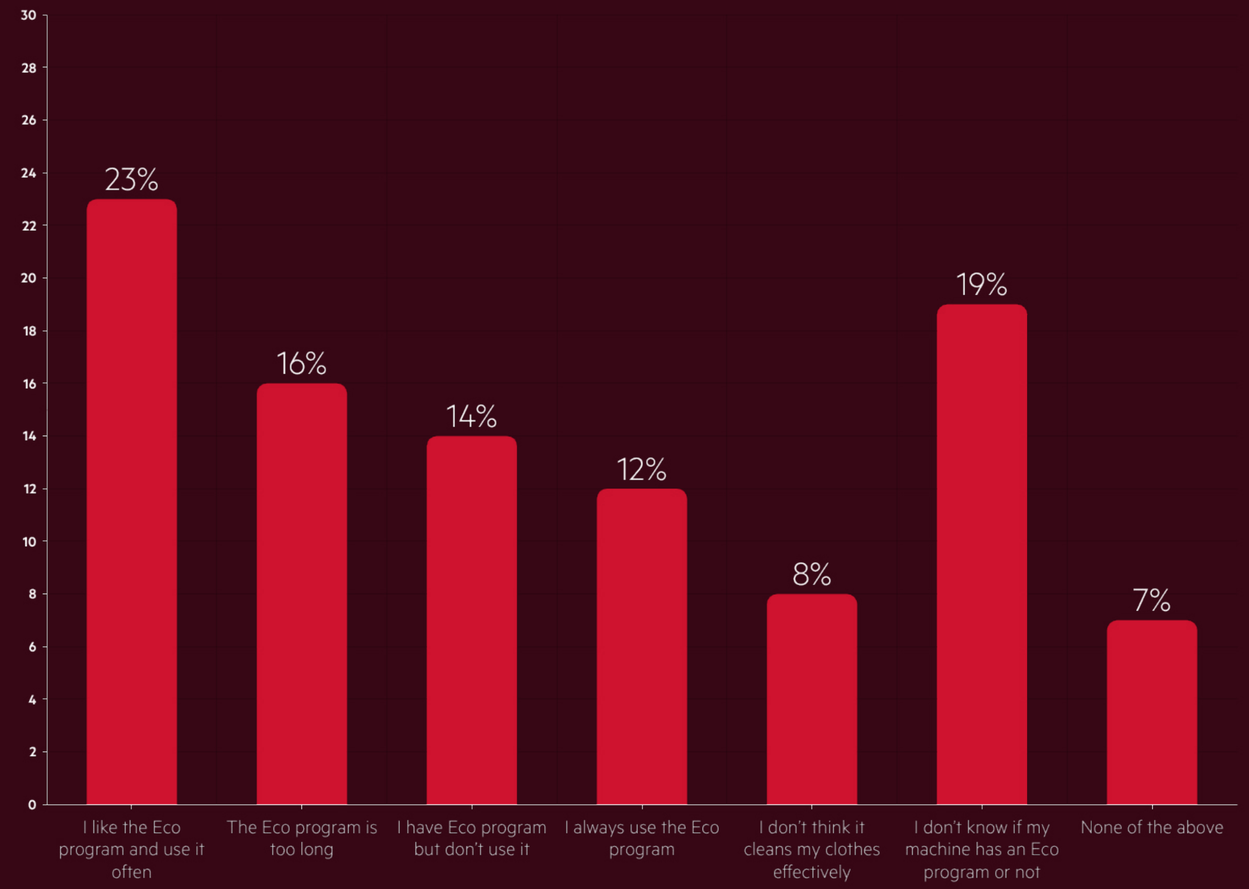
Q. To what extent do you agree or disagree with the following statement: "The current energy crisis has made me think more about the energy I am using when using appliances."



4.3 Eco settings underutilized

Eco settings on washing machines and tumble dryers have been available for over a decade, lauded for their energy efficiency despite longer cycle times. However, despite ongoing concerns over energy consumption, our research unveils a surprising trend. Only 12% of Europeans consistently opt for the Eco program, with an additional 23% using it frequently. More notably, nearly a fifth (19%) of respondents are uncertain whether their machine even offers an Eco program, indicating a lack of exploration of available settings.

Q. Which, if any, of the following statements about the Eco function on your washing machine applies to you most / do you agree with most? [select one]



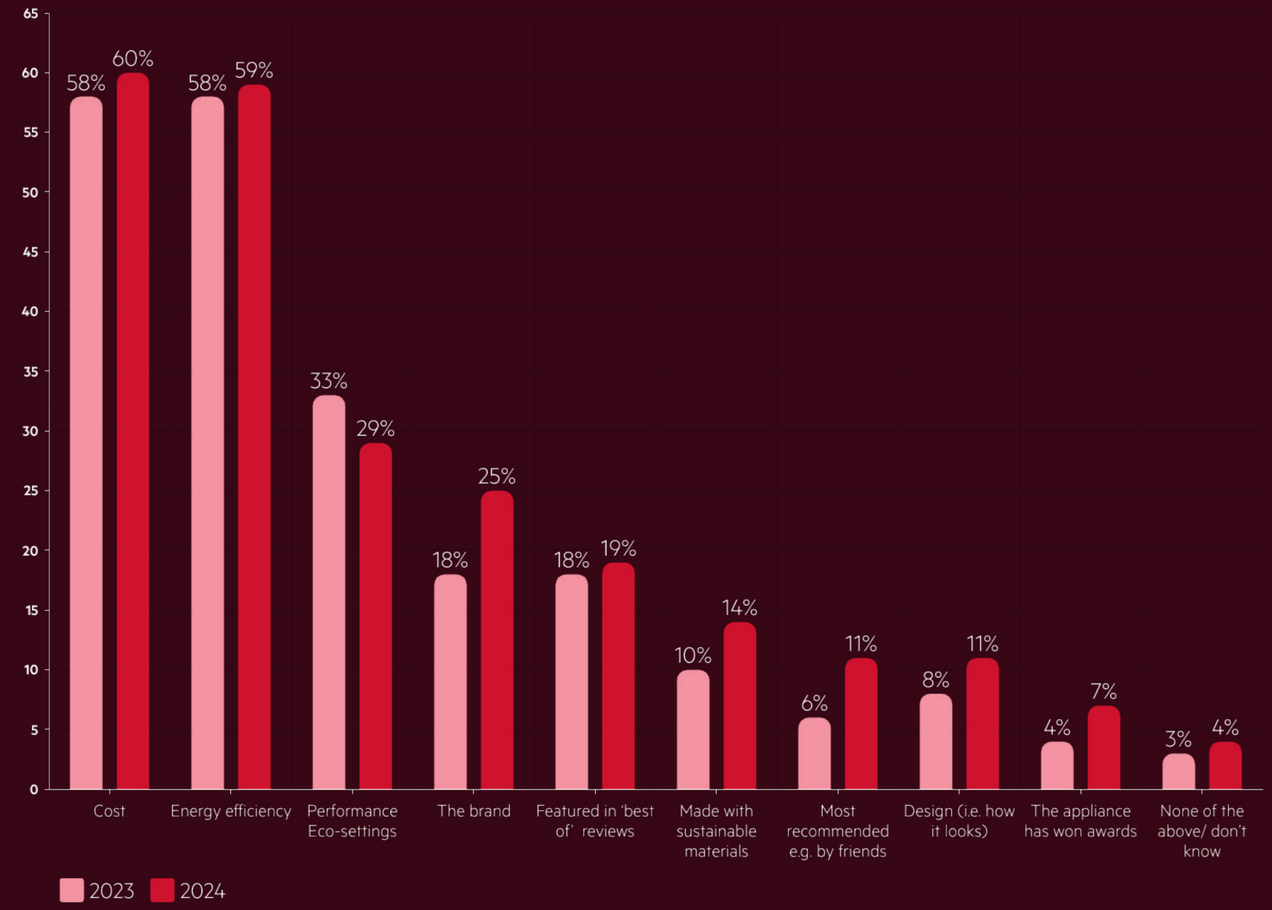
88%

of Europeans do not consistently opt for the Eco program.

4.3 Continued

Despite these usage patterns, the presence of an Eco setting remains the third most important factor for consumers when considering their next appliance purchase. Cost and energy efficiency continue to dominate consumer considerations, as they did in previous years.

Q. Thinking about the next major appliance you buy (e.g. washing machine, tumble drier, dishwasher etc.), which, if any, of the following factors would influence you MOST when considering which one to buy? [Select up to 3 options]



5.0

MAKE CLOTHES LAST LONGER WHILE REDUCING RESOURCES

AEG

CHALLENGE THE EXPECTED

5.1 Five steps to making clothes last longer while reducing resources

The biggest way to reduce waste, carbon emissions, and water usage when it comes to clothes is by making them last longer[44]. One of the main ways of doing this is to change how we launder. Many organizations in Europe and beyond have been promoting environmental benefits to encourage change, but progress is slow.

Even though some countries are more open to change, convincing people to wash clothes in colder temperatures remains a challenge. Less than a quarter (21%) of respondents agreed strongly that a shorter wash cycle on a lower temperature (e.g. 30 degrees) can clean clothes just as effectively as a longer cycle on a higher temperature (e.g. 40 degrees).

While it's important to keep emphasizing the potential environmental benefits, our research suggests that focusing on extending the lifespan of clothes could accelerate positive change. 84% of Europeans care about taking care of their clothes, 83% want to make them last longer and 86% know it's better for the environment[45].

So how do we close this gap between what people say they know and want, and the actions they actually take? Which simple steps are needed to prevent millions of items of clothing from ending up in landfills or being burned every year?

[44] WRAP, Design-extending-clothing-life

[45] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

Step#1 Think. Before. Wash.

Every second, globally, the equivalent of a garbage truck full of clothes ends up in landfills or gets incinerated[46]—much of it long before its intended lifespan. One major cause of this waste is the laundry blunders we commit. Whether it's leaving a colored sock in a whites wash, selecting the wrong program, or opting for too high a temperature, the implications on clothing life and resources are significant.

Nearly three quarters (74%) of Europeans have witnessed their favorite garments losing color. Often the main culprit is choosing the wrong program with an excessively high washing temperature.

In most households, laundry isn't a mentally taxing chore. People typically sort clothes by color and default to a 40°C cotton cycle. However, disrupting this behavior by encouraging more thoughtful washing decisions could lead to better outcomes. Not only might it reduce the number of damaged items heading to landfills, but it could also make clothes last longer, decrease energy and water usage, and contribute to lowering our Global Warming Potential.

How can we disrupt the behavior? Education and awareness are crucial. However, we can also leverage smarter technology, innovative features, and clearer signposting from appliance brands. For instance, energy-saving, together with cost, is the most important factor when choosing an appliance brand. By making it clearer which functions not only save energy but also make clothes last longer could be a shortcut to more sustained behavioral change.

The AEG EcoLine selection is a great example. The only washing machine models which are included are those exceeding the top energy rating A[47]. Features such as AutoDose can protect clothes and use up to 60% less detergent and PowerClean 59min can deliver complete stain removal even at low temperatures.

[46] https://www.ellenmacarthurfoundation.org/a-new-textiles-economy

[47] In energy consumption considering the EU energy consumption threshold

[48] According to an internal test method for the amount of detergent used for a 2kg load with AutoDose vs an average manual dose

[49] Features such as AutoDose can protect clothes and use up to 60% less detergent and PowerClean 59min can deliver complete stain removal even at low temperatures.

Step#2 Be smart(er) with technology

From our research last year, 73% of European households have washing machines that are less than 6 years old[50], likely offering advanced features. However, if most people stick to default settings, are they truly aware of their appliance's capabilities? Have they explored ways to prolong clothing life and save resources?

Our research reveals that nearly half of all adults (46%) rarely or never consults the instructions for selecting the best laundry settings. Just over a fifth (22%) have never even read the instructions[51].

The consequences of this lack of knowledge could be significant. For example, as our latest research shows, a third of adults either don't know if their machine has Eco settings or choose to ignore them. Furthermore, 35% of adults are unaware they can adjust default time settings, and 29% don't realize they can change the temperature.

Understanding your appliance can lead to better choices for your wardrobe. For those less inclined to read instructions, appliances with smarter technology might be the solution.

[50] Truth about Laundry, Energy Efficiency Edition, 2023

[51] https://admin.betterlivingprogram.com/wp-content/uploads/2021/02/AEG_TheTruthAboutLaundry_WhitePaper-1.pdf

AEG

Step#3 Default to 30°C

The majority of people still stick to default settings when using appliances, like washing clothes at 40°C. One way to accelerate change is for appliance brands to set 30°C as the default temperature for more programs. This shift is already happening with AEG, where nearly 70% of programs, across its newest range, default to 30°C or 20°C. However, to see this change across more brands, testing institutes need to adjust some of their benchmarks, which currently favor 40°C.

Encouraging institutes and manufactures to make changes could take time so how else might we encourage consumers to activity change default settings? Making it easier to change settings through more innovative display designs and better customization could be part of the answer.

70%

of programs, across AEG's newest range defaults to either 30°C or 20°C.

Step#4 Reduce time

The Care Index sends a clear message: washing clothes with lower temperatures and shorter cycles can make them last longer while also saving energy. However, 78% of adults aren't reducing their wash cycle times, and about a third (31%) don't even realize it's an option. Additionally, nearly nine in ten adults (88%) don't think the length of the wash cycle affects the lifespan of their clothes.

The trend towards people wanting shorter cycle programs is promising. Shorter cycles can fit better with people's busy lives, and can use less energy. As our most recent research shows, a significant 77% of Europeans have actively tried to reduce energy usage in the past year, with 76% giving more consideration to energy efficiency when using appliances. But people also want to be sure their clothes are still clean. AEG has a solution called PowerClean 59min. It can remove more than 50 common stains, like ketchup and sauce, in under an hour. It works at lower temperatures, which saves energy, and pre-mixes and evenly distributes detergent and softeners for better results[53].

77%

of Europeans have actively tried to reduce energy usage in the past year.

[53] External test of PowerClean 59 min 30°C programme with 5 kg load shows 100% stain removal of 59 most common household stains

Step#5 Read. Wear. Refresh.

The more an item of clothing is washed the quicker it wears out and the higher the risk of a laundry blunder. Many items of clothing including jeans, T-shirts, tops and shirts can be worn more often between washes. Simple steps we can take include letting clothes air after wearing and treating stains separately rather than putting them through a full-on machine cycle wash. Sometimes just a damp cloth and a bit of mild detergent can suffice.

But, as our research shows, it's the advent of a steam function that has more than half of all Europeans excited. Excited by the potential to save time, to reduce water, and excited by helping to make clothes last longer. A good example of steam's potential is AEG's SteamRefresh program which refreshes clothes in 25 minutes and uses up to 96% less water than washing[52]. Steam also helps reduces wrinkles[53] and odors[54].

Of course, it's important that people check the care label instructions before choosing the most suitable way to clean or refresh their clothes. It's also essential that people remember the wash temperature featured on the label is not the recommended wash temperature, it's the maximum it can be safely washed at. If it says 40°C and the garment isn't excessively dirty, it can be washed at lower temperatures.

But the number of people following care label advice has been in decline since we began our research. 14% fewer people always or often follow what the label says. Nearly a fifth (19%) admit to ignoring the label completely, preferring to "throw the washing in and press start" without thinking about it.

[52] Internal test with a 1 kg load on the steam program vs the delicates program

[53] Based on Internal test comparing the number of wrinkles on 100% woven cotton fabric before and after a SteamRefresh cycle.

[54] Based on external test comparing cigarette smoke odor in 100% cotton fabric before and after the SteamRefresh cycle.

6.0

METHODOLOGY

AEG

CHALLENGE THE EXPECTED

METHODOLOGY

AEG has been producing and sharing The Truth about Laundry since 2021. The findings in this latest study are based on quantitative data collected from 14,000 adults across fourteen European markets. OnePoll, a survey-led market research company – managed the research in collaboration with AEG and its partners. The survey was fielded between 28th November 2023 to 3rd January 2024 with data collected in the following countries: Belgium, Denmark, Finland, France, Germany, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and the UK; general population, 1000 per country. While the data is mainly from EU countries, due to the size and scale of the research, and to maintain consistency with previous years, we have applied the findings to Europe.

The data was weighted for each country to ensure accurate representation by age, marital status, income/social class, ethnicity, and religion. For a statistic of 50% the margin of error for sampling on a sample of 1000 respondents is ±3.1%. For smaller or larger statistics, the margin of error will decrease and falls to 1.9% for a statistic of 10% or 90%. This is based on all countries having 1000 respondents per market. This margin of error is small making the data highly reliable. This margin of error is small making the data highly reliable.

AEG