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Home alone: solo living pathways, everyday experiences and policy implications for sharing and sustainability

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The rise of solo living presents significant social and environmental challenges, particularly in high-income countries like Denmark where nearly half of households are single occupancy. This study explores the social dynamics driving the trend towards living alone through in-depth interviews with 23 individuals living alone in Denmark. Pathways to solo living include urban relocation, aging out of shared housing, empty nests and solitude-seeking. Gender differences emerge, with women viewing solo living as emancipatory, while men express more stigma. Many participants experience loneliness and lower social capital. Notably, many solos live alone unintentionally and are open to future shared living. These findings suggest potential for policy interventions to promote shared living as a promising approach for reducing carbon footprints while enhancing social wellbeing.

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Introduction: Solo Households and Sustainability

Denmark, like the wider EU and much of the world, is experiencing a marked rise in solo living (Bradbury, Peterson & Lis, 2014). Currently, 46% of Danish households consist of a single occupant, with women representing 26% and men 20% (Statistics Denmark, 2023a, Statistics Denmark, 2023b), placing Denmark among the global leaders in this trend (see Fig. 1). Solo living presents sustainability challenges, particularly higher per capita resource use and consumption (Bagheri et al., 2024; Ivanova & Buchs, 2020; Jack & Ivanova, 2021; Yates, 2018). It also intersects with the global housing crisis, as widespread under-occupancy significantly contributes to housing shortages across Europe (Lage et al., 2024). Understanding the social dynamics that lead individuals to live alone is therefore fundamental for developing solutions to both environmental impacts and housing pressures.

The trend towards people living alone is driven by factors including aging populations, economic conditions enabling independent living, shifts in family structures and relationship patterns. With an aging population, many older adults prefer to continue living alone rather than move in with family or into institutional care settings, increasing the share of single occupant dwellings (European Commission, 2015; Sowa-kofta et al., 2021; WHO, 2015) and related carbon emissions (Ottelin, 2022). Delayed marriage age, rising divorce rates and preference for living apart together also lead to increasing solo living (European Commission, 2015; Klinenberg, 2016; Trost & Levin, 2000). Higher income levels and financial independence, particularly among women, have further facilitated the rise in solo living (OECD, 2017). These demographic developments contribute to the rise in solo living and associated increasing environmental impacts.

Living alone is linked to aging and gender dynamics, both in Denmark and across the EU. Women live on average five years longer than men in the EU—resulting in a greater proportion of older women living alone (European Commission, 2015, p.16). In Denmark and most European countries, older women are more likely to face economic challenges such as lower pension incomes and a higher risk of poverty (Lodoviciet al., 2015). These disparities stem from gendered caregiving responsibilities and income gaps, which limit women's pension accumulation, financial security and housing options in later life.

The sustainability and energy implications of solo living are particularly pertinent in the context of climate change mitigation. Shared living spaces, combined with social norms and physical infrastructures created in these spaces have the potential to reduce individual carbon footprints (Gausset & Jensen, 2024; Ivanova et al., 2021; Lehner et al., 2024; Nielsen Englyst & Gausset, 2024; Vita et al., 2020). Small households on the other hand, have higher patterns of energy consumption, waste generation, and resource utilisation compared to larger households (Ellsworth-Krebbs, 2020; Jack & Ivanova) as each household typically has its own appliances and consumer products (Jack et al., 2021). For example, single householders have double the average per capita carbon footprint of householders of more than five, although these only represent 0.5% of Danish households (Jack & Ivanova, 2021, p.5). Sharing has significant potential to reduce resource consumption (Ivanova, Buchs & Jack, n.d.).

While many studies focus on demographic factors and changing cultural norms of living alone (e.g., Chandler et al., 2004; Demey et al., 2013; Esteve et al., 2020; Klinenberg, 2016; Reher & Requena, 2018; Rose & Villeneuve, 2006), there is limited in-depth research on the specific life circumstances and decision-making processes that lead individuals to live alone. This paper aims to address this gap by providing new insights into the social dynamics of solo living, drawing on interviews with people living alone in Denmark to explore pathways, drivers, consequences and potential future trajectories. By exploring how and why people come to live alone, this paper contributes to existing research by

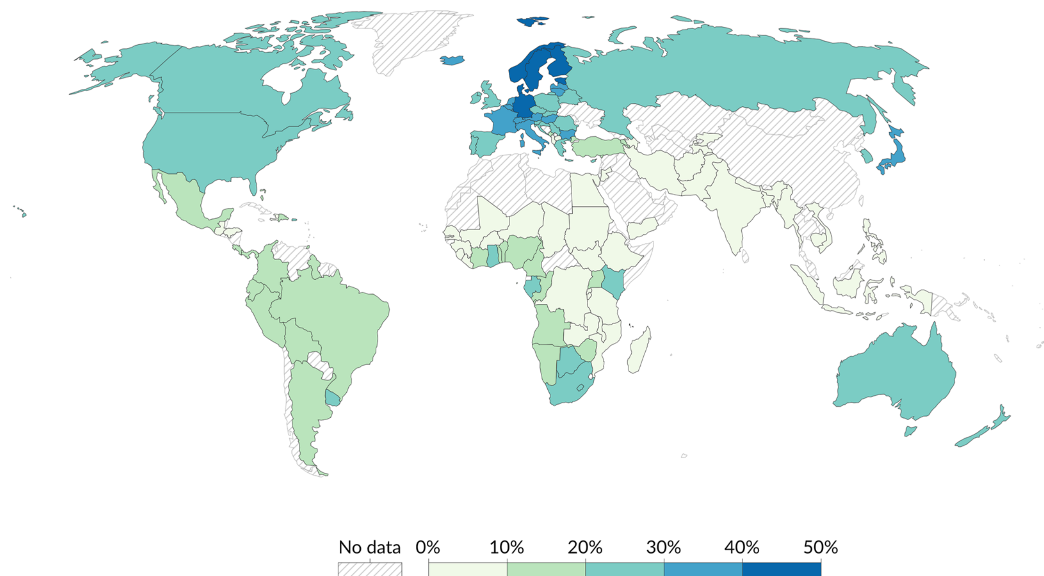

Fig. 1 Percentage of one-person households, created using Our World in Data.

linking micro-level narratives of life course transitions and decision-making with macro-level debates on sustainable development and wellbeing within planetary boundaries. In-depth understandings of how and why people live alone are relevant to policymakers designing climate mitigation policies in an era of rapid demographic change.

Method: Talking About Living Alone

To answer questions of how and why people decide to live alone, I interviewed twenty-three individuals living alone in Denmark (twelve women, eleven men; age range 27-90 years, mean 45 years). Participants had lived alone for between 1-40 years (mean twelve years) and had monthly incomes ranging from €1500 to €12,000 (mean €5000). Their estimated carbon footprints (for more details see Jack et al. 2024) ranged from 4.8 to 27.0 tonnes CO2e per year (mean 13.0 tonnes CO2e, 4 tonnes higher than the Danish average of 9 tonnes CO2e). Nine participants (six women) rented with a first-hand contract, two (one woman) rented second-hand (subtenants renting from a primary leaseholder rather than directly from the property owner, typically for a limited duration and with fewer legal protections and rights) and twelve (three women) owned their residences. Dwelling size ranged between 40-120 m^2 (mean 71m^2 for both men and women). Interviewees were from across Denmark, thirteen from urban centres (e.g., Copenhagen), while ten lived in suburban areas. No rural residents were included in the sample, reflecting broader Danish population trends, as only 11% of the Danish population is rural (Statistics Denmark, 2024). Occupations were varied and included florists, designers, technicians, and teachers.

Interviewees were recruited using professional and personal contacts, social media and snowballing in 2022. Interviews were conducted in English, my first language, as most Danes speak excellent English (English Proficiency Index 2024), although this may have skewed my sample toward higher social capital (Putnam, 2000; Bourdieu, 1984). Thirteen interviews took place in participants' homes, six in public spaces, and four via video conferencing. The research was conducted in line with the European Code of Conduct for Research Integrity (ALLEA, 2023). Before commencing the interview, I informed participants about the study (appendix 2 Plain Language Statement) and obtained written consent (appendix 3 Consent Form). Ethics approval was reviewed and exempted by Aalborg University's Data Protection Officer (DPO) in accordance with Danish national regulations and university policy on 16 November 2020. During the interviews, I emphasised that participants' experiences were important and directed them to share what they felt was important. I was also open about my own life course, and if they asked me personal questions about my living situation, I answered truthfully. My active interview style 'taints' my results, but I found responses to be more open and reflective than when I stuck to the interview guide and refused to answer questions about my private life (*cf.* Holstein & Gubrium, 1995). All interviews covered the topics in my interview guide (appendix 4 Interview Guide). Interviews lasted between 25 and 105 min and were audio-recorded with participant consent. Interviews were transcribed, removing identifying features, pseudonymised, coded and explored using NVivo and Perplexity software.

During the analysis I wanted to go beyond identifying themes and focused on describing, comparing and relating (Bazeley, 2009). I printed, read and re-read transcripts and had them open as searchable PDFs during writing. My analysis process was iterative and reflexive: insights from the interview encounters informed my reading of the transcripts, while writing and re-writing results sections prompted me to revisit and reinterpret interviews. This back-and-forth between transcripts and emerging interpretations allowed for a nuanced understanding of participants' accounts and the relationships between them. I also presented draft versions of this paper at two workshops, where I received feedback that helped shape the analysis further. The analysis process was inductive, guided by a focus on participants' experiences and the life paths that led them to live alone. Rather than seeking to confirm predefined themes, results emerged directly from what interviewees chose to share, allowing their narratives to shape the direction and emphasis of the findings, for example, my interview guide did not include questions on gender, but the experiences shared by interviewees led me to include a section on differences between male and female solo living experiences. By letting the data lead, I hope my findings reflect my participants' experiences and everyday realities.

Findings: pathways, gender, social capital and future imaginaries

Participants described many of their experiences both with sharing and living alone, describing how they ended up in their current solo situation, what they enjoyed about living alone, what they thought could be improved, who they would call on for help if necessary as well as future imaginaries (see appendix 4, Interview Guide). Interviewees fall into four groups: urban transplants, age outers, solitude seekers and empty nesters (see Table 1 for overview and appendix 1 for full demographic details). Some participants have characteristics from various groups and many have experienced both urban transplanting and aging out. Quotes are followed by (Name, Age, Number of years living alone), e.g., (Cia, 38, 8).

The interviews revealed a rich landscape of solo living experiences in Denmark. In the results section, I first describe different pathways to living alone: urban transplants, aging out, empty nests and solitude seekers. I then delve into gender differences, noting that living alone is experienced as emancipatory for women and stigmatising for men. Thereafter, I explore loneliness and social capital, finding a wide range of experiences among participants. Finally, I describe how participants imagine their future living situations; older and more stable individuals intend to age in place, while younger and more flexible participants have a wider habitation horizon, including imagined future shared living arrangements. Many participants see living alone as a life stage and express openness to sharing (again). A striking observation across these themes is that many participants did not actively choose to live alone, but rather *ended up* in this living arrangement due to various life circumstances. Once alone, and especially those who had lived alone for longer periods, people

Table 1 Interviewee overview.

Group Averages	Total (m/f)	Age	Years living alone	Size m^2	Income €/month
Urban Transplants	7 (2/5)	36	4	66	4900
Solitude Seekers	4 (2/2)	39	12	62	3200
Age Outers	8 (6/2)	43	15	70	5700
Empty Nesters	4 (1/3)	72	16	95	4900

intend to continue living alone, pointing out the uncertainty and potential for conflict inherent in sharing.

Since I conducted 13 in-home interviews, participants gave me tours of their dwellings, and I noticed that they often had a spare room or extra unused space. This unused space requires construction, maintenance, and heating, yet remains largely unoccupied. The presence of spare rooms not only represents a financial burden in but also contributes to higher energy consumption. Under-occupancy has been argued to be an issue that could benefit from policy attention (Lage et al., 2024). My in-home findings confirm the existence of unused habitable space.

Pathways and stages: urban transplants, aging out, empty nests and seeking solitude. Many of my participants had shared in the past and are open to sharing again if the right opportunity arises. They had experienced different types of sharing, including with a romantic partner, in shared student houses and raising families; these experiences and formats all have different emotional ties. They spoke about living alone as a phase with several clusters around urban transplants, aging out, empty nests and solitude seekers.

Twelve of my interviewees had relocated for work at least onc,e leading to solo living. These *urban transplants*, often highly skilled and career-driven, include internationals in Denmark, Danes moving cities, and Danes who had relocated overseas and returned to Denmark. For *urban transplants*, moving cities entails navigating the complexities of establishing a new life in new contexts. Despite previous positive experiences in shared living arrangements, they frequently *end up* in single-occupancy apartments due to a lack of networks and opportunities. For example, Lina (27, 1) tried to find a shared house when she moved to Esbjerg for work. She searched on her social networks and the internet for a roommate or a collective living situation but was unable to find anything suitable. She viewed living alone as a temporary phase rather than a preferred choice and spoke fondly of her roommates back in Aahus. Eric (34, 5) wanted to start a flat share when moving to Copenhagen but was dissuaded by the high competition for rental properties, with queues of up to 200 people for viewings, the housing crisis is particularly pertinent in Copenhagen. He ultimately *ended up* living by himself in an 80m^2 apartment with a second-hand contract on which he was not allowed to invite housemates to cohabit. Sky (36, 8), Cia (38, 1) and Ella (34, 5) had all considered finding shared accommodation when relocating to Copenhagen but had all *ended up* living solo. Danes are not shy about moving, in 2024 17.5% of Danes, immigrated, migrated or internally migrated (Statistics Denmark, 2024) and thus, if nearly a fifth of Danes move every year it's not surprising that more than half of my interviews spoke about recent moves. *Urban transplants* raise questions about the availability of cohousing models and the role of housing policy in facilitating social integration and shared living in increasingly international and mobile cities.

While *urban transplants* lack the networks and opportunity to cohabite, *age outers* had the opportunity but feel that they should stop sharing at some point. They had previously enjoyed shared living arrangements; however, as they progressed through different life stages, they began to feel that the dynamics of shared housing were increasingly burdensome. For example, Folke (43, 15) who had tried living in collectives on and off over the last twenty years finally decided that "*this is not good enough for me anymore. I need more room.*" Nina (36, 4) had also rented out her spare room for 12 years but by the end she felt "*so fed up with living with strangers or anyone who gets to have a say about how I have my house and when I clean and when I do my dishes- it's just not fun anymore*". Both Folke and Nina had enjoyed shared living in the past but started to find the instability, daily negotiations, compromises, and occasional conflicts inherent in shared living too much. Ed (42, 4), Peter (57, 24) and Seb (59, 4) had all lived in shared accommodation as young men and enjoyed the experience but at some point, felt that they *should* move into their own apartment and drifted into solo living. *Aging out* points to shared living being considered appropriate for young adults but too much effort and not "proper" for grown-ups. *Aging out* also points to the power that cultural norms have in shaping living arrangements.

A natural progression from ageing out were the *empty nesters* who were living alone after their children moved out. When Chris (56, 19) for example felt his adult sons were ready to live on their own, he bought them an apartment, leaving himself alone in a nearly 100m2 apartment, the mother of his children moved out when their children were small. Liv (62, 7) divorced her husband after the kids moved out and bought her 85m2 apartment. After Gertrud's (78) husband died she sold their farmhouse and moved closer to the city to a 73m2 terrace and Val (90, 20) lived in the same house after her daughters moved out and through two consecutive husbands. Empty nesters tended to live alone by intention, but had not really considered shared living, perhaps pointing to the hegemony of cultural norms of nuclear families. Senior cohousing is still rare (Glass, 2020; Wheeler, 2022) so co-living might not be on the agenda for empty nesters.

Many of my interviewees *ended up* living alone; however, I did have a few *solitude seekers*, who actively decided to live alone. For example, Ella (34, 5) tells me that even though she considered finding a collective in Copenhagen, she was happy when she found an apartment she could afford "*I prefer living with myself. Yes. I get very easily distracted by other people's energies… I really need my space*". Susan (54, 5) also enjoyed living on her own explaining her decision not to live with her long-term partner "*It doesn't mean that I don't love him. I do. But I just really need that time and space to do my own thing.*" Gertrud (78, 12) also discussed not wanting to cohabitate: "*If I met a man, I would never let him move in. And if I meet someone, it would be nice to live apart and do things together.*" When heterosexual couples cohabitate, women typically take on the bulk of domestic and emotional labour (Jespers, Van der Lippe & Evertsson, 2022) so the experience of living alone could free up time and energy for women to focus on their own pursuits, hence the enjoyment of living alone.

Several participants in my study disclosed mental health diagnoses as part of their decision to live alone, they also shared some experiences of stressful conflict involved in sharing living space. These *solitude seekers* described living alone as driven by a need for control over their environment, reduced social stimulation, or the ability to better manage their symptoms without the stress of navigating relationships and shared living spaces. Although the study did not have ethics approval to focus on mental health issues, these questions arose spontaneously in enough cases for it to be unethical not to comment on – living alone as a requirement for mental health stability needs to be explored further.

Living alone: emancipatory for women, stigmatising for men. Gender differences were apparent even before I started data collection; women were much easier to recruit, while I had to actively chase male interviewees. Many women invited me to their homes quite spontaneously and shared candid experiences of solo living. Men, on the other hand, were much harder to recruit. I emailed, SMSed, and Facebook messaged many males who never responded. This may point to a correlation between living alone and social awkwardness, for exampl,e a typical

message from one of the many men who declined to be interviewed could be "*can't promise I have the courage to partake - I generally feel uneasy about all that is social*" before ghosting.

In my material, *solitude seeking* women, both young and old, express a sense of pride and empowerment in living independently. For instance, Ella (34, 5) who proudly states, "*and then I moved in with myself*". Liv (62, 7) moved into her own apartment after her divorcee and appreciates the freedom to "*decide everything on my own*" she likes living alone "*very much*". This is echoed by Val (90, 20) who reflects on raising her daughters in a house she bought and still lives in. These emotions point to women feeling empowered and independent when living solo, in line with existing research (c.f. Narushima & Kawabata, 2020).

Only one of the women of childbearing age explicitly wanted children; the other five were not interested for various reasons. Lina (27, 1) was concerned about climate change and had just moved cities for a job, so having children wasn't on her radar. Mia (31, 3.5) had mental health challenges, Ella (34, 5) enjoyed her social life and partying too much, Sky (36, 8) didn't want her own children (but was open to meeting a man who came with children), and Nina (36, 4) was just not interested in having her own children. Cia (38, 1) did want children but had not started trying to get pregnant since her partner lived overseas. A growing acceptance of diverse lifestyles may have reduced social pressure to conform to conventional family models (Esping-Andersen & Billari, 2015). These younger women feel free from expectations of motherhood.

Amongst older female respondents, the desire to live alone was particularly evident amongst those who had previously cohabitated with a male partner. These participants mentioned complex experiences with caregiving responsibilities and implicit unequal division of labour, common in heterosexual relationships (Jaspers et al., 2022). Many of these women express reluctance to cohabitate again, for instance, Gertrud (78, 12), having buried her husband, was wary of taking on intense caring responsibilities once more. Similarly, Susan (54, 5), after caring for her depressed ex-partner, chose not to move in with her current long-term partner. Liv (62, 7) describes leaving her ex-husband "*it was me who decided to move out. I needed it at this time of my life. To be at my home and free. I was free when I lived with him, but not free enough*". While Denmark is second only to Sweden in the EU in narrowing the gender gap in unpaid household work (Cunha & Atalia, Fig. 1, 2019) housework is still largely divided along gender lines, with men spending on average 2 hours and 34 minutes performing household labour while women spend 3 h and 28 min per day - nearly an hour longer (Bonke, Christensen & Fonden, 2018). Although not explicitly stated, these women's experiences with (male) partners and their subsequent preference for solo living underscore how the unequal distribution of domestic and emotional labour in heterosexual relationships can contribute to the choice to live alone.

Men on the other hand see living alone as temporary stage and many expect to move in with a (female) partner, only Mark (34, 4.5) does not want to have a relationship or children. The difficulty in recruiting men to discuss living alone and their desire for cohabitation with female partners points to societal expectations on men of, for example, independence, financial success, and the role of provider (Connell, 2005). Nine of eleven men in my study had rented or bought larger apartments in anticipation of a potential partner moving in. For example, Lasse (42, 4) was open to a partner moving into his 65m^2 apartment "*if I got a girlfriend and we were talking about moving in together. Of course, I wouldn't mind that at all.*" While Folke (43, 15) is in limbo in his 72 m^2 apartment *"I mean, the dream for me is still finding a girlfriend"* and *"I'm still living in the hope of getting children."* Peter (57, 24) on the other hand realises that this dream will not eventuate for him. He had bought a 120m^2 apartment thirty years ago expecting to eventually have a partner move in:

> *'When I was sort of contemplating trying to find a life partner, sort of, I'm not buying into that stereotype, but it was sort of a fun thing to consider… You have work out a few items… compromise… 'Yeah, but we are staying here' (at his apartment). Yeah, 'you (future potential partner) can redecorate everything as long as we live in this apartment.' So that was my bargaining tool. It was sort of imagined bargaining chip, of course."*

He says he has a full life but expresses melancholy that he will possibly not live with a nuclear family, saying "*I'm sure that if life had turned out differently, that would also have been fun*". The feelings of lost potential or inadequacy experienced by the solo living men in my study point to societal pressure to attract and support partners and families, which I did not observe in the female experience of solo living.

Nine out of twelve men owned their residences compared to only three out of eleven women. Renting makes one more flexible to changing future (shared-living) plans, while ownership locks in current aspirations. Men may be subconsciously aware that owning a residence increases their value as a potential partner, and as explored above, many live alone in residences that are big enough for a family. Women owners on the other hand, are all 50 plus and have purchased their residence planning to live alone, apart from Val (90, 20) who has buried two husbands, but is content in her 120m^2 house. Ownership trends can be further explained by salary gaps, in Denmark men earn an average annual disposable income of 758,280DKK, while women earn 622,633DKK, a 22% salary gap (Statistics Denmark, 2023a, Statistics Denmark, 2023b). A further explanatory aspect is age, most of my younger interviewees rented while nearly everyone over 50 owned their residences. That renters, mostly young women, had a wider potential future horizon may also play into the sense of emancipation, while owners (mostly men) felt more stigma since they were (subconsciously) locked into the unrealised dream of cohabitation.

Loneliness and (lack of) social capital. Thirteen of my interviewees spoke about experiencing loneliness, in-line with existing literature on the multifaceted relationship between living along, being socially isolated and feeling lonely (e.g., Putnam, 2000; Klinenberg, 2016; Glass, 2020). Ben (36, 9) has periods of loneliness and Sky (36, 8) speaks about some solo living friends who "*really struggle with loneliness… like evening after evening just being alone.*" Many of my interviewees focus on what they do to combat loneliness, Folke (43, 15) moved into a collective (before living alone again), Cia (38, 1) and Anna (44, 5) participated in Meet Up Groups, and many used dating apps. For example, Nina (36, 4) uses dating apps, to potentially meet someone, and ride-sharing apps like GoMore when travelling to meet interesting people and have good conversations, though she mentions that these don't typically become lasting friendships. A few of the interviewees, especially Susan (54, 5), emphasise that they don't get lonely but rather enjoy their own company. The fact that thirteen of the interviewees spontaneously shared feelings of loneliness, a tricky topic for a first meeting, points to loneliness being inherent in solo living. Being alone is part and parcel of solo living, but is experienced differently, with some of my participants enjoying spending time alone, while the majority invest significant energy in maintaining social connections to avoid being lonely.

Aside from feeling lonely, those who live alone may miss out on the benefits of passive social capital, typically derived from

shared living situations. Unlike those in shared living environments, solos lack the daily interactions and shared experiences that foster social networks and trust. This absence can lead to a diminished capacity to access resources and support from a community. Shared living enhances social capital through increased interaction and collaboration among residents (Ruiu, 2016; Spanke, 2017). Consequently, individuals living alone may find themselves at a disadvantage, lacking the informal support systems and networks that can be crucial for emotional well-being and resource access.

Participants in my study varied in the size of their social networks. Some invest heavily and have extended social networks, and some feel like they didn't have any. Nina (36, 4) mentions that she doesn't really have anyone nearby to call on for help. She would contact her ex-boyfriend in an emergency and mention a friend who is also single and in her mid-thirties. However, she describes this friendship as "circumstantial" rather than deeply emotional. Ella (34, 5) has plenty of friends but also doesn't feel like she's connected strongly with any of them. When she had to move furniture, she went on a Tinder date: *"This couch was carried up here on a Tinder date. It was like the first meeting, like, 'Hey, you look strong, do you mind me helping you?'"* Eric (34, 5) reflects on technology and the commercialisation of social connections and mutual obligations, saying, *"we can always just get somebody from Uber or whatever to help us."* Many interviewees who live alone rely on technology-based services rather than friends and acquaintances for socialising and practical help.

Those in my study with higher social capital invested significant energy in creating and maintaining their social networks. For example, Lasse (42, 4) hosts BBQs, speds lots of time at a bar and prioritises going to music festivals and on holidays with his friendship group. Gertrud (78, 12) also has a multitude of hobbies, including golf, a book club, a bridge club and music events. Peter (57, 24), whose friends had all started families and moved to the outer suburbs, laments that "*more and more of my social network has moved further and further away from Österport*" and makes a particular effort to travel and spend time with them. The experience of people who live alone is diverse: some have high social capital and others have low (Klinenberg, 2016; Kersten, Mund & Neyer, 2024), but solos tend to lack the passive social capital accumulation of cohabitation, and have to actively maintain their social networks.

A limitation to drawing conclusions about the social capital of this sample is my snowballing recruitment strategy; it is possible that my interviewees had higher than average social capital since I relied on social connections to find potential interviewees. An average person living along may have even lower social capital than those in my sample.

Future imaginaries: aging in place or elder collectives? Participants' visions of their future living arrangements reveal a spectrum of preferences, largely influenced by their age, life stages and current living situations. Two distinct patterns emerged: older participants, many of whom owned their residences, envision aging in place, and younger, many who rented, imagine more flexible, potentially shared future living arrangements. This continuum may point to acclimatising to solo living; the longer one lives alone, the less one is inclined to seek shared residences. This may also point to a cohort preference for solo living among older generations and more flexibility in younger generations.

Interviewees who had lived in their current residences for a long time and felt at home wanted to stay and age in place. Six of the eight respondents over fifty see themselves continuing to live in their current residences for the foreseeable future. Liv (62, 7) says, "*I think I'll stay here*", Nick (59, 40) says "*I don't think I will be moving anytime soon*", Chris (56, 19) says "*It's too much hassle to move*", Gertrud (78, 12) says "*I'll stay until I die*" while Val (90, 20) says, "*I'm taking only one day at a time.*" They acknowledge the possibility of needing assistance in the future which they expect the municipality to provide when necessary. Chris for example is aware of mobility issues since observing a close neighbour's decline and is aware of the availability of municipal assistance when aging in place. Older participants prefer to maintain their independence and see living in a retirement village or hospice as a last resort.

On the other end of the spectrum, many of my younger interviewees imagine potential communal living in their later years. Ella (34, 5), Nina (36, 4) and Ben (34, 9) spoke about starting an *olle kolle* or elder collective with friends or siblings. Lasse (42, 4) says he and his friends *"often joked about having an entire street with a lot of houses and we were all living there."* Sky (36, 8) has the most elaborate imagined future, describing chats with her high school friends about buying a multi-story building and each having a private space combined with shared areas. In this scenario, they would also open a café and make jewellery together, so "*it's a whole life-changing thing.*" This openness to various shared arrangements came primarily from the *urban transplants* who had more flexibility and had not (yet) put down roots in solo dwelling. Their imagined futures were quite romanticised, encompassing dynamic, socially engaged, and personally fulfilling later years, while those that had experienced aging where not as romantic about elder collectives. This may be a sampling issue, elders who lived in collectives were excluded from participating in this study.

In summary, most participants are open to shared living but *end up* alone due to circumstance, and lack of suitable shared housing options. Living alone is an emancipating experience for many of the women but less so for the men. Solo dwellers experience loneliness and do not know who they would ask for help with practical tasks, which I argue points to low social capital. The longer individuals live alone, the less inclined they became to consider shared arrangements in the future, this could also be a generational shift.

Limitations and future research

This study is based on a small sample with potentially higher social capital due to the recruitment strategy. Ethnicity and sexuality were also missing from the analysis, and might also be an explainer for household size, environmental impact and social capital. Further studies could focus on broader samples perhaps using quantitative enquiry. Future studies could also compare solo living across countries or regions, especially between cultures with different family norms (Esping-Andersen & Billari, 2015).

Policy for shared living: a low-hanging fruit for reducing carbon emissions and increasing well-being

Given that solo living has a significantly higher carbon footprint, it presents a critical challenge for sustainability efforts, especially in the context of persistent housing shortages. Lower social capital can also accompany solo living, potentially impacting individual well-being. Interestingly, many of the interviewees in this study expressed openness to shared living arrangements. These findings point to the promise of policy interventions promoting sharing as a potential low-hanging fruit for reducing carbon footprints and increasing social capital and wellbeing. Such interventions could be particularly effective in Denmark and other high-carbon countries experiencing high solo living. By promoting shared living arrangements, policy could potentially reduce housing shortages and achieve significant reductions in

energy consumption and greenhouse gas emissions without requiring substantial technological innovations or infrastructure changes.

The openness of many solo dwellers in this study to shared living arrangements suggests that there is latent demand for shared housing models. This presents an opportunity for policy to design and implement interventions that not only reduce carbon footprints but also enhance social connections and community resilience. Such interventions could range from incentivising the development of co-living spaces, creating platforms that facilitate house-sharing among compatible individuals and implementing tax incentives for households to accommodate additional residents (Bhageri et al., 2024; Ivanova et al., n.d.).

Addressing underoccupancy is another potentially effective policy area in the context of solo living. Policies could incentivise homeowners to repurpose spare rooms and unused space into shared accommodations or rent them out, potentially through tax incentives and support services, e.g., tenant agreements. A more radical option could be to cap the number of rooms per occupant (*cf* Lage et al., 2024).

The potential for improving social capital and well-being through shared living is particularly noteworthy. As social isolation has been increasingly recognised as a public health concern, especially in urban environments, policies that encourage shared living could contribute to improved mental health outcomes and stronger social capital. Any such policies need to consider the broad continuum of social needs, including those who prefer to live alone due to mental health considerations.

A significant barrier to cohabitation in heterosexual couples is the unequal distribution of domestic and emotional labour, which often falls disproportionately on women. To address this issue, policymakers could implement strategies to equalise household responsibilities. These might include educational programmes to challenge gender stereotypes, workplace policies promoting equal parental leave and flexible arrangements, and public awareness campaigns emphasising equitable distribution of household duties. Supporting affordable shaping services could also alleviate the burden of unpaid care work. By tackling these systemic inequalities, policymakers could create an environment where shared living becomes more appealing to women.

Any policy interventions to promote sharing should be designed with consideration of individual preferences, needs, and diverse life circumstances. Policy must navigate the potential social stigma associated with solo living and ensure that those unable to share are not negatively affected by policies intended to promote co-living. The challenge lies in finding and promoting options that are attractive, accessible, and adaptable to different life stages and individual requirements. By addressing these challenges, policy can potentially tap into a significant source of carbon reduction while simultaneously enhancing social cohesion and well-being.

To translate these insights into actionable strategies, I propose the SHARE framework—a set of policy principles designed to make shared living more attractive, accessible, and socially accepted:

- S—Structural support and incentives for shared living by expanding co-housing, co-living, and house-sharing options through financial incentives, regulatory flexibility, and practical assistance.
- H—Housing stock - harness under-occupied space by encouraging homeowners to attract live-in tenants, repurpose spare rooms or reconfigure oversized dwellings, aided by tax incentives, adaptation grants, tenant-support services and capping the number of rooms per person in public housing.
- A—Advance acceptance of shared living into mainstream housing norms through public awareness campaigns, education, and matching platforms that make co-living a normal dwelling arrangement.
- R—Rebalance gender roles in domestic and care work through equal parental leave, affordable care services, and initiatives supporting equitable household responsibilities.
- E—Ensure inclusivity and choice so that shared living policies respect diverse needs, avoid stigmatising solo living, and offer adaptable options across life stages.

Data availability

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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References

ALLEA (2023) The European Code of Conduct for Research Integrity–Revised Edition 2023. Berlin. https://doi.org/10.26356/ECOC

Bagheri M, Roth L, Siebke L, Rohde C, Linke HJ (2024) Implementing housing policies for a sufficient lifestyle. Build Cities 5(1):300–315

Bazeley P (2009) Analysing qualitative data: more than 'identifying themes'. Malays J Qual Res 2(2):6–22

Bonke J, Christensen AEW, & Fonden, R (2018). Hvordan bruger danskerne tiden? Rockwool Fonden

Bourdieu P (1984). Distinction: a social critique of the judgement of taste. Routledge

Bradbury M, Peterson MN, Liu J (2014) Long-term dynamics of household size and their environmental implications. Popul Environ 36(1):73–84. https://doi.org/10.1007/s11111-014-0203-6

Chandler J, Williams M, Maconachie M, Collett T, Dodgeon B (2004) Living alone: its place in household formation and change. Soc Res Online 9(3):42–54

Connell RW (2005). Masculinities. Routledge

Demey D, Berrington A, Evandrou M, Falkingham J (2013) Pathways into living alone in mid-life: diversity and policy implications. Adv Life Course Res 18(3):161–174

Ellsworth-Krebs K (2020) Implications of declining household sizes and expectations of home comfort for domestic energy demand. Nat Energy 5(1):20–25

English Proficiency Index (2024) A ranking of 116 countries and regions by English skills (14th ed.). Education First. Retrieved August 11, 2025, from https://www.ef.com/assetscdn/WIBIwq6RdJvcD9bc8RMd/cefcom-epi-site/reports/2024/ef-epi-2024-english.pdf

Esping-Andersen G, Billari FC (2015) Re-theorizing family demographics. Popul Dev Rev 41(1):1–31

Esteve A, Reher DS, Treviño R, Zueras P, Turu A (2020) Living alone over the life course: cross-national variations on an emerging issue. Popul Dev Rev 46(1):169–189

European Commission (2015) Demography report. Publications Office of the European Union Luxemburg, https://ec.europa.eu/eurostat/documents/3217494/6917833/KE-BM-15-003-EN-N.pdf/76dac490-9176-47bc-80d9-029e1d967af6?t=1436860593000

Cunha V, & Atalaia S (2019). The gender (ed) division of labour in Europe: patterns of practices in 18 EU countries. Sociologia Problemas e Práticas (90), 113–137

Gausset Q, Jensen PD (2024) Living sustainably in a Danish eco-community: how social and physical infrastructures affect carbon footprints. npj Clim Action 3(1):33

Glass AP (2020) Sense of community, loneliness, and satisfaction in five elder cohousing neighborhoods. J Women Aging 32(1):3–27

Holstein JA, Gubrium JF (1995) The Active Interview. Sage publications

Ivanova D, Büchs M (2020) Household sharing for carbon and energy reductions: the case of EU countries. Energies 13(8):1909

Ivanova D, Jack T, Gram-Hanssen K, & Buchs M (2021). The sustainability implications of single occupancy households. Build Cities, Ubiquity Press Ltd

Ivanova D, Buchs M, Jack T (n.d.) Challenges and policy recommendations for transformative sharing. Consumption Soc Bristol United Press

Jack T, Ivanova D (2021) Small is beautiful? Stories of carbon footprints, socio-demographic trends and small households in Denmark. Energy Res Soc Sci 78:102130

Jack T, Ivanova D, Gram-Hanssen K, Buchs M (2021) Why more people than ever are living alone–and what this means for the environment. The Conversation, Lund University

Jack T, Bååth J, Heinonen JT, Gram-Hanssen K (2024) How individuals make sense of their climate impacts in the capitalocene: mixed methods insights from calculating carbon footprints. Sustain Sci 19(3):777–791

Jaspers E, Van der Lippe T, Evertsson M (2022) Gender inequality, households, and work. In Mole RCM, Diani M, Savage M (Eds.) *Handbook of Sociological Science* (pp. 176–195). Edward Elgar Publishing

Kersten P, Mund M, Neyer FJ (2024) Does living alone mean being alone? Personal networks of solo-living adults in midlife. Int J Behav Dev 48(1):12–24

Klinenberg E (2016). Going solo: the extraordinary rise and surprising appeal of living alone. Penguin Books

Klinenberg E (2016) Social isolation, loneliness, and living alone: identifying the risks for public health. Am J Public Health 106(5):786

Lage J, Cordroch L, Thema J, Vondung F, Schöpf D (2024) Housing for millions without new buildings? An analysis of the theoretical housing potential of under-occupied dwellings in the European building stock. Environ Res Lett 20(1):014045

Lehner M, Richter JL, Kreinin H, Mamut P, Vadovics E, Henman J, Mont O, & Fuchs D (2024). Living smaller: acceptance, effects and structural factors in the EU. Build Cities, 5(1):438

Lodovici MS, Patrizio M, Pesce F, Roletto E (2015) Elderly women living alone: an update of their living conditions, https://www.europarl.europa.eu/RegData/etudes/STUD/2015/519219/IPOL_STU(2015)519219_EN.pdf

Narushima M, Kawabata M (2020) "Fiercely independent": experiences of aging in the right place of older women living alone with physical limitations. J Aging Stud 54:100875

Nielsen-Englyst C, Gausset Q (2024) From countercultural ecovillages to main-stream green neighbourhoods—a view on current trends in Denmark. npj Clim Action 3(1):60

OECD. Publishing. (2017). The pursuit of gender equality-an uphill battle. OECD Publishing

Ottelin J (2022) Ageing society risks emission cuts. Nat Clim Change 12(3):221–222

Putnam RD (2000). Bowling alone: the collapse and revival of American community. Simon and Schuster

Reher D, & Requena M (2018). Living alone in later life: a global perspective. Popul Develop Rev 44(3):427–454

Rose D, & Villeneuve P (2006). Life stages, living arrangements, and lifestyles. Canadian Cities in Transition, 138–153. Oxford University Press

Ruiu ML (2016) The social capital of cohousing communities. Sociology 50(2):400–415

Sowa-Kofta, A, Marcinkowska, I, Ruzik-Sierdzińska, A, Mackevičiūtė, R (2021). Ageing policies–access to services in different member states, publication for the committee on employment and social affairs, policy department for economic, scientific and quality of life policies, European Parliament, Luxembourg https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662940/IPOL_STU(2021)662940_EN.pdf

Spanke DH (2017). Living together today, participating together tomorrow? The impact of student dormitories on the development of social capital and political participation among students. Student paper, Department of Political Science, Lund University. http://lup.lub.lu.se/student-papers/record/8907523

Statistics Denmark. (February 23, 2023a). Number of households in Denmark from 2013 to 2023, by type of household [Graph]. In Statista. Retrieved June 25, 2024, from https://www.statista.com/statistics/582664/number-of-households-in-denmark-by-type/

Statistics Denmark. (2023b). Number of households by type of household, unit and time [Dataset]. StatBank Denmark. Retrieved August 11, 2025, from https://www.statbank.dk/20331

Trost J, & Levin I (2000). Särbo-ett par, två hushåll. Studentlitteratur

Vita G, Ivanova D, Dumitru A, García-Mira R, Carrus G, Stadler K, Krause K, Wood R, Hertwich EG (2020) Happier with less? Members of European environmental grassroots initiatives reconcile lower carbon footprints with higher life satisfaction and income increases. Energy Res Soc Sci 60:101329

Wheeler A (2022). New Age [ing]: Small-Scale, Collective, Grassroots Models of Housing for Older Adults (Doctoral dissertation, Carleton University)

World Health Organization. (2015). World report on ageing and health. World Health Organization. Geneva, https://iris.who.int/bitstream/handle/10665/186463/9789240694811_eng.pdf?sequence=1

Yates L (2018) Sharing, households and sustainable consumption. J Consum Cult 18(3):433–452

Statistics Denmark. (2024) Urban areas: Statistical presentation. Retrieved August 11, 2025, from https://www.dst.dk/en/Statistik/dokumentation/documentationofstatistics/urban-areas/statistical-presentation

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Author contributions

The author conceived and designed the study, conducted the empirical and theoretical research, analysed and interpreted the findings, and wrote and revised the manuscript. The author approved the final version for publication and is solely responsible for the content of the article.

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Competing interests

The author declares no competing interests.

Ethical approval

The research was conducted in line with European Code of Conduct for Research Integrity (ALLEA, 2023). Ethics approval was reviewed and exempted by Aalborg University's Data Protection Officer (DPO) in accordance with Danish national regulations and university policy on the 16 November 2020.

Informed consent

Informed consent for this study was obtained in writing from all participants prior to taking part in the interviews, using the Plain Language Statement (Appendix 2) and Consent Form (Appendix 3). When booking the interviews, potential participants received brief general information about the nature and purpose of the study, and immediately before the interview they were given the Plain Language Statement, which outlined why the research was being conducted, what participation involved, how their data would be used, and any foreseeable risks or burdens. After having the opportunity to read this information and ask questions, participants were asked to sign the Consent Form, which recorded their written consent to participate in the interview and to allow their data to be used for research and publication purposes in anonymised form. The dates for informed consent aligned with the interview dates, throughout 2022. All participants were adults capable of providing informed consent in their own right; no minors or other vulnerable groups were included in the study, and participants were explicitly assured that their anonymity would be protected in all publications and that they could withdraw at any time without negative consequences.

Additional information

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