



Interim Report

Moving into new housing designed for people with disability: Evaluation of tenant outcomes

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Please note that these are preliminary findings and are correct at the time of publication. Further findings will be published as data collection progresses.

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Executive summary

Suitable housing is essential for stability, dignity, and quality of life. The National Disability Insurance Scheme (NDIS) provides housing payments for people with disability and complex care needs who require housing specifically designed to maximise independence or improve the efficiency of the delivery of person-to-person support. This housing payment, intended to meet capital costs, is called Specialist Disability Accommodation (SDA). Non-capital costs, such as day-to-day support and services are funded separately under the NDIS. The SDA market leverages private capital because government and philanthropy do not have the resources required to build and maintain the scale of housing needed for NDIS participants. Without a suitable built environment, NDIS participants with the highest levels of disability will remain more dependent on paid support than necessary over the medium to longer term. Affordable and accessible housing is foundational to NDIS participants achieving their goals related to social and economic participation and maximising independence. SDA-funded housing enables individuals to transition from a range of living environments including group homes, Residential Aged Care (RAC) and living with ageing parents to more contemporary models of housing designed for people with disability.

This interim report discusses the outcomes for the first 13 participants in the study who moved from a variety of living situations into SDA-funded apartments within a 10+1 model. In this model SDA providers purchase 10 apartments off the plan that are modified to maximise independence of people with disability. One additional apartment is also purchased and used as a base for 24-hour onsite support staff. Apartments are situated within a larger private residential development (e.g. more than 70 apartments) that is located near accessible public transport and other amenities. Variations of the model can include lower or higher ratios (i.e. as few as 6 SDA-funded apartments and as many as 15). The 10+1 model has demonstrated significant uptake in Australia in the past few years. The 10+1 model was founded on the premise that well-located housing with appropriate design, technology and support will result in better quality of life, increased independence and reduced lifetime care costs for people with disability and complex care needs. More specifically, the 10+1 model was developed to enable people with high support needs to be able to live in their own apartment but be co-located to enable the cost-effective provision of support.

Aims

The overarching aim of the research project is to systematically evaluate individual outcomes of tenants moving to newly built, SDA-funded contemporary models of housing for people with disability over a 3-year period. The preliminary findings presented in this interim report examine the tenant outcomes of people with disability moving into SDA-funded apartments, with appropriate technology, support, design and location, in the 10+1 model.

Method

People with disability (acquired neurological disorder or cerebral palsy) and complex needs, aged 18-65 years, participated in a mixed methods study (quantitative self-report measures and semi-structured interviews) over 2 time-points (pre-move and 6-24 months post-move). Pre-move living arrangements included a range of environments, including group homes, RAC, private rentals and living with parents. The Tenant Outcomes Framework was utilised to measure the impact of change in the living environment across a range of life domains (quality of life, wellbeing, support needs and community integration). The Tenant Outcomes Framework incorporates valid and reliable outcome measures. Semi-structured interviews also explored these domains. Interview transcripts were analysed using thematic analysis. Case studies of 6 individuals who moved from a range of living environments into a 10+1 model funded by SDA were selected to represent a mix of disability types, support needs and moving experiences.

Results

After living in an SDA-funded apartment in the 10+1 model for 6-24 months, the first 13 participants with pre-move and post-move data experienced statistically significant improvements in wellbeing and community integration. The findings of this study are very promising as statistical significance indicates that the improvements are not due to chance. Given the small sample size and heterogeneous sample, we were expecting to find promising trends rather than statistically significant differences between pre-move and post-move data. Positive trends were demonstrated in quality of life and a reduction in the average level of support needed by tenants post-move compared to pre-move. These results were also reflected in the qualitative analysis of interview data in which participants described their pre-move homes as 'not a good fit' and life in the SDA-funded apartment as 'moving in the right direction'.

Overall, tenants had a greater level of community participation and were significantly more involved in household tasks such as meal preparation, shopping and electronic social networking post-move. There was also a positive trend towards improved social integration. These changes reflect the fact that tenants moving into SDA-funded apartments were more involved in everyday life compared to their pre-move living situation, suggesting that the 10+1 model better enables people with severe disabilities to fulfil their aspirations to live an ordinary life.

Implications

This study is the first to provide evidence regarding the potential of SDA-funded contemporary housing for people with disability to improve the lives of tenants, maximise independence and reduce the long-term liability of the NDIS. Findings support the worldwide trend¹ and assumption that moving away from housing that is congregated and segregated to individualised housing and living arrangements, such as an SDA-funded apartment in the 10+1 model, will result in better outcomes for tenants.

¹ Oliver, S., Gosden-Kaye, E. Z., Winkler, D., & Douglas, J. M. (2020). 'The Outcomes of Individualised Housing for People with Disability and Complex Needs: A Scoping Review.' *Disability and Rehabilitation*, 1-15.

These preliminary findings demonstrate the utility of the Tenant Outcomes Framework and address the gap in international disability literature related to the need for systematic and rigorous evidence regarding outcomes associated with individualised housing. The framework has been tested, refined and piloted and is ready to be implemented at scale. The preliminary findings presented in this report demonstrate that the Tenant Outcomes Framework has the capacity to provide a rigorous evidence base to further tailor this model of housing and support to ensure that it is responsive to the diverse and changing needs of tenants. This Tenant Outcomes Framework will also provide the foundation for a practical minimum data set to support housing and support providers committed to ongoing quality improvement and innovation. Work will also continue with impact funds and investors to identify the subset of practical and meaningful impact measures that best meet their needs.

The results of this initial study are promising and demonstrate that the effective implementation of the 10+1 model has the potential to fulfil the ambition of the SDA market design and deliver advantageous housing to NDIS participants with the highest needs. The findings of this study support the premise that well-located housing with appropriate design, technology and support provision will allow for better quality of life, increased independence and reduced support for people with disability and complex care needs. Ideally the 10+1 will be the first in a range of innovative models of housing in the SDA market to meet the diverse needs and preferences of people with disability. This Tenant Outcomes Framework has the potential to support the transition of older stock in the SDA market from pseudo-block funding to responsive and competitive services that are driven and shaped by the systematic collection of tenant outcome data.

Introduction

Background and context

Adequate housing is universally viewed as one of the most basic human needs.² Our home and living arrangements have a great influence on our quality of life.³ Indeed, a considerable body of literature affirms the links between housing, health outcomes, and quality of life for people with disability.⁴ Affordable, safe, and secure tenure housing is foundational for the full social and economic participation of all Australians. There is a huge unmet demand in Australia for housing that is both affordable and accessible for people with disability. Without accessible and affordable housing, many people with disability remain dependent on family and paid workers for everyday tasks that they have the potential to complete themselves. Without more accessible and affordable housing, the NDIS cannot achieve its objectives of making a measurable difference to the independence and social participation of many NDIS participants.

Choosing where you live and who you live with is a choice that most Australians take for granted. However, a significant number of Australians with complex and significant disabilities (e.g. intellectual disability, brain injury, spinal cord injury, multiple sclerosis, cerebral palsy) are denied the dignity of having their own home and have limited choice in housing and living arrangements. Choice regarding where and with whom to live with is clearly defined within the Convention on the Rights of Persons with Disabilities (UNCRPD).⁵ Australia's ratification of the UNCRPD recognises the right of people with disability to live with equal choices to others in society. Organisations throughout Australia, including the National Disability Insurance Agency (NDIA), have been working toward breaking down barriers and enabling people with disability to exercise their right to choose where and with whom they live.⁶

Worldwide, housing for people with disability is moving away from congregated living (e.g. group homes) and towards individualised models of housing (Figure 1). Individualised housing aims to provide choice regarding living arrangements and the option to live in houses in the community, just like people without disability.⁷

² UN Habitat. (2009). 'The Right to Adequate Housing. Fact Sheet No. 21/Rev. 1.' Available from http://www.ohchr.org/Documents/Publications/FS21_rev_1_Housing_en.pdf

³ NDIA (2018). 'A Home for Living: Specialist Disability Accommodation Innovation Plan. Report No. DA0426.' Available from <https://www.ndis.gov.au/providers/housing-and-living-supports-and-services/housing/specialist-disability-accommodation/sda-innovation-plan>

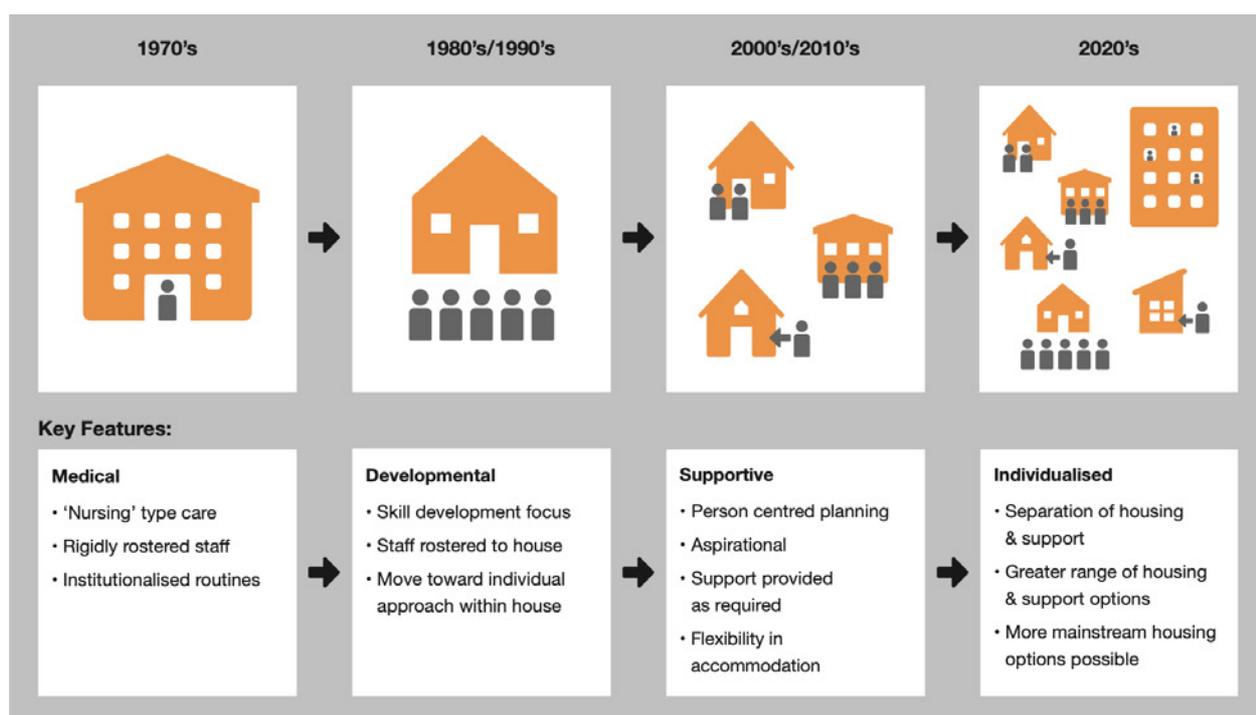
⁴ Oliver, S., Gosden-Kaye, E. Z., Winkler, D., & Douglas, J. M. (2020). 'The Outcomes of Individualised Housing for People with Disability and Complex Needs: A Scoping Review.' *Disability and Rehabilitation*, 1-15.

⁵ UN General Assembly (2007). 'Convention on the Rights of Persons with Disabilities: resolution adopted by the General Assembly, A/RES/61/106.' Available from: <http://www.unhcr.org/refworld/docid/45f973632.html>

⁶ NDIA (2018). 'A Home for Living: Specialist Disability Accommodation Innovation Plan. Report No. DA0426.' Retrieved from <https://www.ndis.gov.au/providers/housing-and-living-supports-and-services/housing/specialist-disability-accommodation/sda-innovation-plan>

⁷ Oliver, S., Gosden-Kaye, E. Z., Winkler, D., & Douglas, J. M. (2020). 'The Outcomes of Individualised Housing for People with Disability and Complex Needs: A Scoping Review.' *Disability and Rehabilitation*, 1-15.

Figure 1: Changes in housing for people with disability over the past 50 years⁸



A recent scoping review found that individualised housing has a range of favourable outcomes for people with disability including increased self-determination, autonomy, choice, home participation and community participation.⁹ People with disability who live in individualised housing can also experience improvements in functional skills, mood and social relationships.¹⁰ Decreases in challenging behaviour have also been associated with living in individualised housing.¹¹ Quality formal and informal supports were identified as important for positive outcomes in individualised housing. This review of international research concluded that future research should use clear and consistent terminology and longitudinal research methods to investigate individualised housing outcomes for people with disability.¹²

⁸ Modified from Pearson, D. (2008). Accommodation for people with a disability. Victorian Auditor General. https://www.vgls.vic.gov.au/client/en_AU/search/asset/1161181/0

⁹ Bigby, C., Bould, E., & Beadle-Brown, J. (2018). Comparing Costs and Outcomes of Supported Living with Group Homes in Australia.' *Journal of Intellectual & Developmental Disability*, 43(3), 295-307; Tichá, R., et al., (2012). Correlates of Everyday Choice and Support-Related Choice for 8,892 Randomly Sampled Adults with Intellectual and Developmental Disabilities in 19 States.' *Intellectual and Developmental Disabilities*, 50(6), 486-504; and, Wehmeyer, M. L., & Bolding, N. (2001). 'Enhanced Self-Determination of Adults with Intellectual Disability as an Outcome of Moving to Community-Based Work or Living Environments.' *Journal of intellectual disability research*, 45(5), 371-383.

¹⁰ Marlow, E., & Walker, N. (2016). 'Does Supported Living Work for People with Severe Intellectual Disabilities?' *Advances in Mental Health and Intellectual Disabilities* 9(6), 338-351; McConkey, R., Keogh, F., Bunting, B., & Iriarte, E. G. (2018). 'Changes in the Self-Rated Well-Being of People who Move from Congregated Settings to Personalized Arrangements and Group Home Placements.' *Journal of Intellectual Disabilities*, 22(1), 49-60; and, McConkey, R., Bunting, B., Keogh, F., & Garcia Iriarte, E. (2019). 'The Impact on Social Relationships of Moving from Congregated Settings to Personalized Accommodation.' *Journal of Intellectual Disabilities*, 23(2), 149-159.

¹¹ Emerson, E., et al. (2001). 'Quality and Costs of Supported Living Residences and Group Homes in the United Kingdom.' *American Journal on Mental Retardation*, 106(5), 401-415.

¹² Oliver, S., Gosden-Kaye, E. Z., Winkler, D., & Douglas, J. M. (2020). 'The Outcomes of Individualised Housing for People with Disability and Complex Needs: A Scoping Review.' *Disability and Rehabilitation*, 1-15.

Group homes are still the predominant model of disability housing for people with high support needs in Australia. Previous research has found group homes are associated with poor outcomes for people with disability due to the inappropriate physical and psycho-social environment. In such environments, people with disability are usually segregated and live according to staff routines, rosters and priorities.¹³ They experience limited opportunities for autonomy, choice, engagement and community participation.¹⁴

Although modern group homes utilise a variety of configurations (e.g. old and new houses, large-scale and smaller-scale care) residents generally have no or limited say about their co-tenants and live with 4 or 5 other people.¹⁵ Living in a group home environment would be challenging for any adult with or without a disability. When you consider tenants with disability may also have cognitive and communication difficulties, including a low frustration tolerance, it is clear that group homes are often not an adequate housing option. In some group home environments, considerable staff time and resources are utilised to manage conflict and support people with disabilities with a low frustration tolerance to live in close proximity to each other. Additionally, it was recently reported that people with disability residing in group homes are also vulnerable to violence, abuse and neglect.¹⁶ The group home model, like many historical housing models of co-habitation of people with disability who are unrelated, has no inherent drivers to foster independence and reduce paid supports over time. Supported Independent Living (SIL) providers tend to have predetermined ideas about the staff roster required for a group home, with a support model of fixed hours of support rather than a model that is tailored and responsive to the diverse and changing needs of residents. Many people with disability currently living in group homes have the capacity for more independent living. Further, for those living in housing that was not designed to be adaptable for people with disability, inadequate design or modifications can prohibit effective home participation, mitigate choice and control, and increase support needs to complete daily tasks.¹⁷ The financial implications of increased support needs and reduced independent living skills in these housing environments is significant.¹⁸ SIL comprises one of the most significant cost components of the NDIS and the sustainability of the scheme for governments is predicated on SDA housing models which maximise participant independence and outcomes.

The NDIS provides housing payments for people with disability who need housing designed to maximise independence or improve the efficiency of the delivery of person-to-person support. This housing payment is called SDA. SDA funding is provided through the NDIS to eligible participants to pay for the physical property (bricks and mortar) when a person is deemed to have an extreme functional impairment and/or very high support needs.¹⁹

¹³ Keogh, F. (2009). 'Disability and Mental Health in Ireland: Searching out Good Practice.' Available from: <https://www.genio.ie/publications/disability-mental-health-ireland-searching-out-good-practice>

¹⁴ Wiesel, I. (2011). 'Allocating Homes for People with Intellectual Disability: Needs, Mix and Choice.' *Social Policy & Administration*, 45(3), 280-298.

¹⁵ Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2020). 'Overview of Responses to Group Homes Issues Paper.' Available from: <https://disability.royalcommission.gov.au/system/files/202010/Overview%20of%20responses%20to%20Group%20homes%20Issues%20paper.pdf>

¹⁶ Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability (2020). 'Overview of Responses to Group Homes Issues Paper.'

¹⁷ Wiesel, I. (2020). 'Living with Disability in Inaccessible Housing: Social, Health and Economic Impacts.' Melbourne: University of Melbourne. Available from https://disability.unimelb.edu.au/_data/assets/pdf_file/0019/3522007/Accessible-Housing-FINAL-REPORT.pdf

¹⁸ D'Cruz, K., Winkler, D., Douglas, J., Wellecke, C., Goodwin, I., and Davis, E. (2021). 'Accessible Design, Hospital Discharge and Ageing in Place: A National Survey of Occupational Therapists.' Melbourne, Australia: Summer Foundation.' Available from: https://www.summerfoundation.org.au/wp-content/uploads/2021/03/Study_2_Survey_of_Occupational_Therapists_FINAL_9-apr-web.pdf

¹⁹ NDIA (2020). 'Price Guide 2020-21 Specialist Disability Accommodation.' Available from: <https://www.ndis.gov.au/providers/pricing-arrangements>

Under the NDIS, housing and support funding are considered separately. This separation allows NDIS participants more choice and control over where they live and the services they use by enabling housing and supports to be supplied by different providers. Prior to the NDIS, disability housing was largely either owned by state governments or funded by grants from government and philanthropy. Neither government nor philanthropy have the resources required to develop new housing for the unmet housing needs of NDIS participants or to redevelop the majority of legacy stock that does not meet current design standards. The SDA market was designed to leverage private capital to fund the scale of housing needed for the 6-7% of NDIS participants requiring the highest level of support and to facilitate improved and innovative models of housing which drive improved participant outcomes and reduce costs of support. Under the NDIS there is a significant opportunity to develop models of housing that incorporates communication and smart home technology, and tailor support to maximise independence and reduce the long-term liability of the scheme.

Impact measurement

Although investors and impact funds spend significant resources on due diligence regarding the financial modelling and returns on impact investment opportunities, the measurement of the social impact from those investments is limited. Currently, impact funds and investors in Australia seem content simply to identify that the intent of their investment is to have an impact and to identify who the beneficiaries are. Significant work is required to identify a couple of metrics to measure the impact of tenants moving into new SDA. Systematically measuring the impact of SDA on tenant outcomes will ensure appropriate transparency and accountability to help investors make informed investment decisions. Without authentic measures of SDA tenant outcomes and impact, there is a significant risk that some well-meaning impact investors will fund poor quality SDA housing at scale.

In contrast to other outcomes frameworks that are in development,²⁰ the Tenant Outcomes Framework utilised in this study has been piloted, refined and underway for over 3 years. The current framework utilises valid and reliable measures that will provide useful data to providers and investors. The Tenant Outcomes Framework will contribute to a rigorous evidence base for the NDIA about the implications of moving into SDA-funded housing for lifetime care costs. Due to the complex needs of the cohort and complexity of research design that is required to gain useful data on the topic, it is essential for framework developers to have disability expertise as well as experience implementing large scale research projects. The current project is led by experts with a combined total of over 90 years' clinical experience with people with complex disability (i.e. occupational therapists, speech pathologists and neuropsychologists) and over 90 years' research experience. Unfortunately, the development of impact measures by consultants, rather than experts, is common in the emerging impact investment sector. Rather than using valid and reliable measures of tenant outcomes, impact measures are often based only on conversations with stakeholders. Data derived from such methods is unlikely to result in an effective framework, provide useful information to providers or investors, or contribute to a rigorous evidence base.

²⁰ Social Ventures Australia Consulting (2020). 'Disability Housing– What Does Good Look Like?' <https://www.socialventures.com.au/sva-quarterly/disability-housing-what-does-good-look-like/>

The SDA market was developed to provide eligible NDIS participants with housing that increases their independence and maximises their social and economic participation, while delivering value for money to the scheme. A well-designed home in the right location can foster more independent living and increase community connection and access to informal supports. Too many NDIS participants currently live in housing which they have had little control over, and in places or with people they did not choose. While it is recognised that some NDIS participants were not ready or prepared to move into more independent living at the commencement of the NDIS scheme, now a number of years later, it is expected that many of these participants would benefit from a move into SDA-funded housing. Indeed, many of these participants currently live in housing that was never intended for them, such as young people in RAC or congregate care settings with more than 10 people.²¹

The SDA market was designed to enable new and innovative housing options to grow and transform old models of housing based on new patterns of participant demand. Group homes were the predominant model of housing for people with disability in the state-based disability systems pre-NDIS. The NDIS was intended to transition disability service providers from guaranteed block funding to responsive and competitive consumer driven services that are outcomes focused and innovative. The old-system group homes from the state and territory systems have been transferred into the NDIS with little input from residents and their families and are pseudo-block-funded via SIL.²² SIL payments are made to 7% of NDIS participants and absorb 40% of total NDIS scheme payments at over \$300,000 per person per annum. The rising cost of SIL is a threat to the sustainability of the scheme. The NDIS does not seem to have a plan to transform the pseudo-block-funded traditional groups homes to contemporary and cost-effective models of housing and support. In what appears to be a move to control SIL costs, the NDIA has started restricting the eligibility and entitlements of NDIS participants looking to move into new SDA that is designed to foster independence and deliver improved tenant outcomes at equivalent or lower support costs.

Many SIL recipients continue to have little choice or control over their circumstances.²³ Most people living in traditional group homes have one organisation that is their landlord, provides support services and sometimes also provides support coordination. In this closed system, NDIS participants may not be aware of their SDA payments and the potential to consider alternative housing and support arrangements. In group homes, drivers to foster independence and autonomy or support NDIS participants to transition to more independent living options are largely absent.

²¹ NDIA (2018). 'A Home for Living: Specialist Disability Accommodation Innovation Plan. Report No. DA0426.' Available from <https://www.ndis.gov.au/providers/housing-and-living-supports-and-services/housing/specialist-disability-accommodation/sda-innovation-plan>

²² Walsh, J. (2021). 'Submission to Joint Standing Committee on The National Disability Insurance Scheme (NDIS): Independent Assessments and Related Issues.' Available from: <https://www.aph.gov.au/DocumentStore.ashx?id=a48038c0-758c-4a6e-8357-af46b06d75b4&subId=706545>

²³ NDIA (2020). 'Improving Outcomes for Participants who Require Supported Independent Living: Provider and Sector Consultation Paper.' Available from <https://www.ndis.gov.au/media/2666/download>; Independent Advisory Council (2019). 'Challenges in Housing and Support Under the NDIS.' Available from <https://static1.squarespace.com/static/5898f042a5790ab2e056c/t/5f1a5d12d0f0823a58b7a077/1598500465902/Challenges+in+housing+and+support+-+November+2019+-+paper.pdf>

The 10+1 model

Aims

The 10+1 model was developed to enable people with high support needs to live in their own apartment but be co-located to enable the cost-effective provision of support. An integrated model of housing was also designed to allow people with disability to live with their partner and/or children and still have access to 24-hour support. The model of support provided within the 10+1 model should not be fixed or standardised but tailored to meet the needs and preferences of the individual tenants in each housing project.

Housing projects

The 10+1 model is a contemporary model of SDA that has demonstrated significant uptake in Australia in recent years. This model comprises a number of specialist disability apartments that are peppered throughout mainstream apartment developments. In this model SDA providers purchase 10 apartments off the plan intended to be modified to be SDA compliant, as well as 1 additional apartment to be used as a base for 24-hour on-site support staff, within a larger private residential development (e.g. more than 70 apartments) that is located near accessible public transport and other amenities. Variations of the model can include lower or higher ratios (i.e. as few as 6 SDA-funded apartments and as many as 15). The provider then redesigns the apartments to be accessible and incorporates smart home and communication technology. This housing model operates on the premise that well-located housing with appropriate design, technology and support provision will allow for better quality of life, increased independence and reduced lifetime care costs for people with disability and complex care needs. Smart home and communications technology incorporated into contemporary housing alone has enormous potential to increase independence and autonomy and reduce support costs. Pilots of this model were established prior to the NDIS in Woodville (SA) by the South Australian Government,²⁴ Abbotsford (VIC) by the Transport Accident Commission and the Summer Foundation,²⁵ and Belmont (NSW) by the Summer Foundation.²⁶ In March 2021 there were over 500 people living in this model of housing and support across Australia. An SDA supply survey conducted in November 2020 indicated that there are more than 900 apartments under construction, many of which will form part of the 10+1 model.²⁷

²⁴ Flinders University (2013). 'Flinders Engineers Enable Independent Living.' Available from <https://news.flinders.edu.au/blog/2013/08/16/flinders-engineers-enable-independent-living/>

²⁵ Fyffe, C, (2015). 'Learnings from the Abbotsford Housing Demonstration Project – 2012-2013.' Melbourne: Summer Foundation Ltd. Available from https://www.summerfoundation.org.au/wp-content/uploads/2015/11/Abbotsford-Report_lowres.pdf

²⁶ Summer Housing (2018). 'Summer Housing 2017/2018 Annual Report.' Melbourne: Summer Foundation Ltd. Available from <https://summerhousing.org.au/wp-content/uploads/2019/04/SH-AR-2018-web-final-3.pdf>

²⁷ Housing Hub and Summer Foundation (2021). 'Specialist Disability Accommodation Supply in Australia - January 2021.' Available from www.housinghub.org.au/resources/article/report-sda-supply-in-australia

Implementation of support

In the original 10+1 model, providers of shared support services were asked to get to know each tenant, how they want to live and when and how they want to be supported. The support providers were encouraged to then consider all 10 tenants together and look for efficiencies in the provision of support. Rather than each tenant purchasing support within their apartment individually, co-location enables providers and tenants to consider how shared support might enable tenants to make better use of the resources in their NDIS plan. In addition to the shared support, tenants also need 1:1 support for some periods during the day. This support might include an intensive personal care and morning routine or support for community participation. Tenants have a choice of support provider and support worker for their 1:1 support. However, ideally tenants will also have a role in the selection of the shared support provider. At least 1 tenant could also be included in the selection process and performance management of staff in the shared support service.

One of the challenges of providing shared support services is clearly communicating to both tenants and workers the scope of what is included in the shared support service and what aspects of 1:1 support needs to be funded separately. It is important to make sure that tenants, particularly those who move from a group home environment, have realistic expectations regarding the scope of shared support services.

Tailoring the model of support to meet tenant needs over time

The original model included 10 apartments because it was always envisaged that the support needs of tenants would change over time. Some tenants will become more independent and may no longer need access to the 24/7 shared support service while others might require additional support (e.g. people with neurodegenerative conditions). If a few tenants no longer need the shared support, the model would still be viable with 5 or 6 tenants sharing support. Over time some projects may also transition from on-site support to a community-based after-hours non-medical 24/7 emergency service that provides support to people with disability. Other projects may expand their reach to become a hub that provides a timely and cost effective non-medical 24/7 emergency service to a broader range of local people with disability (e.g. living in a 3 km radius).

Cost effective support

Given that this model of housing has 10 NDIS participants co-located there is ample opportunity to develop, tailor and deliver models of support to people with high needs that are more cost effective, timely and high quality than group homes with less than 6 people or people living in their own homes in the community. This model of housing also fosters independence, social inclusion and community connection in a way that is not possible in segregated housing. In a group home, support workers are ever present and tend to complete tasks for residents rather than foster independence.

Tenants in the 10+1 model have neighbours, acquaintances and daily interaction with people who are not paid to support them which provides a significant safeguard to combat the abuse and neglect that is associated with segregated housing options. The 10+1 model also enables people with disability to live with their partner and/or children.

Tenant outcomes

While the intent of the SDA market is to foster innovation and the supply of housing and support that maximises independence and inclusion in the community, there has been limited research to date that measures the outcomes of NDIS participants moving into new SDA.

In order to maximise and sustain the benefits of contemporary models of housing and support for people with disability, it is essential to build a comprehensive evidence base that captures the experiences and outcomes of NDIS participants who move into SDA and tracks these outcomes over time. Moving into and living in a new SDA is a dynamic process and is expected to have ongoing and changing effects on outcomes as people adjust to their new way of life. Much of the existing research has focused on and demonstrated the significance of the quality of support in small group home settings for people with intellectual disability. The impact of housing on tenant outcomes is multifaceted and likely reflects the complex interplay between the support and housing needs of the person, their individual characteristics, social networks, past experiences, the built design and smart home technology incorporated into the dwellings, and the characteristics and quality of the support provided. Unfortunately, current studies shed little light on associations between and within this wide range of factors.

Large scale, rigorous longitudinal research is needed to better understand the outcomes of NDIS participants moving into contemporary SDA-funded housing and the impact of the built form, technology and support. The Summer Foundation is partnering with La Trobe University on this project, as well as 15 industry partners to systematically measure the outcomes and impact of new build SDA. In collaboration with financial institutions and investors, the knowledge generated from this study will develop practical and meaningful impact measures for investors and impact funds.

Tenant Outcomes Framework

This research utilises a Tenant Outcomes Framework designed to guide decision-making. The Tenant Outcomes Framework can be used by the NDIS, government, policy makers, support providers and design agencies to ensure the innovation scaled in the SDA market is evidence-based and the stock built is informed by the needs, preferences, experience and outcomes of tenants with disability. The framework captures the following outcomes: The subjective lived experience, quality of life, wellbeing, community participation, social connection, environmental impact, autonomy, quality and cost of support, and housing and health care costs. Established valid and reliable measures were chosen as part of the Tenant Outcomes Framework to ensure research findings accurately represent tenant outcomes and capture change. By using the Tenant Outcomes Framework, research findings will provide essential insights into the complex relationships between quality of life, support provision, initial investment and lifecycle costs as they pertain to housing for people with disability. Such insights will allow for the development of effective strategies that will enhance tenant outcomes and ultimately result in the most effective use of investment and resources. The Tenant Outcomes Framework will also provide the foundations of a minimum data set. This minimum data set will enable SDA and SIL providers to measure tenant outcomes routinely and efficiently. Additionally, findings from the Tenant Outcomes Framework research will allow for the development of an outcome measurement tool to enable ongoing quality improvement and an iterative innovation process.

Research aims

The overarching aim of the current research project is to systematically evaluate individual outcomes of the impact of moving to and living in new, contemporary models of housing for people with a disability over a 3-year period, by using an established Tenant Outcomes Framework. Additionally, the research aims to investigate the relationship between the tenant outcomes of people with disability and individual factors (e.g. disability type, support needs), housing factors (e.g. location, built design, technology), and support factors (e.g. quality of support).

It is hypothesised that:

1. Tenant outcomes of participants who move into newly built SDA-funded housing will show significant positive change over time.
2. Close others who have shared the care demands of primary participants will show significant positive change with respect to their own wellbeing and function.
3. Overall costs of housing and care support will reduce.

Interim report: Presentation of preliminary findings

This interim report presents a sub-set of preliminary findings from the larger, ongoing study. This study sought to investigate the change in outcomes in people with disability who move into a home with appropriate technology, support, design and location, as offered in the 10+1 model. Specifically, the findings presented in this report focus on the tenant outcomes of people with disability moving into new SDA-funded apartments in the 10+1 model, by using a subset of measures from the Tenant Outcomes Framework. Table 1 compares the scope of the interim report with the larger ongoing research project. The broader study has recruited 47 primary participants, 26 close others, with a total of 74 interviews completed to date. In the larger study, participants are currently at various stages of data collection, and have moved, or are moving into, a range of new SDA including townhouses, houses and apartments in a range of configurations. Recruitment and interviews are ongoing.

The interim report includes the first 13 participants in the larger study that have both pre-move and post-move data. All 13 had moved into an SDA-funded apartment in a 10+1 model. Pre-move living arrangements included a variety of environments, including group homes, RAC, private rentals and living with parents. Therefore, this study reports on the first 13 people with disability (acquired neurological disorder or cerebral palsy) and complex needs who had moved from a range of living environments into SDA-funded apartments. Pre-move and post-move support services may also be delivered by different providers. The results presented in the current report explore the quality of life, wellbeing, community participation and support outcomes and experiences of the first 13 participants who have moved to an SDA-funded apartment in the 10+1 model. The report concludes with a discussion of implications for practice and future research, including the relationship between the study findings and the broader aims of contemporary models of housing to foster independence, increase social/economic participation, decrease support costs, and reduce the overall liability of the NDIS.

Table 1. Study profiles

	Interim report	Larger ongoing study
Participants	<ul style="list-style-type: none"> • 13 primary participants 	<ul style="list-style-type: none"> • Ongoing recruitment <ul style="list-style-type: none"> ○ 4 SDA providers ○ 2 support providers • Current progress <ul style="list-style-type: none"> ○ 47 primary participants ○ 26 close others
Pre-move Living Situation	<ul style="list-style-type: none"> • Group home • Residential Aged Care • Private rentals • Living with parents 	<ul style="list-style-type: none"> • Group home • Residential Aged Care • Private rentals • Living with parents or other family members • In hospital, unable to return home
Post-move Living Situation	<ul style="list-style-type: none"> • 10 +1 SDA Model 	<ul style="list-style-type: none"> • Range of new SDA including townhouses, houses and apartments in a range of configurations. Contemporary models of housing and support for people with disability
Study Design & Methods	<ul style="list-style-type: none"> • Longitudinal over 2 time points <ul style="list-style-type: none"> ○ Pre-move ○ 6-24 months post-move • Mixed methods <ul style="list-style-type: none"> ○ Qualitative ○ Quantitative 	<ul style="list-style-type: none"> • Longitudinal over 5 time points <ul style="list-style-type: none"> ○ Pre-move to 3 years • Mixed methods <ul style="list-style-type: none"> ○ Qualitative ○ Quantitative
Outcome Domains	<ul style="list-style-type: none"> • Support needs • Quality of life • Wellbeing • Community integration 	<ul style="list-style-type: none"> • Support needs • Quality of life • Wellbeing • Community integration • Autonomy • Social connection • Environment impact • Quality and cost of support • Housing and health care costs

Method

The development of the tenant outcomes measurement framework included a rigorous, systematic review of the relevant international literature and outcome measures.²⁸ The findings of this review informed the method of the current study by identifying a number of design issues (i.e. previous data collection methods and use of cross-sectional designs) in the existing literature.

This study utilised a mixed-method design (quantitative self-report measures and semi-structured interviews), over 2 time-points (time 1: pre-move and time 2: 6-24 months post-move).

Instrumental case studies were also developed from the qualitative interview data. Instrumental case studies are the study of specific cases (e.g. person or group) that provide insider insights and facilitate an in-depth understanding of particular issues.²⁹

Ethics approval for this study was obtained in 2018 from the La Trobe University Human Research Ethics Committee. Since then, the feasibility and utility of the outcome's framework has been piloted, tested and refined based on the feedback from people with disability, research assistants collecting data and the analysis of preliminary data.

Outcome measures assessed the impact of change in the living environment across a range of life domains. Measures assessed participants' support needs, quality of life, wellbeing and community integration in their pre- and post-move environment. All outcomes were assessed using measures with high reliability (internal consistency, test-retest, inter-rater coefficients > .7), validity (construct, convergent, predictive), established sensitivity to change in adults with disability and appropriate normative data. The overall hypotheses guiding analysis of the data for the larger study and this preliminary evaluation were that significant improvements would be demonstrated on post-move scores as compared with pre-move scores on these measures. Given these hypotheses were directional, we applied a one-tailed alpha level of .05 to test the statistical significance of results. A statistically significant result indicates that a change is meaningful, and not due to chance. We also present effect sizes to demonstrate the magnitude of the experimental effect for each comparison.

Semi-structured interviews explored participants' quality of life, community participation, social connection and support use at 2 time-points. Pre-move interviews focused on the participant's living situation (RAC, group home or private home), while post-move interviews explored the individual experience of moving into and living in an SDA-funded apartment and the factors that shaped that experience. Interviews were designed to maximise engagement of people with cognitive and communication challenges, with use of plain language communication and strategies to support use of communication devices as required.

Both outcome measures and interview data were collected by skilled research assistants who are allied health professionals with extensive clinical experience working with people with complex needs and communication difficulties.

²⁸ Oliver, S., Gosden-Kaye, E. Z., Winkler, D., & Douglas, J. M. (2020). 'The Outcomes of Individualised Housing for People with Disability and Complex Needs: A Scoping Review.' *Disability and Rehabilitation*, 1-15.

²⁹ Stake, R. E. (2005). 'Qualitative Case Studies.' In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (3rd ed., pp. 443-466). Thousand Oaks, CA: Sage.

Research assistants were independent of housing and support providers. All participants were informed and reminded that their participation in the research was voluntary, that they were free to withdraw from the research and that their participation or non-participation in the research would have no impact on their relationship with the housing provider. Data collection took approximately 1 to 1.5 hours per participant, with participants given the choice to complete the study over 1 or multiple sessions. For participants who were unable to complete the measures or who required assistance to participate in the interview, a close other was present and provided assistance as required.

Participants

Table 2 outlines the characteristics and pre-move living environment of participants included in the preliminary analyses. To be included in the current study, participants were required to have moved into a 10+1 model of SDA and have completed a pre-move and post-move interview. Therefore, this study reports on 13 people with disability (acquired neurological disorder or cerebral palsy) and complex needs who had moved from a range of living environments (group homes, RAC, private rentals and living with parents) into an SDA-funded apartment.

Table 2. Participant characteristics

Demographics

	Mean	Range
Age	41.4	25-66
	n	%
Males	5	38.5
Females	8	61.5
<i>Disability types</i>		
Acquired Brain Injury	3	23
Muscular Atrophy	3	23
Cerebral Palsy	3	15
Other Neurological	2	15
Multiple Sclerosis	1	8
Muscular Dystrophy	1	8
<i>Pre-move Housing Environment</i>		
Shared Supported Accommodation (av 9; range 4-17 people)	4	31
Residential Aged Care	3	23
Private Rental	3	23
Living with Parents	3	23

Results

Participant outcomes

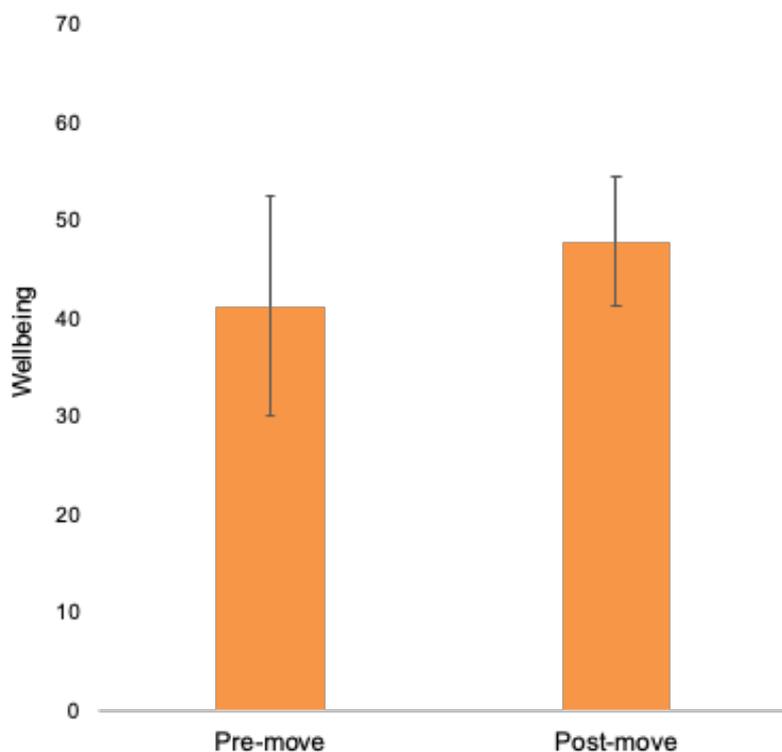
Given the small sample size and heterogeneous sample, in the preliminary analysis of data we were expecting to find promising trends rather than statistically significant differences between pre-move and post-move data. Pre- and post-move descriptive statistics, statistical comparison and effect size results are provided in table 3. Paired samples t-tests were conducted to compare wellbeing, community integration and quality of life at pre-move and post-move. As can be seen in Figure 2 there was significant improvement in wellbeing scores at post-move ($M = 47.9$; $SD = 6.6$) compared to pre-move ($M = 41.3$; $SD = 11.2$), $t(12) = -2.64$, $p = .011$ and this change was consistent with a large effect ($d = .73$). As a group, overall wellbeing was 1.1 standard deviations below the population mean pre-move and improved to being within 1 standard deviation (-0.3 SD) of the population mean. The total wellbeing ratings of 9/13 participants had moved in a positive direction and were better than the pre-move group mean.

Table 3. Pre-move and post-move comparisons of Health-related QOL, Wellbeing and Community Integration (Paired Sample t-tests; $n=13$).

Outcome (Range)	Pre-Move				Post-Move				t	p	d (effect size)
	M	SD	Min	Max	M	SD	Min	Max			
Health Related QOL (0-100)	51.3	25.2	10	85	62	19	30	90	-1.4	0.087	0.48 (med)
Wellbeing (14-70)	41.3	11.2	18	55	47.9	6.6	38	57	-2.6	.011*	0.73 (lg)
Community Integration (0-35)	16.7	3.7	10	24	20.8	4.4	14.7	31.3	-5.4	<.001**	1.50 (lg)
Home integration (0-12)	3.8	1.5	1	6.7	5.9	2.1	3.3	11.3	-3.1	.005*	0.86 (lg)
Social Integration (0-10)	6.6	1.4	4	9	6.8	1.5	4	9	-1	0.169	0.28 (sm)
Productivity (0-7)	3	1.8	1	7	3.1	1.8	1	7	-0.2	0.409	0.06 (nil)
Electronic Social Network (0-6)	3.5	1.2	1	5	4.5	1	3	6	-2.1	.030*	0.58 (med)

Note: * $p < .05$; ** $p < .001$, p (one-tailed).

Figure 2. Mean self-report wellbeing scores at pre- and post-move (bars represent standard deviation). Higher scores indicate greater wellbeing.



Community integration also showed a large positive effect ($d = 1.5$) with scores showing a significant increase at post-move ($M = 20.8$; $SD = 4.4$) compared to pre-move ($M = 16.7$; $SD = 3.7$) $t(12) = -5.41, p = <.001$ (see figure 3). Two subscales within community integration, home integration and electronic social network, showed significant improvements post-move demonstrating large and medium effects respectively. Overall, for the group, pre-move community integration was 1.2 standard deviations below the population mean and improved to being within 1 standard deviation (-0.32 SD) of the population mean. Nine of the 13 participants showed total community integration scores had moved in a positive direction and were better than the pre-move group mean. Although quality of life showed a trend in improvement, there was no significant difference in scores at post-move ($M = 51.3$; $SD = 25.2$) compared to pre-move ($M = 62$; $SD = 19$), $t(12) = -1.44, p = .087$ (see figure 4). This change was however consistent with a medium positive effect ($d = .48$).

Figure 3. Mean self-report community integration scores at pre- and post-move (bars represent standard deviation). Higher scores indicate greater community integration.

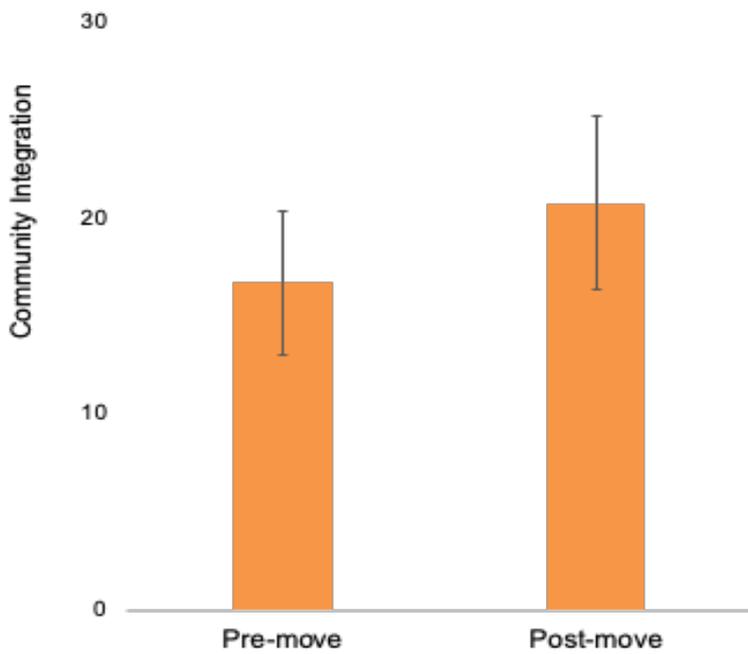
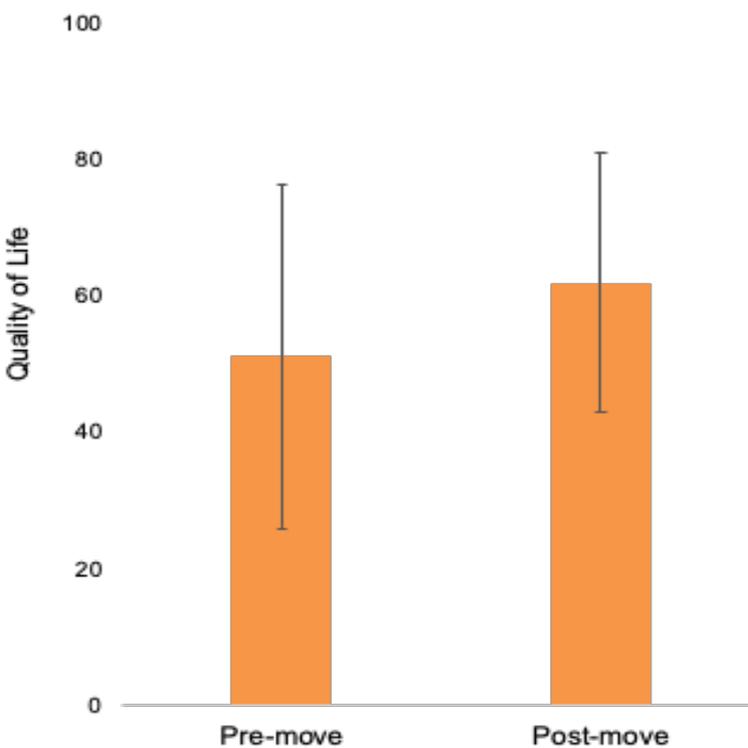
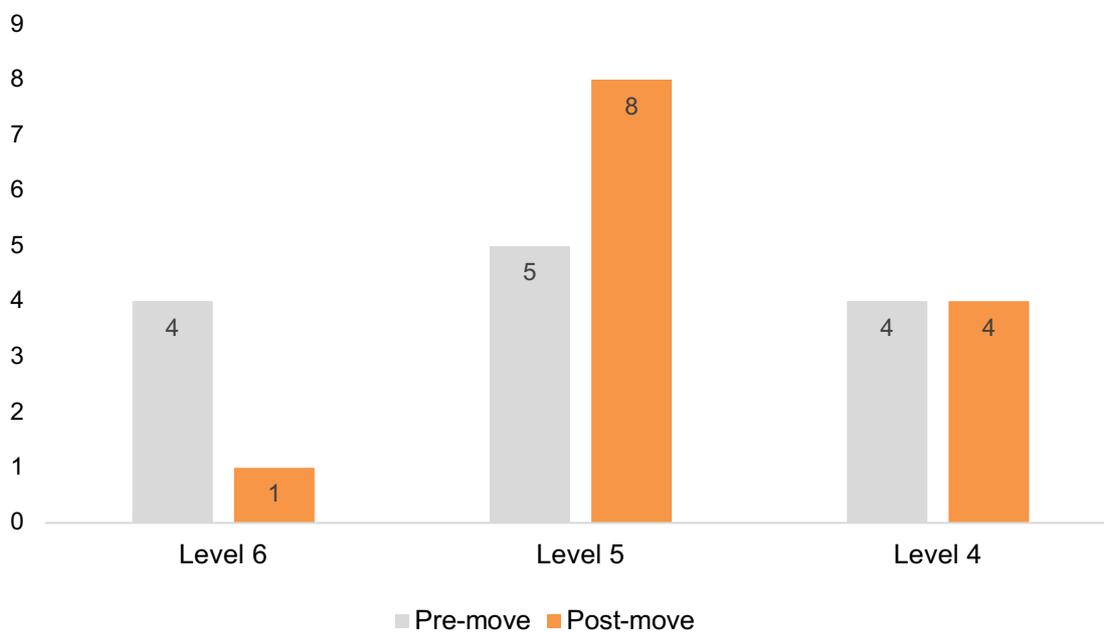


Figure 4. Mean quality of life scores at pre- and post-move (bars represent standard deviation). Higher scores indicate greater quality of life.



A Wilcoxon Signed Rank test revealed a trend but no significant change in support level from pre-move to post-move ($z=-1.41$, $p = .075$) with a small effect size ($r = 0.28$). The median score for the group at pre-move ($Md = 3$) remained the same at post-move. Figure 5 shows the number of participants at each support level at pre-move and at post-move. At post-move support level remained the same for 5 participants indicating that support needs had not changed. For 6 participants, the level decreased at post-move indicating reduced support needs and for the remaining 2 participants the level increased consistent with increased support needs. These changes in support level reflect an overall reduction in daily support hours for the group of 13 participants. On average this change in support level represents an estimated reduction in support of over 1 hour per day per participant.

Figure 5. Number of participants at each support level at pre-move and at post-move. The level of support range is 1 to 7, with seven being the highest level of support required.



Tenant experiences

Qualitative analysis

Written transcripts of interviews conducted with participants at 2 different time points (pre-move and post-move) were analysed drawing upon constructivist grounded theory methods.³⁰ Two of the authors (SO & KD) coded all transcripts with discussion and verification of the emerging themes with the other authors. Analysis moved through a process of data-driven coding and identification of emergent themes.

Qualitative analysis of the interview data provides valuable insights into the subjective experience of moving into new SDA-funded apartments. As can be seen in Figure 6, emergent themes reflect the contrasting nature of participants' lives from their pre-move home context to their SDA-funded apartments, and the challenge of transitioning between the two. Pre-move homes were described as 'not a good fit' with experiences of social isolation, rigid institutional routines and a loss of hope for the future. This experience was consistent for each of the participants across the pre-move contexts of RAC and group homes. For those participants who were living in private homes, the experience of not being a good fit reflected more a lack of opportunities for independence and concern regarding the burden of care upon ageing parents. In contrast, life in their new SDA-funded apartments was characterised as 'moving in the right direction' with experiences of autonomy, choice and optimism for the future. The period of transition between the two environments, while a valued opportunity, was a challenging time of adjustment in which participants described 'feeling unprepared' and somewhat like a pioneer in a new environment. Participants shared insights into the challenge of managing a team of support workers, emphasising the importance of having choice in recruitment of support workers while minimising the number of support providers with whom to negotiate the support schedule. Despite these challenges, preliminary findings reinforce the important role of support workers in assisting people with complex disabilities to successfully live as independently as possible and participate in community life. There also appears to be a need to better support people for the change from a more institutional environment, to independent living in which people have day-day responsibility necessitating problem solving and decision-making. While overwhelmingly the findings suggest the benefits of living in SDA-funded apartments, with reports of much improved overall wellbeing and an increase in quality of life associated with experiences of autonomy and independence, the transition period can be very challenging. By seeking the lived experience of people who have moved to SDA-funded apartments, preliminary findings reveal strengths and limitations to the current SDA system providing insights into opportunities to better support people with complex disabilities to live more independent and quality lives.

³⁰ Charmaz, K. (2017). The Power of Constructivist Grounded Theory for Critical Inquiry. *Qualitative Inquiry*, 23(1), 34-45.

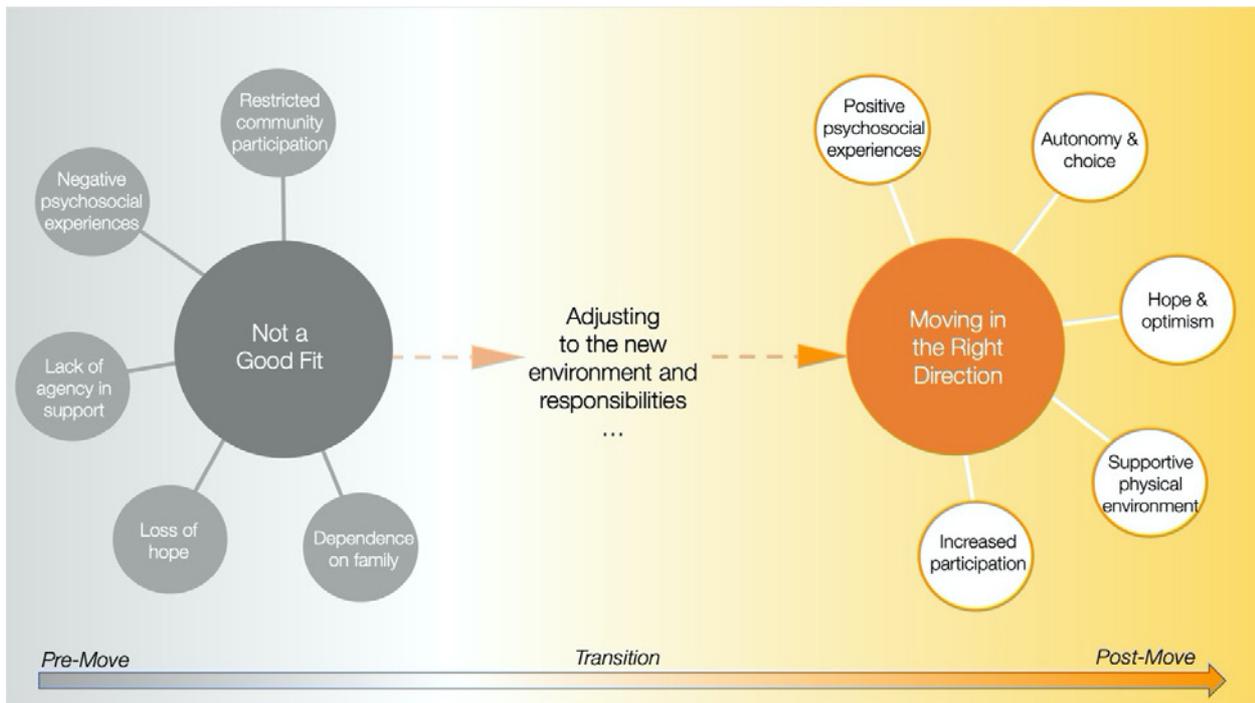


Figure 6. Emergent themes from preliminary qualitative analysis.

Instrumental case studies

Six instrumental case studies were developed from the interview data to capture the insights and experiences of people with disability who had moved into an SDA-funded apartment. The case studies were selected to be representative of the larger sample. Participants were on average 42 years (range, 33-52 years) and had a range of disability types (2 acquired brain injury, 2 muscular dystrophy, 1 cerebral palsy, 1 multiple sclerosis), and pre-move living environments (3 RAC, 1 RAC and group home, 1 group home, 1 living with parents).

Peter

Peter acquired his initial brain injury as a teenager. After medical complications and hospitalisation in his early 30s, he was discharged to RAC. He lived in 2 different aged care facilities over a period of 5 years, before moving into an SDA-funded apartment.

Experiences in aged care

Peter describes his time in RAC as consisting of a rigid routine that he disliked. He also described that there were limited activities suitable for him. His activities involved weekly hydrotherapy, visiting his parents once a week and occasional shopping trips. Peter was uncomfortable having his parents and friends visit him in aged care as he found the environment too depressing. He also didn't visit friends often as he was uncomfortable speaking about his life in aged care.

'I struggled a lot. I think while I was in aged care my friend came once - one friend once...and that I felt really awkward about.'

Peter's main friends during this time consisted of the staff and elderly residents. He kept himself occupied by advocating for people with disability and communicating with various government bodies. At this time, Peter felt that his life was worthless, and his main goal was getting out of aged care.

Peter reported that he had limited mobility (i.e. he was unable to walk about) and moderate problems with self-care (e.g. washing or dressing himself). He was experiencing extreme pain and severe problems doing his usual activities (e.g. work, study, or leisure activities). He reported that he could be left alone for a few hours but needed 20-23 hours of support a day.

Transition to SDA

Peter moved from RAC to an SDA-funded apartment. His apartment is designed for disability access and is located within a mainstream apartment complex. While he enjoys the increased autonomy and personal freedoms associated with more independent living, he found the move to be challenging, in particular, making his own decisions and being responsible for home maintenance, meals, house cleaning and managing his team of support workers. He felt unprepared for this responsibility and would have liked more training or support to live independently prior to the move.

After 2 years living in his SDA-funded apartment, Peter reports that life is good in some ways. He has more flexibility with his life, less embarrassment about his living arrangement and his apartment is a better built environment for his needs. He has purchased a car and had modifications installed so he is able to drive himself to activities and appointments. Having his own car has given him a 'new lease on life'.

However, Peter reports that he does not always feel well supported by his support staff and finding the right support arrangement is an ongoing challenge. He has spent much of the past year without a NDIS support coordinator. Peter is currently funded for 4 hours of 1:1 care per day, which is broken into 2 x 2hr shifts, and calls the 24-hour shared on-site support occasionally as needed. Peter also receives 1 hour of nursing care daily and regular physiotherapy sessions.

Mary

Mary is in her mid 50s and currently lives in her own SDA-funded apartment. She moved into this apartment 2 years ago after having lived in RAC for 7 years. She originally moved into aged care for respite following the death of a parent, but found she had no other option than to remain living in aged care. Mary has muscular dystrophy which was diagnosed when she was a young child.

Experiences in aged care

Mary describes her time living in aged care as terrible. She experienced bullying and a lack of flexibility by the staff to meet her individual support needs. While she made some friends in aged care, she did not like feeling powerless to choose the staff who cared for her.

Transition to SDA

Mary has now been living in her own SDA-funded apartment for over 2 years. She describes being very happy in her home and found the transition to be a smooth and positive experience. Mary enjoys the mix of independence and support that is enabled in her SDA-funded apartment.

She receives 4 hours of 1:1 support every morning and 4 hours of 1:1 support every afternoon, and with this support structure, along with her wheelchair accessible home environment, she enjoys being on her own in the middle of the day. Mary mobilises indoors and outdoors in her electric wheelchair, with assistance from support workers for personal care, domestic tasks and community outings. Mary says that her support workers encourage her to be more independent. She now hangs out the washing and stacks the dishwasher. In particular, Mary enjoys being able to choose her support workers, an opportunity that she did not have while living in aged care.

'We do have our own team of workers so everyone's got their own team and different times they come in. I have a really great team. You know, because we're within our rights to say if we don't want that person, we can choose to dismiss them, you know. When you're in a nursing home, you can't pick or choose what nurses.'

While Mary has limited social relationships, she enjoys writing letters, studying and going out in the community with support workers. She now has a pet cat for companionship.

Andrew

Andrew is in his mid 30s and acquired a brain injury at the age of 18 after an assault. At the time of the assault he was working and enrolled in university. Andrew reports that after a long stay in hospital the only choice he was given was to be discharged to RAC.

Experiences in aged care

Andrew was 21 when he moved into RAC, where he stayed for almost 7 years. He described his time in aged care as 'dark days' and likened the experience to being in prison. He reports there was no mental stimulation which severely impacted his self-esteem. Andrew says that he lost all hope within a week of living in aged care, as he thought he would be forced to live there for the rest of his life.

'A week or so after I turned 21, I was incarcerated to an aged care facility where I spent many a year with no intellectual gain or challenges, I wanted my life to be over. It was so bad that due to not seeing my life ever leaving the nursing home I actually thought and tried to end it on a few occasions.'

Andrew formed friendships with the elderly residents. He reports that life would have been much harder without those friendships, but also speaks of the challenges of experiencing repetitive grief due to the passing of his elderly friends.

Transition to SDA

Andrew initially moved from RAC to shared supported accommodation, living with other people with disability in a shared house. While he enjoyed increased freedom and opportunities in shared accommodation compared to RAC, after 7 years he embraced the opportunity to move to a new SDA-funded apartment in a 10+1 model. Andrew has his own apartment which is located within a mainstream apartment building. He has access to 24-hour on-site support which is shared with up to 9 other people with disabilities living in their own apartments.

After settling into his new apartment, Andrew reported that his mood is completely uplifted, he is optimistic about the future and doesn't dwell on the past.

'Got nothing to complain about. Living here now I'm the happiest I've ever been ... Since moving here I have regained my love of life. My choice to do as I choose.'

Andrew enjoys the increased choice and control afforded in his SDA-funded apartment compared to living in RAC. He has more choice regarding the activities he does and the power to say who he wants to come into his house. Andrew sees his family and friends regularly and enjoys going to watch sport, going out for coffee and to the pub. He is an active member of his local community providing volunteer support to other people living with disability. Before living in an SDA-funded apartment Andrew hadn't cooked for 11 years. He now manages most of his own cooking. Andrew still experiences some challenges. He reports that his mobility is limited (i.e. unable to walk about). He has slight problems with self-care (e.g. washing or dressing), but is mostly able to manage these tasks himself, within his well-designed accessible home environment. He experiences moderate physical pain.

Andrew likes his team of support workers and enjoys being able to choose them. He reports how important it is to have people who accept him and know what he wants. Andrew currently receives 2 hours of 1:1 support in the mornings, and 2.5 hours of 1:1 support in the evenings. No overnight support is required, and he receives monthly nursing care for 45 minutes. His goal is to become 100% independent.

'My life has shifted to the next gear. Living here has given me greater levels of happiness and independence. Having the right support workers is a huge part of my life. They really help support and plan so I can do activities and live life the way I want.'

Darren

Darren has cerebral palsy and prior to moving into an SDA-funded apartment with a tied care provider, he was living in a group home with 9 other people with disabilities, and 3 support workers providing 24-hour support.

Experiences in a group home

The group home was not a suitable environment for Darren. He did not like living in a shared environment, reporting relationship difficulties with the other residents.

'I was struggling with the people that I was living with. They were screaming and all that.'

Darren did not like the regimented routine and the lack of flexibility for individual needs and preferences. For example: "They put you on a timetable and your time to have a shower is 8.30... you've got to have a shower then or you don't get a shower at all." Darren says that his main goal at that time was to get out of the group home, fearing that he would be stuck there for the rest of his life. He rated his health/wellbeing at that time as 10/100 saying that he felt he was treated like a number and that his chances of living life the way he wanted was very poor. He recalled staff dressing him in the same clothes every day, not allowing him choice in what he wore.

Transition to SDA

Darren has now been living in his own SDA-funded apartment for 12 months. He enjoys spending time with his girlfriend, socialising with friends, and watching sport. He mobilises in a wheelchair and receives 18 hours of paid support per week for community access, exercise and assistance with meals. He calls on the 24-hour on-site shared support for assistance with personal care. Darren's quality of life rating changed markedly from his pre-move rating and across 12 months of living in his new apartment. Pre-move, his quality of life rating was extremely low and more than 3 standard deviations below the population mean for his age group. After 6 months his rating had improved markedly and was 1 standard deviation above the normative mean and at 12 months had further improved to 3 standard deviations above the mean for his age.

While living in the group home, Darren described that he never felt cheerful, relaxed, useful or interested in other people or new things. He also reported low confidence, low energy, and was unable to think clearly or deal with problems. In contrast, since moving to more independent living he feels optimistic, useful at times, has more energy and is feeling more confident and better about himself.

Despite these improvements, Darren is unhappy with his support workers. He is planning to move to an SDA-funded apartment soon where he hopes to have more choice in selecting his support workers and support providers. He would also like to move to a ground floor apartment, so he is not reliant on the lift to access his apartment. Darren feels that he is learning a lot about how to live independently and is optimistic about new opportunities.

Susan

Susan has been living with MS for 27 years. Due to the progressive nature of her MS, 7 years ago she moved from her own home to shared accommodation for people with disability.

Experiences in a group home

Due to a lack of funding at that time, shared accommodation was the only housing option for Susan. She was allocated a 2-bedroom apartment with a shared bathroom, kitchen and living facilities. Susan had no choice who shared the apartment with her and was uncomfortable with the lack of privacy and choice.

'What I don't like about that is I'm - I'm required to share with somebody not known to me, not of my choice.'

Susan also expressed disappointment in the congregate living design of the shared accommodation stating, 'I didn't sign up to be bunched together with 17 other people with disabilities - that can be confronting and depressing every day.' While living in shared accommodation, Susan's rating of her quality of life was 1 standard deviation below the population mean for her age.

Transition to SDA

After 6.5 years living in shared accommodation, with the introduction of NDIS, Susan recently moved into her own SDA-funded apartment. In contrast to the congregate living design of the shared accommodation, this apartment is located within a mainstream apartment building. It is 1 of 10 apartments designed specifically for people with disability peppered throughout the mainstream apartment building with 24-hour on-site shared support.

Susan has been living in her SDA-funded apartment for 6 months. While she says that she does not feel fully settled yet, acknowledging the significant change associated with the move from shared accommodation, she is enjoying the freedom and autonomy of independent living. Reflecting on this experience she says: "I'm not waiting for agreement or permission from people to do things."

Susan's goals are to become more settled in her apartment and to return to part-time employment. She receives 7 hours of support each day to assist with transfers to/from bed to wheelchair, personal care and meal preparation. While she is enjoying the new home environment, she is experiencing challenges associated with availability of 2-person support for hoist transfers and the physical accessibility of the environment for wheelchair mobility. Susan is working closely with her occupational therapist to better set up the environment to maximise her independence.

'I'm looking forward to you know, just that next step of being able to be a bit more independent...because that's what I want to do moving in here - I want to grow in independence and not need so much help.'

Marcus

Marcus has lived with a neuromuscular condition since birth and uses a wheelchair for mobility. He is 40 years old. For most of his life, Marcus has lived with his mum in a rented property, however 12 months ago he moved into an SDA-funded apartment.

Experience living in family home

Marcus describes having a positive relationship with his mum. However, in recent years, he had begun to worry about the burden of care on his mum, as well as the lack of privacy and opportunities for independence in his current home environment. Marcus shared:

'You know, having carers in and out of the house all the time is quite difficult for her...and also like she's getting on in years, so there was a kind of a long-term thinking as well, like what's going to happen when it really becomes difficult.'

Marcus was motivated to move to his own apartment, and to become less dependent on his mum. While it was important to him to remain living geographically close to his mum, he recognised that the lack of access to public transport was a limitation of his current home. In his new apartment, Marcus sought a location that was within wheelchair access of a train station.

Transition to SDA

Marcus has been living in his SDA-funded apartment for 12 months. He is very pleased that he found an apartment that is located close to the train station and is enjoying the independence of accessing the community independently. He is also very happy that the apartment is close to his mum's house. He continues to visit her regularly.

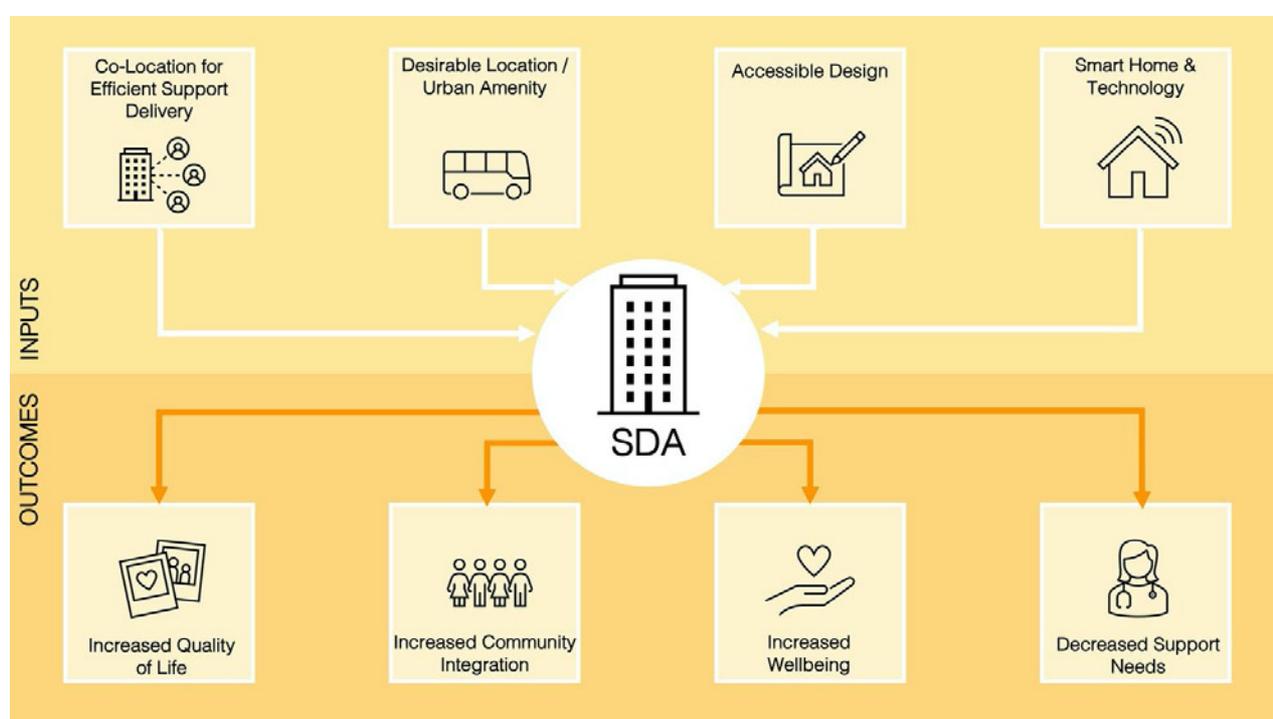
Marcus is adjusting to living on his own and recognises changes and new challenges such as being more responsible for planning his meals. Marcus is particularly enjoying the flexibility and freedom of having shared on-site support that he can access as needed. As a consequence of his physical disability, Marcus requires physical assistance with tasks such as toileting, showering, preparing food/eating and taking his medication, however at times this assistance is only needed for a few minutes. Marcus is enjoying the independence of not having a support worker with him all the time, but rather called on as needed, particularly when spending time with friends at his apartment. 'And just more privacy with living alone and having carers on-call rather than at scheduled times.' Rather than his relationships with friends 'being constrained by support worker routine', he can, for example, receive assistance with toileting as needed or go to bed at a later time than his usual scheduled support. And while Marcus is working with the housing provider to have more choice and control over the selection of his support workers, he has found it helpful to be working directly with a person on-site to coordinate his support needs.

Marcus describes having a good network of friends and family, however he would like to strengthen connections with his neighbours, developing a stronger sense of community. He is also hoping to find paid employment in the future, following completion of his post-graduate university studies.

Discussion

Affordable and accessible housing is foundational to social and economic participation and maximising the independence of NDIS participants. Traditionally, government funded housing for people with disability has tended to be separate from the community and congregated with other people with disability.³¹ As outlined in Figure 7, this study provides evidence that supports the worldwide trend,³² and assumption, that moving away from housing that is congregated and segregated to individualised housing and living arrangements will result in better outcomes for tenants. The current study adds to the evidence base of previous literature finding that individualised housing contributes to a range of favourable outcomes related to functional skills,³³ mood and social relationships,³⁴ and home and community participation.³⁵

Figure 7. Features that contribute to, and outcomes associated with, the 10+1 SDA-funded model



³¹ Wiesel, I. (2015). 'Housing for People with Intellectual Disabilities and the National Disability Insurance Scheme Reforms.' *Research and Practice in Intellectual and Developmental Disabilities*, 2(1), 45-55.

³² Oliver, S., Gosden-Kaye, E. Z., Winkler, D., & Douglas, J. M. (2020). 'The Outcomes of Individualised Housing for People with Disability and Complex Needs: A Scoping Review.' *Disability and Rehabilitation*, 1-15.

³³ Wright, C. J., Colley, J., & Kendall, E. (2020). 'Exploring the Efficacy of Housing Alternatives for Adults with an Acquired Brain or Spinal Injury: A Systematic Review.' *Brain Impairment*, 21(2), 125-153.

³⁴ M Marlow, E., & Walker, N. (2016). 'Does Supported Living Work for People with Severe Intellectual Disabilities?' *Advances in Mental Health and Intellectual Disabilities* 9(6), 338-351; McConkey, R., Keogh, F., Bunting, B., & Iriarte, E. G. (2018). 'Changes in the Self-Rated Well-Being of People who Move From Congregated Settings to Personalized Arrangements and Group Home Placements.' *Journal of Intellectual Disabilities*, 22(1), 49-60; and, McConkey, R., Bunting, B., Keogh, F., & Garcia Iriarte, E. (2019). 'The Impact on Social Relationships of Moving from Congregated Settings to Personalized Accommodation.' *Journal of Intellectual Disabilities*, 23(2), 149-159.

³⁵ Felce, D., Perry, J., & Kerr, M. (2011). 'A Comparison of Activity Levels Among Adults with Intellectual Disabilities Living in Family Homes and Out-of-Family Placements.' *Journal of Applied Research in Intellectual Disabilities*, 24(5), 421-426; Friedman, C. (2019). 'The Influence of Residence Type on Personal Outcomes.' *Intellectual and Developmental Disabilities*, 57(2), 112-126.

The Tenant Outcomes Framework and findings address gaps in the current literature related to the need for systematic and rigorous evidence regarding outcomes associated with individual housing.

SDA policy and payments were designed to create a market of housing for people with disability that maximises the independence of tenants and improves the efficiency of the delivery of support. Based on the current sample, these objectives are being achieved while reducing the hours of support required. Unlike previous state-based systems that provided funding in silos, under the NDIS there is a significant opportunity for innovation by considering how the built environment, technology and support model might work together to maximise tenant outcomes. This study is the first to provide evidence regarding the potential of contemporary housing in meeting the aims of SDA by improving the lives of tenants, maximising independence and reducing the long-term liability of the NDIS.

The findings of this study are very promising. Given the small sample size and heterogeneous sample, we were expecting to find promising trends rather than statistically significant differences between pre-move and post-move data. However statistically significant improvements were demonstrated in the wellbeing and community integration of tenants at post-move compared with pre-move. Positive trends in the quality of life and level of support needed by tenant's post-move compared to pre-move were also shown. These outcomes are mirrored in the qualitative data that highlights the experiences of living in SDA-funded apartments, with reports of improved overall wellbeing and an increase in quality of life associated with experiences of autonomy and independence.

The findings of this study are consistent with previous research that found residential environments are significant determinants of health and play an important role in promoting quality of life.³⁶ The magnitude of the positive trend towards increased quality of life showed a medium effect size indicating that the quality of life ratings of 61% of the participants had moved in a positive direction and were better than the pre-move group mean. The lack of statistical significance for this finding is likely due to the small sample size. However, the magnitude of the effect bodes well for detecting significance in the larger study which will include a much larger sample. The quality of life tool used is a global measure that also conveys health related issues including emotional and physical health. Over time, with a more substantial sample size, this tool may also capture changes in ongoing health needs.

In this study a change in wellbeing was evident following a change of living environment. The measure utilised in the current study captures subjective wellbeing, such as how people feel about themselves and how they feel around other people. Prior to the move, the mean wellbeing for this group of tenants was outside the typical range for the general population. Post-move the tenants' level of wellbeing moved to a range typical of their non-disabled peers. Again, it is noteworthy that the total wellbeing ratings of 69% of the participants had moved in a positive direction and were better than the pre-move group mean. This change in wellbeing is a very promising finding given the diversity, level of disability, support needs and size of the sample.

³⁶ Veitch, J. A. (2008). 'Investigating and Influencing how Buildings Affect Health: Interdisciplinary Endeavours.' *Canadian Psychology/Psychologie Canadienne*, 49(4), 281; Kyle, T., & Dunn, J. R. (2008). 'Effects of Housing Circumstances on Health, Quality of Life and Healthcare use for People with Severe Mental Illness: A Review.' *Health & Social Care in the Community*, 16(1), 1-15; and, Kavanagh, A. M., Aitken, Z., Baker, E., LaMontagne, A. D., Milner, A., & Bentley, R. (2016). 'Housing Tenure and Affordability and Mental Health Following Disability Acquisition in Adulthood.' *Social Science & Medicine*, 151, 225-232.

It is an early indicator that the 10+1 model enables people with severe disabilities to fulfil some of their aspirations to live an ordinary life. This finding is supported by the qualitative analysis of interview data, as participants expressed valuing the opportunities for autonomy and choice in their new SDA-funded apartment. For example, having choice in daily routine (when to get up and go to bed), having choice in meals and living in a physical environment with accessible design features were all highlighted as positive changes from pre-move to post-move.

As a group, there was a measurable reduction in the level of support needed post-move compared to pre-move. This is not surprising given that participants moved to a built environment that was designed to maximise independence, increase privacy and dignity and reduce reliance on paid support. At an individual level, support needs were reduced for 6 participants, remained the same for 5 participants and increased for 2 participants. Considered alongside the qualitative findings, these outcomes may reflect the period of transition and adjustment that participants were experiencing. Longer term follow-up is required to understand how tenant's support levels change beyond the period of adjustment.

Overall tenants had a greater level of community integration post-move compared to pre-move. This statistically significant change indicated that the ratings of 67% of the participants had moved in a positive direction and were better than the pre-move group mean. Tenants were significantly more involved in home integration activities such as meal preparation and grocery shopping. A positive change in social integration was evident post move compared to pre-move. This was a small effect that was not statistically significant. This result may reflect that post-move data collection took place during the COVID pandemic restrictions for 11 participants. However, tenants were significantly more engaged in electronic social networking post-move. This change demonstrated a medium effect and may represent an early indicator of increased social integration. No changes were evident on the productivity subscale which measures travel, work, study and volunteer activities. This lack of change is not surprising given the severity of disability in this cohort, the small sample size and the fact that most participants were still settling into their new apartment and neighbourhood.

The changes in community integration demonstrated in this study reflect that tenants moving into apartments were more involved in everyday life compared to their pre-move living situation. This makes sense given that tenants had moved from environments that did not foster independence to a built environment designed to maximise independence. In their SDA-funded apartments, tenants are living lives more like their non-disabled peers.

The qualitative data in this study provides valuable insights into the lived experience of NDIS participants moving into SDA-funded apartments. This lived experience complements and helps make sense of the changes seen on the quantitative measures. Emergent themes included the contrasting nature of the tenants' lives in their pre-move context compared to their new apartment and the challenges of moving between the two environments. Experiences of social isolation, a lack of independence, rigid institutional routines and a loss of hope for the future largely described people's previous housing. Those living with parents raised concerns regarding the burden of care on their ageing parents. Overall, previous living environments were 'not a good fit'.

In contrast, life in their SDA-funded apartment was characterised with experiences of autonomy, choice and optimism for the future. The period of transition between the two environments was a challenging time of adjustment. Despite the challenges experienced during this time, participants described valuing the opportunity and recognised that their lives were 'moving in the right direction'. The case studies presented in this report further communicate the lived experience of moving into a 10+1 SDA-funded apartment. In particular the case studies highlight the importance of finding the right support team, while recognising the period of adjustment settling into a new way of life. Insights from participants indicate that some tenants would benefit from additional capacity building to more effectively recruit and oversee support staff and manage day-to-day responsibilities related to independent living that necessitate problem solving and decision-making.

The findings of this study demonstrate that this outcomes framework has the capacity to provide a rigorous evidence base to further tailor this model of housing and support to ensure that it is responsive to the diverse and changing needs of tenants. The outcomes framework has been tested, piloted and refined. In the next phase of research we will scale up data collection and include contemporary housing options beyond the 10+1 model. With a larger sample we will have the capacity to predict the trajectory of individuals and subgroups. This larger study will be able to compare subgroups and determine who is most likely to flourish in different models of housing and support or who might have different needs and require a tailored response. As the number of participants in this study is scaled up, this framework will provide an evidence base regarding the specific impact of the built form, technology and support provided. There will also be scope to identify opportunities to intervene and provide additional capacity building to improve the outcomes of tenants with specific needs. The outcomes framework will help maximise the benefits of contemporary models of housing by building a comprehensive evidence base that captures over time.

Over time the outcomes framework will be further refined in collaboration with providers to develop a minimum data set that is feasible for SDA and SIL providers to routinely use to measure tenant outcomes. This practical outcomes framework will enable ongoing quality improvement and an iterative innovation process. The researchers will also continue to work with financial institutions and investors to identify and validate a small subset of practical and meaningful impact measures to meet the specific needs of investors and impact funds.

To date impact investors have spent significant resources on the financial modelling and returns on impact investment opportunities and virtually no resources on the measurement of impact. The development of this Tenant Outcomes Framework has been a significant body of work over the past 5 years to identify the right metrics to measure the impact of tenants moving into new SDA. The use of this framework to systematically measure the impact of SDA on tenant outcomes will increase the transparency and accountability for quality housing and support and help investors make more informed decisions about investment opportunities.

Since the closure of institutions, group homes have become the dominant model of housing for people with disability.³⁷ This study supports the premise that some people living in group homes have potential for more independent living. Traditional group homes and staffing models are designed to make it easy for staff to provide support and control a living environment. Although modern group homes utilise a variety of configurations (e.g. old and new houses, large-scale and smaller-scale care), it remains that having staff on hand is not ideal for some people because it does not foster independence or facilitate personal privacy. The findings of this study support the premise that there are people currently living in group homes who would benefit from moving to living environments that are less institutional. While group homes may at first glance seem like a cost-effective model, identifying people with the potential for more independent living and supporting them to explore housing options and transition would assist to reduce the liability of the NDIS and address the rising costs of SIL. The Tenant Outcomes Framework can support the transition of the SDA market from pseudo-block funding to responsive and competitive services that are driven and shaped by the systematic collection of tenant outcome data. Ideally the 10+1 model will be the first in a range of innovative models of housing in the SDA market to meet the diverse needs and preferences of people with disability. The results of this initial study are promising and demonstrate that the effective implementation of the 10+1 model has the potential to fulfil the ambition of the SDA market design and deliver cost effective housing to NDIS participants with the highest needs. This study demonstrates that the 10+1 model can be part of the solution to the rising costs of SIL.

The traditional disability service system in Australia has not afforded people the basic right to choose where they live or who they live with. Organisations throughout Australia, including the NDIA, are breaking down barriers and supporting people with disability to exercise their right to choose where they live and who they live with.³⁸ The ongoing development of models like the 10+1 model will enable the Australian Government to work towards fulfilling the obligations it has signed up to in the Convention of the Rights of Persons with Disabilities regarding maintaining people's rights to choose where they live.³⁹

³⁷ AIHW (2013). 'Disability Support Services: Services Provided under the National Disability Agreement 2011-12.' *AIHW Bulletin*, 118; Beadle-Brown, J., Mansell, J., & Kozma, A. (2007). 'Deinstitutionalization in Intellectual Disabilities.' *Current Opinion in Psychiatry*, 20(5), 437-442.

³⁸ NDIA (2018). 'A Home for Living: Specialist Disability Accommodation Innovation Plan. Report No. DA0426.' Available from <https://www.ndis.gov.au/providers/housing-and-living-supports-and-services/housing/specialist-disability-accommodation/sda-innovation-plan>

³⁹ Wiesel, I. (2015). 'Housing for People with Intellectual Disabilities and the National Disability Insurance Scheme Reforms.' *Research and Practice in Intellectual and Developmental Disabilities*, 2(1), 45-55.

Conclusion

The findings of this study support the premise that well-located housing with appropriate design, technology and support provision will make a significant contribution to improved wellbeing, better quality of life and increased independence and reduced lifetime care costs for people with disability and complex care needs. Findings showed statistically significant improvements in wellbeing and community integration, positive trends in quality of life and social integrations and a reduction in the average level of support needed by tenant's post-move compared to pre-move. These findings provide evidence to support the assumption that the 10+1 model of housing and support fosters independence, social inclusion and community connection in ways that are not possible in segregated housing. Although challenges are experienced as people with complex needs adjust to a more independent lifestyle, in their SDA-funded apartments tenants are living lives more like their non-disabled peers.

These preliminary findings demonstrate the utility of the Tenant Outcomes Framework and address a need for systematic and rigorous evidence regarding outcomes associated with individualised housing. Further, this study has demonstrated the power of outcome evaluation in documenting and measuring change embedded in personal experience in order to systematically build a reliable and valid evidence base to inform contemporary practice. Continued application of this outcome framework over time and with the systematic investigation of potential outcome predictors, will enable future innovation in housing for people with disability to be firmly based on rigorous evidence.