Two-Year Post-Housing Outcomes for a Housing First Cohort in Aotearoa New Zealand

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Abstract_ *Housing First (HF) is an approach that improves outcomes for people who have experienced homelessness. Housing provision in HF is immediate, non-conditional, and permanent, with open-ended wraparound support offered. This paper reports one-year and two-year post-housing outcomes for 387 people housed by the first HF programme in Aotearoa New*

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Zealand. We linked the de-identified cohort to Statistics NZ's (StatsNZ) Integrated Data Infrastructure (IDI). This database contains administrative data on services provided by the New Zealand Government. This paper reports on interactions with government services by the cohort both before and after being housed. We focus on the domains of health, justice, and income. The cohort experienced a sizeable drop in healthcare service interactions. Average bed-nights in both mental health inpatient (-59%) and residential units (-50%) more than halved in year one and maintained the reduced average in year two (-41% and -51%). Outpatient events increased 15% in year one and 31% in year two. The average person in the HF cohort had almost NZD$3 000 more in overall total income across benefits and wages/salaries in the two years after being housed. Our findings show promising early changes in mental health outcomes and income rates for those housed, demonstrating that the HF approach is likely to have had early positive impacts. In a dynamic policy context, support and coordination of services is still needed at two years post-housed.

Keywords_ *Housing First, homelessness, integrated data, Aotearoa New Zealand, outcomes, policy*

Introduction

This paper presents one and two-year outcomes for people housed by a Housing First (HF) programme in Aotearoa New Zealand (henceforth referred to as Aotearoa NZ[1]). This programme, The People's Project (TPP), has made a demonstrable impact on the lives of those they have housed, and this paper quantifies this impact in terms of the rate of government service usage. TPP was New Zealand's first large-scale HF programme, established in 2014 (The People's Project et al., 2021). This paper is an outcome of a research partnership between TPP, He Kāinga Oranga/Housing and Health Research Programme at the University of Otago in Wellington, and the University of Waikato. It focuses on the first cohort of people who were housed by TPP in Kirikiriroa-Hamilton, between October 2014 and June 2017, prior to central government funding. HF has now been funded for $430m[2] by

1 We use 'Aotearoa NZ' to acknowledge the central place of Te Reo Māori and Te Ao Māori in Aotearoa NZ.

2 All dollar amounts are in NZD.

the Central Government across 10 regions in Aotearoa NZ, and the HF approach is a central component of the Government's overarching Homelessness Action Plan (Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development, 2020a).

The People's Project was established in 2014 to address concerns about the growing number of people living and sleeping on the streets in Kirikiriroa-Hamilton, Aotearoa NZ's fourth largest city. A large health and wellbeing provider, The Wise Group, initiated a collective approach that involved government agencies, local government, local iwi (indigenous Māori tribal authority), and local businesses. At the time, HF was not funded by government, so TPP was able to take a local-specific approach that aimed to assist anyone who sought help, combined with a widespread outreach effort. At this time, TPP was funded by the Wise Trust Board, philanthropic funding, local businesses, and support from the local council through provision of premises in the central city. When focused government funding to alleviate homelessness was introduced in 2018, TPP became funded to deliver a Rapid Rehousing approach to supporting single adult homelessness in Kirikiriroa-Hamilton, specialising in supporting adults 18 years of age or older, without dependent children, and with high and complex needs. TPP utilise a VI-SPDAT survey (Vulnerability Index and Service Prioritisation Decision Assistance Tool) to assist in assessing the level of immediate and ongoing support a person may need. Even if people do not meet the criteria for funded intervention, TPP offer a free advisory service (The People's Project et al., 2021). Despite the evolution in focus, TPP's model has consistently been to provide housing without preconditions first, and then provide wraparound support, in accordance with the five principles identified in the Pathways HF model. TPP's staff have a combination of skills, with experience and expertise, including social work, psychology, occupational therapy, mental health, and problematic substance use. Drawing from the clinical and housing expertise of staff and management, TPP primarily operates with an Assertive Community Treatment approach to service delivery, with 70% or more of support being provided in the community by specialist care managers. Individuals from relevant government agencies and the local iwi have spent time based in TPP offices working directly with case managers and clients to ensure that wider systems are responsive and involved. TPP houses most of its clients (approximately 60%) in scattered site private rental housing. The remainder are housed in governmental public housing provided by Kāinga Ora, in housing provided by community social housing providers, and other types of housing. In this respect, TPP is an outlier amongst HF providers in Aotearoa NZ, the majority of which are also community housing providers. TPP works to actively support tenancies, leveraging off strong, well-established relationships with local landlords.

HF is a model of providing support for people who are experiencing homelessness; it works by housing people in permanent housing and offering wraparound support (Tsemberis, 2011; Tsemberis et al., 2004). Internationally, HF has been shown to deliver greater security of tenure and improved outcomes across a range of domains, such as health and justice (Aquin et al., 2017; Aubry et al., 2016; Baxter et al., 2019; Groton, 2013; Patterson et al., 2013; Rezansoff et al., 2017). HF is effective in improving wellbeing, reducing use of acute services such as emergency department usage, reconviction rates, and improving housing stability (Baxter et al., 2019; Leclair et al., 2019; Somers et al., 2013). HF can positively impact recovery trajectories and provide enhanced access to care and services (Patterson et al., 2013). There have been only a small number of studies that evaluate the short-term (up to 24 months) impacts of HF on its participants' social and health outcomes. So far, these reviews (Baxter et al., 2019; Leclair et al., 2019) did not find significant differences in health and social justice outcomes for HF participants.

Previous research showed a large unmet need for this HF cohort before they were housed by TPP, and inequities in the prevalence of experiencing homelessness were starkly visible, with a very high proportion of clients identifying as Māori, the indigenous people of Aotearoa NZ (Pierse et al., 2019). With over 200 000 recorded and linked interactions with government services before being housed, this cohort had been seeking help for an extended period, and were therefore far from the commonly described 'hard to reach' population. Instead, they had been failed by inadequate, poorly co-ordinated systems. The most common interaction with government services was with the health sector, with far higher rates of interaction than a random subsample of the general population (NZpop). Rates of service interaction by the HF cohort in the mental health and justice sector services were more than 10 times that of the NZpop in the five years leading up to being housed. In this study we examine the short-term (up to two years) outcomes after 387 clients were housed by TPP in Aotearoa NZ, providing early insight into potential medium and long-term outcomes.

Methods

This is a before and after cohort study of 387 people in a HF programme in Kirikiriroa-Hamilton, Aotearoa NZ, using linked government administrative data. The Integrated Data Infrastructure (IDI) is a large-scale database containing linked microdata about people in Aotearoa NZ. It consists of administrative records of services provided by various government agencies, Statistics New Zealand (StatsNZ) surveys including the New Zealand Census, and data collected by multiple non-governmental organisations (NGOs). The IDI is maintained and regularly updated by StatsNZ, the government data agency (Black, 2016; Gibb et al., 2016).

Within the IDI, individuals are assigned unique, anonymised identifiers that researchers can link across interactions with government agencies. TPP was one of the first NGOs to link data into the IDI. Through our research partnership, the authors were granted access to a de-identified list of the first 387 clients of TPP in order to analyse their interactions with government agencies before and after being housed. Ethics approval was granted by the University of Otago Human Research Ethics Committee, reference HD16/049.

This paper builds on our 2019 baseline study of TPP clients, which offers a more detailed description of our methods[3] (Pierse et al., 2019). The results below summarise service interaction rates in the one-year and two-year periods before and after the clients were first housed. For comparison, the same analysis of the estimated Aotearoa NZ resident population (NZpop) is presented (n=3388338). The NZpop includes everyone who resides in Aotearoa NZ in the same age range as the HF cohort (18-67). The analysis periods for the NZpop were the periods before and after the median date when TPP first housed the HF cohort (9 June 2016). The pre and post two-year outcomes were compared between the two groups using Wilcoxon rank sum test in R. A total of 21 people in the HF cohort passed away during the data period, and they are included in the rate calculation until the day after their death is recorded, as they would not have had any service interactions beyond this point. The September 2020 version of the IDI datasets has been used for this paper.

Outputs are grouped into three domains: health, justice, and income and social development. Health outputs include hospitalisations in publicly-funded hospitals (Manatū Hauora – Ministry of Health, 2021; Telfar Barnard et al., 2015), injuries recorded in Aotearoa NZ's no-fault universal accident insurance scheme, attended outpatient events (excluding emergency department visits), and pharmaceutical prescriptions filled in community pharmacies. Mental health outcomes are reported in three categories: community-based activities attended, inpatient unit bed-nights, and residential unit bed-nights. Justice outcomes include interactions reported to the police as victims or offenders of crime, police charges laid, criminal court sentences received, and corrections events such as remand and sentencing. Income outcomes were counts of the month in which the client received government benefits or wages, and the gross income received from each source.

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3 The cohort in our 2019 paper (n=390) is slightly larger than this current paper; this is due to a refresh of the IDI, which resulted in data linkages for some people being lost. The 2019 comparison group was only a subset of the Nzpop; however, this paper uses the whole NZpop as the comparison cohort for greater coverage.

Results

Table 1 presents the demographics of both the HF cohort and the NZpop comparison group. Compared to the NZpop, the demographics of this cohort reflect known health and socioeconomic inequities, yet challenge existing perceptions about people who experience homelessness. For example, there are slightly more females in the HF cohort than in the NZpop, whereas populations of people experiencing homelessness are often perceived to be mostly male (Fraser et al., 2021; Hagen and Ivanoff, 1988; Phipps et al., 2019). The cohort is somewhat younger than the NZpop, which could in part be due to the younger age structure of the Māori population, and of people who have experienced homelessness (Amore et al., 2020; Statistics New Zealand, 2018). As described, Māori are significantly over-represented in the HF cohort, reflecting structural inequities that systemically disadvantage Māori (Lawson-Te Aho et al., 2019).

Table 1. Demographics of the HF cohort and NZpop

Variable		Relative percentage (%)	
		HF (n=387)	NZpop (n=3 388 338)
Sex	Female	53.5	50.2
	Male	46.5	49.8
Age	Under 25	14.7	14.9
	25-44	52.7	36.1
	45-64	31.8	34.6
	65+	S[4]	14.5
Ethnicity (total response, multiple ethnicities allowed)	Māori	71.3	14.8
	European	38.8	71.4
	Pacific	7.8	6.9
	Asian	2.3	14.5
	MELAA[5]	2.3	1.6
	Other	S	2.2

Table 2 shows interactions with government services for the HF cohort.[6] The average number of bed-nights in mental health facilities is more than halved in year one (-59% in inpatient facilities and -50% in residential units). This reduced average was maintained in year two (-41% and -51%). The average number of attendances to community-based mental health activities also decreased in the first year (-16%) and the second year (-18%) post-housing.

4 'S' indicates a suppressed number below the minimum count (6) that is able to be reported from the IDI for confidentiality reasons.

5 MELAA is the StatsNZ ethnicity classification 'Middle Eastern/Latin American/African.'

6 See Appendix A for the same results for the general population.

Changes in physical health measures (i.e., changes in hospitalisations, emergency department visits, injuries, and pharmaceutical prescriptions) were relatively small. However, outpatient events (such as diabetes and outpatient clinic attendance) increased significantly with a 15% increase after one year of housing than the one year prior, and a 31% increase in the two years comparison.

In the first year after being housed, there was a decrease in the average number of encounters with police and courts. The number of police offences and charges also decreased in both years. However, the overall number of people appearing in these data showed no change by the second year after being housed, and rates of events with corrections systems increased both years after being housed. It is worth noting that interactions with services are not evenly distributed between individuals in the study cohort and further breakdown within the cohort could provide a more accurate picture. Reported victimisations also showed an increasing trend, despite a slight drop in the first year; two years after being housed, the average number of victimisation events increased by 14%.

Income from wages/salaries increased after being housed. Table 2 presents the cumulative means for the two-years pre- and post-being housed. Before being housed, income from wages/salaries dropped from $5 100 in the second to last year before being housed to $2 500 in the year before being housed (with a mean of $7 600 total in the two years before being housed). There is an increase to $3 000 in the first year after being housed and a more significant jump to $5 400 in the second year after being housed (with a mean of $8 400 in the two years after being housed). For welfare benefits, there is an immediate and sustained rise of nearly 10%. Overall, the average person in the HF cohort had almost $3 000 more in overall total income across benefits and wages/salaries over the two years after being housed compared to the two years prior ($p < 0.01$).

Table 2. Changes in rates of service usage (HF, n=387)

Data domain	Data source	Mean from 2 years before being housed	Mean from 1 year before being housed	Mean from 1 year after being housed	Mean from 2 years after being housed	Rate of change between 1 year before and after	Rate of change between 2 years before and after
Health	Hospitalisations	1.4	0.8	0.7	1.5	-6%	5%
	Injuries	0.9	0.5	0.5	0.9	3%	1%
	Outpatient events	4.6	2.8	3.2	6.2	16%	34%
	Pharmaceuticals	62.5	32.2	34.1	65.4	6%	5% **
	Mental Health— Community-based activities	30.9	16.6	14	25.4	-16%	-18%
	Mental Health— Inpatient unit bed-nights	5.6	3.9	1.6	3.3	-59%	-41%
	Mental Health— Residential unit bed-nights	12.1	8.8	4.4	5.9	-50%	-51%
Justice	Police offences	1.6	0.8	0.7	1.4	-20% *	-11% *
	Criminal charges	1.5	0.7	0.7	1.5	-4%	-2%
	Corrections events	0.5	0.3	0.3	0.5	23%	21%
	Victimisations	0.4	0.3	0.3	0.5	-6%	14%
Income and Social Development	Months in which tax paid on wages and salaries	3.6	1.4	1.6	3.8	10%	4%
	Income received from wages and salaries (cumulative over the whole period)	7600.00	2500.00	3000.00	8400.00	20%	11%
	Months in which a benefit was received	18.2	9.6	10.0	19.3	5% **	6%**
	Income received from benefits (cumulative over the whole period)	22200.00	11900.00	12600.00	24300.00	6%**	10%**

* Indicates $p < 0.05$; ** indicates $p < 0.01$;

Table 3 shows the differences in the one- and two-year changes for the HF cohort over and above the changes in the NZpop. The HF cohort has markedly high service interaction levels before and after being housed compared to the NZpop. The biggest difference between the two groups is the much greater fall in the mental health service usage, especially for inpatient unit bed nights and residential bed nights ($p < 0.01$) for the HF cohort. There are relative improvements in the HF cohorts' level of income ($p<0.01$) and outpatient events ($p<0.01$), and an increase in criminal victimisation ($p<0.01$).

Table 3: Difference between the changes over one and two years for both the HF and NZpop cohorts

Data domain	Data source	HF 1 year difference	HF 2 year difference	NZpop 1 year difference	NZpop 2 year difference	HF-NZpop 1-year difference	HF-NZpop 2-year difference
Health	Hospitalisations	-6%	5%	8%**	12%**	-14%**	-7%**
	Injuries	3%	1%	-1%**	0%	4%**	1%**
	Pharmaceuticals	6%	5%*	8%**	14%**	-2%**	-9%**
	Outpatient events	16%	34%	7%**	13%**	9%**	21%**
	Mental Health—Community-based activities	-16%	-18%	-1%	-2%	-15% **	-16%**
	Mental Health—Inpatient unit bed-nights	-59%	-41%	-4%	-10%	-55%	-31%
	Mental Health—Residential unit bed-nights	-50%	-51%	-16%	-29%	-34%**	-22%**
Justice	Police offences	-20%*	-11%*	-2%	-5%	-18%**	-6%**
	Criminal charges	-4%	-2%	-3%**	-5%**	-1%**	3%**
	Corrections events	23%	21%	7%**	15%**	16%**	6%**
	Victimisations	-6%	14%	-2%	-3%**	-4%**	17%**
Income and Social Development	Months in which tax paid on wages and salaries	10%	4%	2%**	3%**	8%**	1%**
	Income received from wages and salaries (cumulative over the whole period)	20%	11%	6%**	11%**	14%**	0%**
	Months in which a benefit was received	5%**	6%**	-2%**	-5%**	7%**	11%**
	Income received from benefits (cumulative over the whole period)	6%**	10%**	-7%**	-4%**	13%**	14%**

* Indicates $p < 0.05$; ** indicates $p < 0.01$;

Discussion

Our results show both substantial and subtle changes in service interaction in the short-term period post-housing for a HF cohort in Aotearoa NZ. It is important to acknowledge that 21 people passed away in the HF cohort during the study period.[7] These deaths represent the ongoing cumulative burdens of systemic failures, and a lack of early support for people experiencing multiple challenges such as homelessness and poor health (Charvin-Fabre et al., 2020; Fransham and Dorling, 2018). For those remaining in the cohort, health issues remain a significant issue. The most striking result in these analyses post-HF intervention is the substantial and rapid reduction in the length of stays in inpatient and residential mental health facilities. This considerable drop suggests that mental health needs are both being increasingly met by TPP services and that being housed and supported is alleviating acute mental health crises. Additionally, housing with TPP support may be facilitating discharges from mental health facilities that might otherwise keep a person 'housed' if the only alternative was homelessness. A drop in service interactions at this scale is rarely seen at two years post-HF intervention in international literature; however, mental health improvements are consistent with international findings (Aquin et al., 2017; Aubry et al., 2016; Baxter et al., 2019; Groton, 2013; Patterson et al., 2013).

Despite a promising drop in mental health service interactions by the HF cohort, there has also been a modest drop in the general population's use of the same services, indicating that there may be a wider context influencing mental health service usage. There has been consistent underfunding of the mental health sector in Aotearoa NZ over two decades. A governmental inquiry into mental health and addictions services, commissioned in 2018, reported significant failings including: a lack of continuum of care; difficulty accessing services; a lack of cultural competency; under-capacity; and over-reliance on medicated responses (Government Inquiry into Mental Health and Addiction, 2018). Given this context, the overall drop in inpatient and residential service interactions in both the HF cohort and the general population could indicate improvements in mental health, but could also indicate greater reliance on outpatient services which are generally cheaper (Parthasarathy et al., 2003; Zentner et al., 2015), or even greater difficulty accessing specialist services. One of TPP's strengths is that it is led by an experienced provider of community mental health and addictions services that had pre-existing relationships with local District Health Boards and other relevant health and

[7] The most up-to-date number from the IDI at the time of writing (per the September 2020 refresh), which we used throughout this paper, says 21 people have passed away. Since then, TPP have confirmed a further five people have passed away. That will not be visible in these results, but we still wish to acknowledge their passing.

wellbeing services. Whether TPP has been able to bridge services and provide continuum of care, even in the context of systemic underfunding, will be more apparent in longer-term results.

A subset within the health domain results is an increase in outpatient events, which is the most notable physical health result. Outpatient events usually refer to specialised healthcare and is most often provided in a hospital setting; it is important for early and ongoing management of acute and chronic health conditions. The long-term care of chronic disease amongst people experiencing homelessness is typically lacking, despite their increased risk for physical illness (LePage et al., 2014; Wiersma et al., 2010). Earlier results echo this trend, showing a high level of health need for a long period of time, with increasing use of acute services (Pierse et al., 2019). A major difficulty in providing healthcare to people experiencing homelessness is that they do not necessarily have the resources or capacity necessary to engage with appointment-driven health care services (Chelvakumar et al., 2017; Lewis et al., 2003; Ramsay et al., 2019). Lack of engagement with outpatient care leads to poor ongoing management of chronic conditions, difficulty providing care continuity, and increases the likelihood people will present to emergency and acute services (Han and Wells, 2003; Moe et al., 2017). TPP enabling their clients to engage with ongoing outpatient healthcare is a notable achievement.

There was a small initial drop in offending in the justice sector. Once the HF cohort has been housed, it is potentially easier for the justice system to find and interact with them, which could be why there is only a small reduction in charges, and why victimisations increased in the two years post-housing. Increases in victimisation is in line with a recent report by Vallesi and Wood on a similar HF programme in Perth, Australia; they note the increased victimisation as unsurprising considering the vulnerability of HF clients (Vallesi et al., 2020). TPP also support clients to report and seek redress for victimisations where they might not have otherwise done so prior to being housed. Additionally, there is a high proportion of Māori in this cohort, who are generally over-represented at all levels of Aotearoa NZ's justice sector, including charges, sentencing, and incarceration (Bold-Wilson, 2018; Fernando, 2018; Jackson, 1987; Lambie and Gluckman, 2018). This systemic issue means that the high proportion of Māori in the cohort and the racism they face are likely to influence justice interactions.

The wages and salaries data we have presented shows a steep decline from already inadequate income levels ($5 100 per year) two years before the cohort were housed by TPP to a very low $2 500 in the year before being housed – which was a time of acute housing crisis for this group. The small but increased income level in year one post-housing ($3 000) shows how difficult an immediate recovery is, but there is a rise to $5 400 in the second year. The income received by benefits between two

years also increased by 10% ($2 100) ($p< 0.01$) and an increase in months the benefits were received by 6% ($p<0.01$). However, this is still an inadequate income, even when combined with benefit receipt.

The increase in the amount of welfare benefits for the HF cohort signals that TPP have been able to link people with more appropriate financial support. Significant changes were made to the benefits system just prior to the establishment of TPP in 2014. These changes made it more difficult for people to access benefits, and made the welfare system more punitively-oriented (Kia Piki Ake Welfare Expert Advisory Group, 2019). Further, discrimination against women and Māori in the benefit system and the service agencies involved in assessing and delivering benefits and social supports have been demonstrated (Gray and Crichton-Hill, 2019; Kia Piki Ake Welfare Expert Advisory Group, 2019; Satherley, 2020). The rise in benefit receipt we observed indicates the vital role of advocates for people interacting with government agencies that are difficult to navigate and discriminatory (Hodgetts et al., 2013). In 2019 the Welfare Expert Advisory Group (WEAG) recommended benefits rates be increased by up to 40% in order for people receiving benefits in Aotearoa to be able to live dignified lives (Kia Piki Ake Welfare Expert Advisory Group, 2019). A recent assessment of the Government's progress in implementing the 42 key recommendations made by the WEAG found that none of the recommendations have been fully implemented; and of the WEAG's 126 detailed recommendations, only 11 have been fully implemented (Neuwelt-Kearns et al., 2021). The combined average income from wage/salaries and benefits of the HF cohort in the second year of being housed ($17 100.00) is still just under 40% of the living wage salary.[8] International literature indicates that countries with less-extensive welfare regimes see higher levels of poverty and homelessness (Benjaminsen and Andrade, 2015; Fitzpatrick and Stephens, 2014; O'Sullivan, 2010). While countries with more-extensive welfare regimes do still see homelessness, it is often less as a result of poverty and more arising from an individuals' personal needs which require specific support (Stephens and Fitzpatrick, 2007).

As described in the preceding paragraphs, a significant part of TPP's work has been coordinating and effectively linking people with the range of services the clients are entitled to receive. Affecting wider systems change is also a strong focus of TPP's model, consistent with the wider paradigm shift that HF thinking advocates (Demos Helsinki and Housing First Europe Hub, 2022; Padgett et al., 2016). Senior manage-

8 Based on the Living Wage 2020/2021 in Aotearoa NZ. Assumed 37.5 working hours per week.

ment and governance of TPP, including their Governance Group[9], directly engages with policy agencies with the explicit intent of affecting systems change. Ongoing commitment from TPP's Governance Group has been instrumental in shaping TPP's policy, and has, in turn, embedded knowledge within their member organisations about the importance of housing to health and broader wellbeing. As discussed earlier, TPP is also subject to top-down policy changes that affect the services their clients can access, indicating that systemic policy and operational change is required to support the greatest possible outcomes from an intervention like HF.

In order for systemic change to have the greatest possible impact, it is necessary to understand the demographics and life circumstances of those who experience homelessness and require housing support. In contrast to populations identified in international literature on homelessness that largely focus on single adult males, over half of this cohort is female (Pierse et al., 2019). Statistics on the wider severely housing deprived population in Aotearoa NZ also show a higher proportion of females than is commonly seen in international literature (Amore et al., 2020). In addition, a significant proportion of this cohort are Māori, the indigenous peoples of Aotearoa NZ, far in excess of the general population. Again, statistics on the wider severely housing deprived population show a significant overrepresentation of Māori; however, not to the same extent (33%) as this cohort (71.5%). Intersectional and systemic drivers for homelessness such as poverty, discrimination, and the ongoing effects of colonisation are likely contributors to the notable proportions both of females and of Māori in this cohort (Lawson-Te Aho et al., 2019; Pierse et al., 2019). Previous research has looked at the experiences of women in this cohort, showing that they were more likely to be younger, Māori (78%), and have children (81%) (Fraser et al., 2021). They tended to be heavily reliant on government support, making them vulnerable to the effects of the neo liberalisation of the welfare state. In contrast to men in the same cohort, they had fewer justice interactions and far less income from wages and salaries. For the women in this cohort, who are largely Māori, parenting responsibilities combined with low welfare provisions, may have contributed to housing insecurity, and ultimately homelessness (Perry, 2022).

In many cases, these two-year outcomes are indicative of a larger picture that will continue to emerge over time. The overarching policy context over the period covered in this paper saw significant policy changes that impacted the ways in which TPP were able to support their clients, as well as how government services

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9 On their governance board, TPP has representatives from the organisations that interact with people experiencing homelessness in various capacities: the Ministry of Social Development, Oranga Tamariki—Ministry for Children, Te Puni Kōkiri—Ministry for Māori Development, Kāinga Ora Homes and Communities, the Waikato District Health Board, New Zealand Police, the Department of Corrections, Waikato Tainui, Hamilton City Council, Hamilton Central Business Association, and Pinnacle Midlands Health.

interacted with this cohort. The mental health care context discussed above is one example. Additionally, some welfare payments were increased slightly in 2016 (Tolley, 2016), and minimum wage payments were raised each year that we are looking at (Employment New Zealand, 2020). However, larger structural changes to the welfare system were mostly seen to have moved toward a more punitive system which was antithetical to the HF model. Similarly, pressures on the housing market and rising homelessness were under-acknowledged and only began to be addressed due to increasing public pressure before the 2017 election (Schrader, 2018). Our next set of findings will bridge a change in government, from a centre-right government to a centre-left coalition government, as well as the introduction of a Homelessness Action Plan (Te Tūāpapa Kura Kāinga – Ministry of Housing and Urban Development, 2020b) by the Central Government. Any differences between the results presented here and subsequent results will highlight the impact of HF, as well as the ways in which policy changes and advocacy from groups like TPP, can impact on people's lives.

Conclusion

This paper presents short-term post-housing outcomes for people who have experienced homelessness and consequently been housed by a HF programme. These early results indicate promising changes in mental health outcomes and income rates for those housed. Consistent with international findings, the results we present show that HF has led to an improvement in service interactions particularly in mental health. However, most gains in wellbeing are likely to take longer than the two years we have been able to look at so far; our previous work showed this group had very high and increasing needs for the 15 years prior to engagement with TPP. It is thus likely that, for most, any wellbeing gains will continue to improve with longevity of HF support, consistency of funding for HF programmes, as well as supportive structural policy changes. Longer-term, positive impacts of HF will come from enabling a shift in the trajectory of people's lives and enabling government services to work effectively.

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Statistics New Zealand Disclaimer

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI), which is carefully managed by StatsNZ. For more information about the IDI, please visit https://www.stats.govt.nz/integrated-data/.

The results are based in part on tax data supplied by Inland Revenue to StatsNZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Data Sharing

The data is available to those who have access to the StatsNZ IDI. The IDI can be accessed in Aotearoa New Zealand by researchers working on public good projects.

Appendix A: Changes in rates of service usage (NZpop)

Data domain	Data source	Mean in 2 years before 9-June-2016	Mean in 1 year before 9-June-2016	Mean in 1 year after 9-June-2016	Mean in 2 years after 9-June-2016	Rate of change between 1 year before and after	Rate of change between 2 years before and after
Health	Hospitalisations	0.4	0.2	0.2	0.5	8%**	12%**
	Injuries	0.7	0.4	0.4	0.7	-1%**	0%
	Outpatient events	2.3	1.2	1.3	2.6	7%**	13%
	Pharmaceuticals	26.2	13.6	14.7	29.7	8%**	14%
	Mental Health—Community-based activities	2.1	1.1	1.1	2.1	-1%	-2%
	Mental Health—Inpatient unit bed-nights	0.2	0.1	0.1	0.2	-4%	-10%
	Mental Health—Residential unit bed-nights	0.3	0.1	0.1	0.2	-16%	-29%
Justice	Police offences	0.1	0.06	0.06	0.1	-2%	-5%
	Criminal charges	0.1	0.06	0.06	0.1	-3%*	-5%*
	Corrections events	0.3	0.2	0.2	0.3	7%**	15%**
	Victimisations	0.07	0.04	0.04	0.07	-2%	-3%**
Income and Social Development	Months in which tax paid on wages and salaries	12.7	6.5	6.6	13.1	2%**	3%**
	Income received from wages and salaries	58200.00	30200.00	32000.00	64600.00	6%**	11%**
	Months in which a benefit was received	2.3	1.2	1.1	2.2	-2%**	-5%**
	Income received from benefits	2700.00	1400.00	1300.00	2600.00	-7%**	-4%**

Appendix B: Standard Deviation

		Housing First			NZ pop				
Data domain	Data source	**Standard Deviation from 2 years before being housed**	**Standard Deviation from 1 year before being housed**	**Standard Deviation from 1 year after being housed**	**Standard Deviation from 2 years after being housed**	**Standard Deviation from 2 years before being housed**	**Standard Deviation from 1 year before being housed**	**Standard Deviation from 1 year after being housed**	**Standard Deviation from 2 years after being housed**
Health	Hospitalisations	2.24094	1.341487	1.65433	2.627012	0.515	0.51	0.51	0.518
	Injuries	1.311832	0.851768	0.867383	1.48695	0.508	0.504	0.504	0.508
	Outpatient events	221.0174	116.871	120.8606	242.5728	44.7	27.7	29.5	50
	Pharmaceuticals	28.7	19.9	19.8	36.3	0.515	0.507	0.509	0.516
	Mental Health— Community-based activities	75.50504	40.66792	32.03123	61.02173	7.29	5.23	5.26	7.73
	Mental Health— Inpatient unit bed-nights	58.48	55.4	14.148	19.011	18.8	14.8	14.6	18
	Mental Health— Residential unit bed-nights	97.46	93.81	46.65	46.65	18.6	17.5	25.4	21.8
Justice	Police offences	2.74	1.747	1.994	3.278	0.523	0.53	0.532	0.535
	Criminal charges	2.805624	1.653318	2.282178	3.506707	0.543	0.54	0.525	0.544
	Corrections events	2.39326	1.451	1.48103	2.35184	0.831	0.771	0.784	0.917
	Victimisations	0.8625	0.63544	0.5774	0.917	0.503	0.504	0.502	0.503
Income and Social Development	Months in which tax paid on wages and salaries	6.049648	2.794665	3.217279	6.652	6.38	3.55	3.94	7.93
	Income received from wages and salaries (cumulative over the whole period)	17061.43	6522.942	7763.375	18552	33158	18760	37487	68221
	Months in which a benefit was received	7.597655	3.74938	3.568	7.414151	9.04	5.15	4.42	8.63
	Income received from benefits (cumulative over the whole period)	11473.31	5912	5821	11897	11459	6949	5866	11173

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