Housing and Health

A report investigating how a lack of safe and affordable housing negatively impacts health for individuals experiencing precarious housing situations

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Introduction

A person's living conditions have an impact on their health. Not only are health and housing related but an individual's experience of one greatly determines their experience of the other. People living in poverty have a lower life expectancy than the general population as well as increased morbidity, higher access to acute hospital services and are less likely to access preventative healthcare services (Stafford, A. & Wood, L., 2017).

Housing and health interact in three major ways: health problems that contribute to a poor housing situation or homelessness (through inability to work etc.), health issues caused by poor housing conditions, and complications in the treatment and management of existing illnesses (Institute of Medicine, 1988). People who are living in poverty are also likely to be precariously housed due to their inability to attain affordable housing. While people may have a roof over their heads, their housing is often precarious. Precarious housing is defined as housing that is unaffordable, unsuitable and insecure (Mallett, S, 2011). Spending a high proportion of income on mortgage or rent, overcrowding and poor living conditions are also considered to constitute precarious housing.

This report analysed the interactions between housing and health with a discussion about the importance of housing and what housing affordability means for people living on low incomes. Housing support and emergency assistance services are in high demand due to levels of poverty in South Australia and across the country. Currently, housing and health policies on a State and Federal level do not cross-reference each other. This report has evaluated the existing policies around housing and health especially in relation to people living on low incomes. Raw data provided by Baptist Care SA will be analysed to provide an insight into the current medicines prescriptions provided to people accessing their emergency assistance program in Adelaide and this will be compared to National medicines data to examine any differences. Results from this study suggest that there is a significant difference in the health of individuals accessing emergency relief and that of the wider population. It can be concluded from this report that affordable, safe, secure and appropriate housing is a critical factor in the prevention of ill health in vulnerable populations in Australia. Federal and State Governments must act to ensure that all Australians have access to safe and affordable housing.

Aims and Objectives

The aims of this research were to:

- Describe how living in poverty and associated precarious housing impacts on health;
- Analyse primary data about the medications prescribed for individuals receiving emergency assistance;
- Critique Federal and State housing and health policies; and
- Propose recommendations for policy change and improvements to service delivery.

Research Question

How do affordable housing and appropriate living standards affect health inequality in South Australia?

Methods

A purposeful literature review was conducted as part of the background research for this research. Search terms included “effects on housing on health”, “how does housing impact health?” “Housing AND Health”. The University of Adelaide online library and Google Scholar were the primary databases used for this research.

The raw data provided by Baptist Care SA detailed the types of prescriptions individuals had received from June 2017 – June 2018 through their emergency assistance service, as well as the drug(s) prescribed. Other information included date of birth, how many medications a client received, gender and date of prescription. The raw data was processed using the computer program Excel. Additional information was added to the data including client age and the month they received their prescription. Using the Consumer Medicines Information guide from the Australian Therapeutic Drugs Administration website as a reference, each medication was searched to identify the main uses/conditions it was potentially prescribed for as well as the drug class that the medication belonged to. The data was then graphed in Excel to show the top 20 medications prescribed for as well as the top 20 drug classes.

The Anatomical Therapeutic Chemical (ATC) classification system was introduced sort the raw data. ATC codes are a universal method for categorising drugs by the organ or system that they act on in the body based on their chemical, pharmacological and therapeutic characteristics (World Health Organisation, 2018). Drugs can be categorised at five different

levels:

Level 1 –anatomical group by name of organ or body system to which they act upon

Level 2 – therapeutic drug class (clinical group)

Level 3 – therapeutic and pharmacological subgroup

Level 4 – chemical, therapeutic and pharmacological subgroup

Level 5 – chemical substance

For this project, all medications were categorised by the five levels of ATC codes. However, the ATC Level 2 was used for the purposes of this report to illustrate the prescription use in the study cohort. Graphs were produced using Excel, these graphs included: the number of medications per prescription per individual, top twenty most frequently prescribed medications for the study cohort as well as the Pharmaceutical Benefits Scheme (PBS) data, most frequently prescribed clinical group for both the study cohort and the PBS data, percentage of prescriptions for each clinical group based on gender for the study cohort and percentage of prescriptions for each clinical group by age groups.

The initial findings of the report were presented to Baptist Care SA in an informal meeting to obtain their feedback.

Definitions

Homelessness

The Australian Bureau of Statistics has identified four primary stages or areas of homelessness:

- Marginalised housing: housing that boarders on the minimum acceptable living standard;
- Tertiary homelessness: individuals living in single rooms or in boarding houses with no security of tenure;
- Secondary homelessness: individuals who are moving between forms of temporary shelter such as emergency assistance, friends and family, hotels and boarding houses; and
- Primary homelessness: individuals without a conventional means to accommodation such as sleeping in parks, disused buildings, impoverished dwellings.

(Australian Bureau of Statistics 2011).

Precarious housing is defined by Mallett et al. as any housing that is unaffordable, unsuitable and/or insecure (Mallett, S., et al, 2011). Precarious housing situations include people living in housing that is not affordable in the lowest 40% of household incomes who are spending more than 30% of their income on rent or mortgage, living in overcrowded housing, in a poor location, with insecure tenure, and so on (Mallett, S., et al, 2011). In this report, the term 'precarious housing' will be used to describe marginalised housing, tertiary homelessness and secondary homelessness.

This report will refer to people experiencing primary homelessness as rough sleepers.

Emergency Relief

Emergency relief is a service delivered by community organisations which provides the basic necessities and immediate assistance to those in need (Department of Human Services, 2018). Emergency relief is a crucial safety net for individuals who are experiencing financial hardship, escaping domestic violence or residing in precarious housing (Department of Human Services, 2018). Forms of emergency relief include the provision of food, transport and chemist vouchers (to pay for prescription medicines), assistance with bill payments and financial management, personal products or clothing, and access to support services (Department of Human Services, 2018).

Theory and Human Rights

In 1943 Abraham Maslow proposed his theory on the hierarchy of needs. This motivational theory is split into five categories which are organised hierarchically, indicating that one must achieve each level before moving forward (Mathes, 1981).

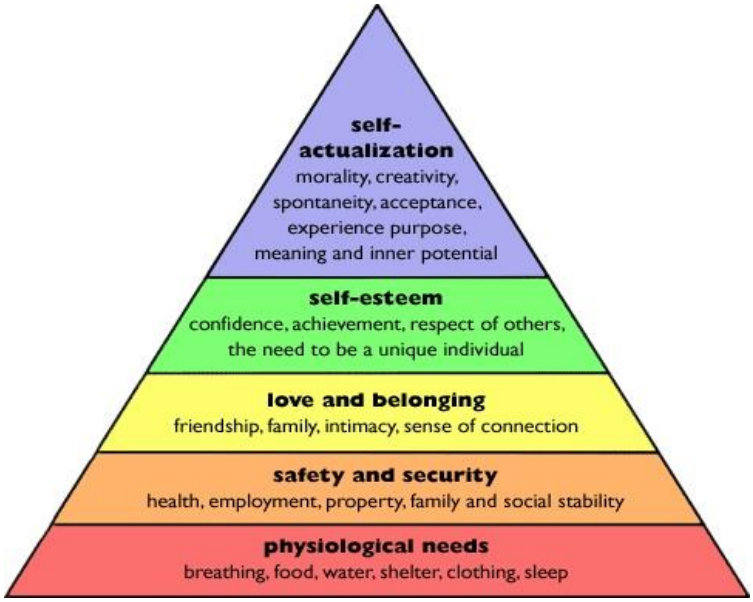


Image: The Costarican Times, *The Broken Road – Maslow's Hierarchy of Needs,* The Costarican Times, viewed October 2018, <https://www.costaricantimes.com/the-broken-road-maslows-hierarchy-of-needs/23122>

Maslow's hierarchy of needs is commonly conceptualised as a pyramid, with the most basic of needs at the base and more complex needs at the top (Learning Theories, 2018). These five stages begin at the base physiological level and move upwards to safety and security, belongingness, esteem and self-actualisation. Considering Maslow's theory, an individual cannot adequately achieve the highest level, self-actualisation, or any of the other levels without first establishing themselves physiologically (Verywell Mind, 2018).

Every person has the right to safe and secure housing and this right is included in the United Nations Declaration of Human Rights in 1948 which states 'Everyone has the right to a standard of living adequate for health and wellbeing' (United Nations, 2018). An individual's ability to access and maintain safe and secure housing underpins the notions in Maslow's hierarchy of needs, when individuals are living in precarious housing situations or sleeping rough it is impossible to achieve all of their basic needs. Individuals who cannot meet their

most basic needs are forced to prioritise their needs. It is possible and likely that paying for rent and food would be prioritised above education and healthcare in order to survive from day to day (Burke, T. 1998). It is impossible for Australians who are living in poverty to reach their full potential given that affordable housing is out of reach for so many citizens.

The World Health Organisation states "The context of people's lives determine their health" (World Health Organization, 2018). When considering the relationship between housing and health is it important to illustrate how health is governed by more than just individual choices. The Determinants of Health are a theoretical model which explain how factors that surround individuals influence their overall health and wellbeing (World Health Organization, 2018).

Precarious housing is both a catalyst for poor health and a result of adverse social and economic outcomes (Stafford & Wood, 2017). Even though safe and secure housing is deemed a basic human right it is determined by socio-economic factors such as family relationships, employment and education (Stafford & Wood, 2017). Work by Stafford & Wood and Lyons acknowledge that the underpinning social issues of precarious housing must be addressed to reduce the morbidity associated with precarious housing and sleeping rough (Stafford & Wood, 2017), (Lyons, A., 2017).

Housing affordability

Housing affordability is a broad term used to describe the relationship between the costs of housing which include rent, mortgages, and housing prices, relative to house hold income (Australian Housing and Urban Research Institute, 2018). Housing affordability in Australia has been on the decline since the 1980's, with housing becoming less and less affordable in all major cities in Australia. In 2014, Reserve Bank of Australia spokesperson stated that housing prices increased by roughly two thirds relative to income from the 1990's to the early 2000's (Thomas M., 2017). Housing stress is another term used in relation to housing affordability and an individual or household is considered to be experiencing housing stress when their income is located in the bottom two income quantiles and they are spending more than 30% of their income on housing, either in the form of rent or mortgage (Thomas M., 2017).

Un-affordable Housing - Renting Situation in South Australia and Nationally

The National Rental Affordability Index (NRAI) is produced by National Shelter, Community Sector Banking and Brotherhood of St Laurance, and provides a comprehnsive picture of housing affordability Nationally and across States and Territories (SGS Economics and Planning, 2018). The NRAI provides a view of the affordability of private rental housing in Australia from the perspectives of different population groups such as pensioners, single parents and students (SGS Economics and Planning, 2018). In 2018 the NRAI authors reported Adelaide as being the third least affordable capital city in Australia, behind Hobart and Sydney, for people living on low incomes (SGS Economics and Planning, 2018). Average income households that wish to rent in the Greater Adelaide region will spend approximately 26% of their income on rent which is deemed affordable, however for people living in the bottom two income quantiles, there is nothing affordable in the private rental market across the State. The Adelaide rental market has remained the same for the past 18 months, showing very little fluctuation (SGS Economics and Planning, 2018). Geographically, rents across the city centre are considered moderately unaffordable, but for those who are living on low incomes the city and surrounding suburbs are considered unaffordable (SGS Economics and Planning, 2018).

The Anglicare Australia Rental Affordability Snapshot was conducted on the 24th of March 2018 and at that time there were 67,365 properties listed for rent. Out of those properties only 6% were deemed affordable for households relying on government support payments and 28% were affordable for households living on the minimum wage (Anglicare Australia, 2018). Anglicare Australia found that there is little opportunity for suitable and affordable housing in big cities for low income households which in turn restricts employment prospects. Anglicare Australia also highlighted that it is not just people living on low incomes that are vying for a limited number of properties, they must also compete with those who earn more and want to rent a property due to rising house prices in many major centres (Anglicare Australia, 2018). Anglicare Australia calls for the government to raise all forms of income support so that the payments accurately reflect the costs of renting in the Australian rental market (Anglicare Australia, 2018).

Background

The connection between housing and health is not a recent one, Keall et al. identifies that the knowledge of the linkage was first made apparent by early epidemiologists such as John Snow in his discovery of the relationship between where individuals lived and the spread of cholera (Keall, 2010). Over time the notion of neighbourhood and disease has been refined down to the basic concept that housing is a social determinant of health (Keall, 2010).

The populations most at-risk of precarious housing situations are individuals between the ages of 18-24 years, those over the age of 64 years, and Aboriginal and Torres Strait Islander peoples. Aboriginal and Torres Strait Islander peoples make up 3% of Australia's total population, yet on census night they comprised 20% of the total homeless population and this is considered to be an underestimate (Australian Bureau of Statistics, 2018). Mallett et al. found that a lack of education and employment were strongly linked to situations of precarious housing (Mallett, S., et al, 2011). One of the main indicators for health inequalities is socioeconomic disadvantage, likewise housing is a key influencer in poverty (Australian Housing and Urban Research Institute, 2001). It has been well documented that populations experiencing precarious housing and homelessness have significantly poorer health than the rest of the population, at the core of this poor health is the absence of safe and secure housing. A safe and secure home provides stability (Burke, 1998).

A key factor in the poor health of individuals experiencing precarious housing or sleeping rough is that lack of suitable or attainable housing. The housing first model was first established in the United States with the idea that safe and secure housing should be the first priority for improving the welfare of individuals living in precarious housing situations or sleeping rough (Davies & Wood, 2018). Stafford & Wood explain that instead of waiting until individuals are considered 'ready' to be housed, a housing first approach gives individuals the safety and means to establish themselves and create positive change with their health and social connections (Stafford & Wood, 2017). The main focus of the housing first model is that housing should be provided to individuals immediately and not be reliant upon changes in individual behaviour or rectifying of other personal issues (Australian Housing and Urban Research Institute, 2018). Individuals will be offered social support; however, they do not have to continually engage with the support in order to keep the

housing (Australian Housing and Urban Research Institute, 2018).
Davies & Wood are calling for specialised homeless healthcare services for people who are precariously housed, or rough sleeping as they can experience significant barriers to achieving medical appointments and referrals (Davies & Wood, 2018). Incorporating nurses, doctors and healthcare workers who are specialised to work with cases of morbidity commonly seen in some rough sleepers such as mental illness, multiple illnesses and drug and alcohol abuse is important (Davies & Wood, 2018). Having specialised medical practitioners who are directly connected to healthcare services is beneficial for the engagement of rough sleepers and for directing individuals to the most appropriate services (Davies & Wood, 2018).

The World Health Organisation defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmary." (World Health Organization 2018).

The United States Institute of Medicine identified three major ways in which housing and health interact: health problems that contribute to precarious housing (through inability to work etc.), health issues as a consequence of precarious housing, and that precarious housing adds further complication to treatment and management of existing illness (Institute of Medicine (US), 1998). Individuals who are living in precarious housing are more likely to suffer from preventable medical conditions and mental illness, this in turn carries a large tangible cost to the community (Institute of Medicine (US), 1998), (White, B.M. and Newman, S.D., 2015).
Precarious housing leads to increased morbidity and Homeless Healthcare Western Australia observed that individuals who are living in precarious housing and experiencing ill health often wait until their health significantly deteriorates before seeking any medical assistance, commonly resulting in prolonged periods of hospitalisation, therapy and frequent admission to emergency wards (Homeless Healthcare 2018).

Davies & Wood have identified three major barriers to healthcare for individuals experiencing precarious housing or who are sleeping rough, these are: personal, practical and relationship barriers (Davies & Wood, 2018).
Personal barriers – individuals will often prioritise their needs when experiencing precarious housing, and food and shelter can be considered a more immediate necessity than

healthcare. Physical and psychological health can in themselves be barriers to accessing healthcare. Historical or current traumas are a significant factor for individuals experiencing precarious housing and sleeping rough as they impact on an individual's ability to cope with the potential stress of attending a medical appointment (Davies & Wood, 2018).

Practical barriers – having little money or no home address provides a significant barrier to accessing healthcare. Individuals may not have the money or means to travel to and from appointments, also receiving appointment reminders is difficult without an address or a mobile phone (Davies & Wood, 2018). Precarious living situations can also be problematic for the storage and use of prescribed medications, there is a risk that medications will be ineffective due to inadequate storage situations as well as the possibility that medications may be lost or stolen (Davies & Wood, 2018).

Relationship barriers – individuals experiencing precarious housing or who are sleeping rough often experience a large amount of stigmatisation, especially regarding drug and alcohol abuse and mental illness. This can create a barrier to seeking healthcare (Davies & Wood, 2018). If individuals have had negative experiences with governments and healthcare systems where they do not always address their specific needs, they can be discouraged from engaging with social or healthcare workers (Lyons, A., 2017).

The National Medicines Policy was introduced in 1996 with the aim of joining government, healthcare and community services together under a common agreement. The policy emphasises the importance of placing individual needs first, backed by knowledge and skills from an array of healthcare services and initiatives. The National Medicines Policy objectives include: delivering services that accurately respond to patient's needs, providing incentives for preventative health measures, the cost-effective use of tax, continuing to distribute healthcare through a universal system, and assuring the quality use of medicines (Department of Health, 2018). The quality use of medicines refers to individuals using medicines for their intended purpose and taking medicines that adequately addresses a particular condition.

The Pharmaceutical Benefits Scheme (PBS) is accessible for all Australian citizens with a Medicare card. A selection of medications are available at a subsidised rate which is paid for by the Federal government, this allows Australians greater access to a wider range of

commonly used medications (Department of Human Services, 2018), particularly for people living on low incomes.

People living on low incomes are more likely to opt for medications that are subsidised under the PBS rather than potentially more expensive medications. Does this ensure 'quality use of medicines' if individuals are seeking the cheapest medication instead of perhaps the one most suited to their needs? If individuals living in poverty or precarious housing situations are reluctant to spend money on their health or having more pressing financial priorities, it is possible chronic health conditions are treated ineffectively. Rogers et al. investigated the long terms use of opioid analgesics in population subgroups who often suffered from physical and psychological comorbidity. The researchers found that individuals in vulnerable population groups had a higher likelihood of using long term opioid analgesics, individuals who were of low socioeconomic status and with poor lifestyle factors such as smoking and low physical activity had greater long-term use of opioid analgesics (Rogers, 2013). They also noted that the long-term effectiveness of these medications for chronic pain were inconclusive (Rogers, 2013).

Mental illness is a significant contributor to ill health in the precariously housed population. Mallett et al. observed that the likelihood of an individual experiencing precarious housing was increased with the severity of mental illness (Mallett, S, 2011). Mental illness can be experienced by anyone at any time of life and mental illness is highly exacerbated or brought on by situations of stress which can come in the form of relationship breakdowns, losing a job or living in precarious housing situations (Beyond Blue, 2018). A deterioration in mental health is commonly linked with situations of precarious housing (Mental Health Australia, 2018). Mental illness is often associated with other behaviours linked to social disadvantage such as smoking, drug and alcohol use which are more prevalent among individuals who are precariously housed (Institute of Medicine (US), 1998).

Social housing is defined by the Australian government as subsidised rental housing that is provided by either not-for-profit, government or non-government agencies, with the aim of assisting individuals and families who are unable to afford appropriate accommodation in the private rental market (Australian Institute of Health and Welfare, 2018).
However, the current supply of social housing is insufficient to meet the demand of individuals experiencing precarious housing. Statistics from the 2016 census showed that

rates of individuals who are sleeping rough are increasing, with an estimated increase of 13,988 people from the National census in 2011 to 2016. The number of precariously housed individuals is also on the rise with the number of people living in impoverished dwellings increased by 20% in 2016 and the number of people living in overcrowded dwellings increased by 33% in 2016. Aboriginal and Torres Strait Islander peoples continue to be at an increased disadvantage when it comes to housing, making up 3% of Australia's total population, yet on census night they comprised 20% of the total homeless population (Australian Bureau of Statistics, 2018). At a State level, 1 in every 82 people in South Australia accessed or received emergency assistance with demand for serviced far outweighing supply (Australian Institute of Health and Welfare, 2018).

Policy Context

Federal housing policy

Currently there is no Federal housing policy. National Shelter released the Housing and Infrastructure in Australia policy plan in 2018, which recommends that the Federal Government develops a national housing strategy as a matter of urgency to ensure that all Australians have access to affordable, well designed homes, affordable, high quality private rentals, a high standard of tenancy regulation and a sufficient supply of quality social housing for people living on low incomes (National Shelter, 2018).

The Federal Government developed the National Affordable Housing Agreement (NAHA) in 2009, which is an ongoing funding agreement, rather than a policy, that outlines financial relationships with State and Territory governments with the aim of ensuring those who are at risk of homelessness have access to sustainable housing, individuals are able to rent as well as meet their needs, the purchasing of a home is affordable, that everyone can access the housing market, there is equity of opportunity in the housing market for Aboriginal and Torres Strait Islander peoples and situations of overcrowding are addressed (Australian Housing and Urban Research Institute, 2018).

The National Housing and Homelessness Agreement (NAHHA) combined the previous NAHA with the National Partnership Agreement on Homelessness and came into effect in July 2018. The agreement involves ongoing Federal funding to all States and Territories acknowledging that both governments at a Federal and State and Territory level have an

interest in improving housing outcomes for Australians (Australian Housing and Urban Research Institute, 2018). The agreement constitutes that State and Territory governments must match Commonwealth funding for housing and homelessness, take responsibility for social housing and homeless services, identify areas for social housing reform, and prioritise areas that work towards reducing the incidence of homelessness (Australian Housing and Urban Research Institute, 2018).

State housing policy

The *National Housing and Homeless Agreement* with South Australia contains a statement that housing in South Australia is affordable when compared to other States in Australia and this may be so when considering individuals on an average income, however, as previously discussed, Central Adelaide and the surrounding suburbs are unaffordable to extremely unaffordable for households in the lowest income quantiles including people receiving government benefits, pensioners, those on the minimum wage and students. The Agreement also contains a statement that South Australia's housing market is steady, but it is still out of reach for an increasing number of South Australians (National Housing and Homelessness Agreement, 2018).

The South Australian peak body for housing Shelter SA supports, the proposal made in the *Housing Strategy for South Australia 2013-2018* for improvements to tenancy support and advocacy in private rentals in South Australia. As part of the Strategy the State Government aims to build 207 houses in 2018-2019 and 130 in 2019-2020 for social housing, however, this does not cover the estimated loss of 20,000 homes from the last twenty years (Shelter SA, 2018). HomeStart is a form of government financial assistance which provides finances to individuals who do not have the means to break into the housing market and while this assistance is crucial for many South Australians it will have to be increased to provide a true reflection of the current housing market and the size of the deposit individuals are required to produce (Shelter SA, 2018).

Federal health policy

In the Health Portfolio for the Federal Budget for 2018-2019, homelessness was recognised as part of an action plan for improving the health of our ageing population, however, there is no concrete plan in place to achieve this aim. The Australian Institute of Health and

Welfare was recognised as a principle source for data collections and analysis to inform welfare and policy decisions “to assist consumers, health care, housing and community service providers, researchers, and all levels of government”.

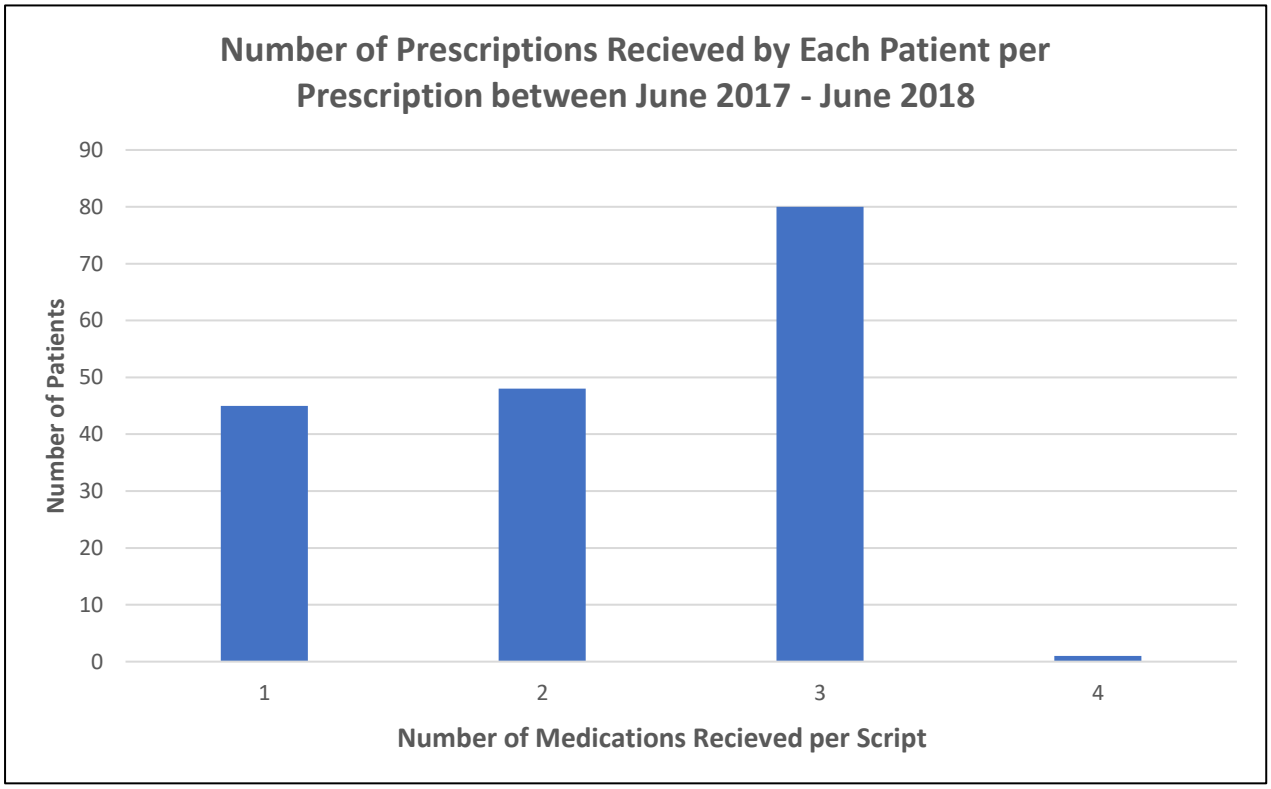
While there was an overall theme of public and social welfare approaches for the distribution of healthcare, any specific mention as to how housing should be a focus for reducing morbidity for those who are precariously housed or who are sleeping rough remained is noticeably absent (Department of Health, 2018).

State health policy

The social determinants of health are a set of factors that shape and impact our life and influence our health, including where individuals are born, live and grow, interactions with institutions such as education, medical services and political environment (World Health Organisation, 2018). However, the *SA Health Strategic Plan 2017-2020* does not clearly identify safe and appropriate housing as a key factor of individual health and wellbeing. SA Health did recognise that a number of social determinants interact to affect individual health outcomes “where you are born, raised and live influences your chances of being healthy later in life”. Individuals experiencing precarious housing or sleeping rough would undoubtably be treated from a biomedical perspective under the *SA Health Strategic Plan 2017-2020.* While it is generally agreed that providing individuals with safe and secure housing should be the first step for improving housing related health issues, the health sector must take responsibility for the health inequalities faced by the precariously housed population by providing tailored healthcare services and greater flexibility for clients (SA Health, 2018).

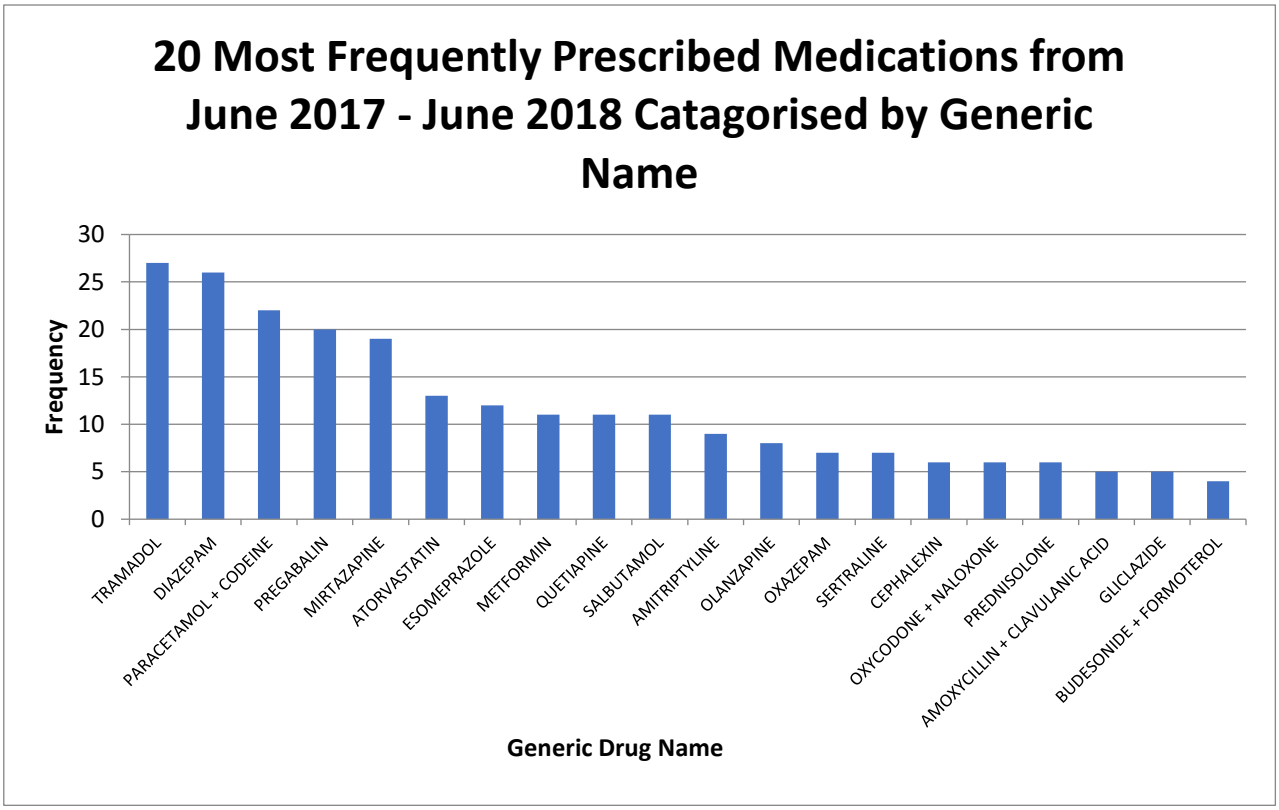
Results

Graph 1: The number of prescriptions each patient received per prescription between June 2017 – June 2018



Graph 1 shows the number of medications each individual received per prescription. Only 45 individuals received one medication, 129 individuals received more than one medication per script, and 81 individuals received three or more medications per script.

Graph 2: Frequency of prescription from June 2017 – June 2018 categorised by generic drug name.



Definitions and understandings of respective medications are outlined in the Appendix, Table 1.

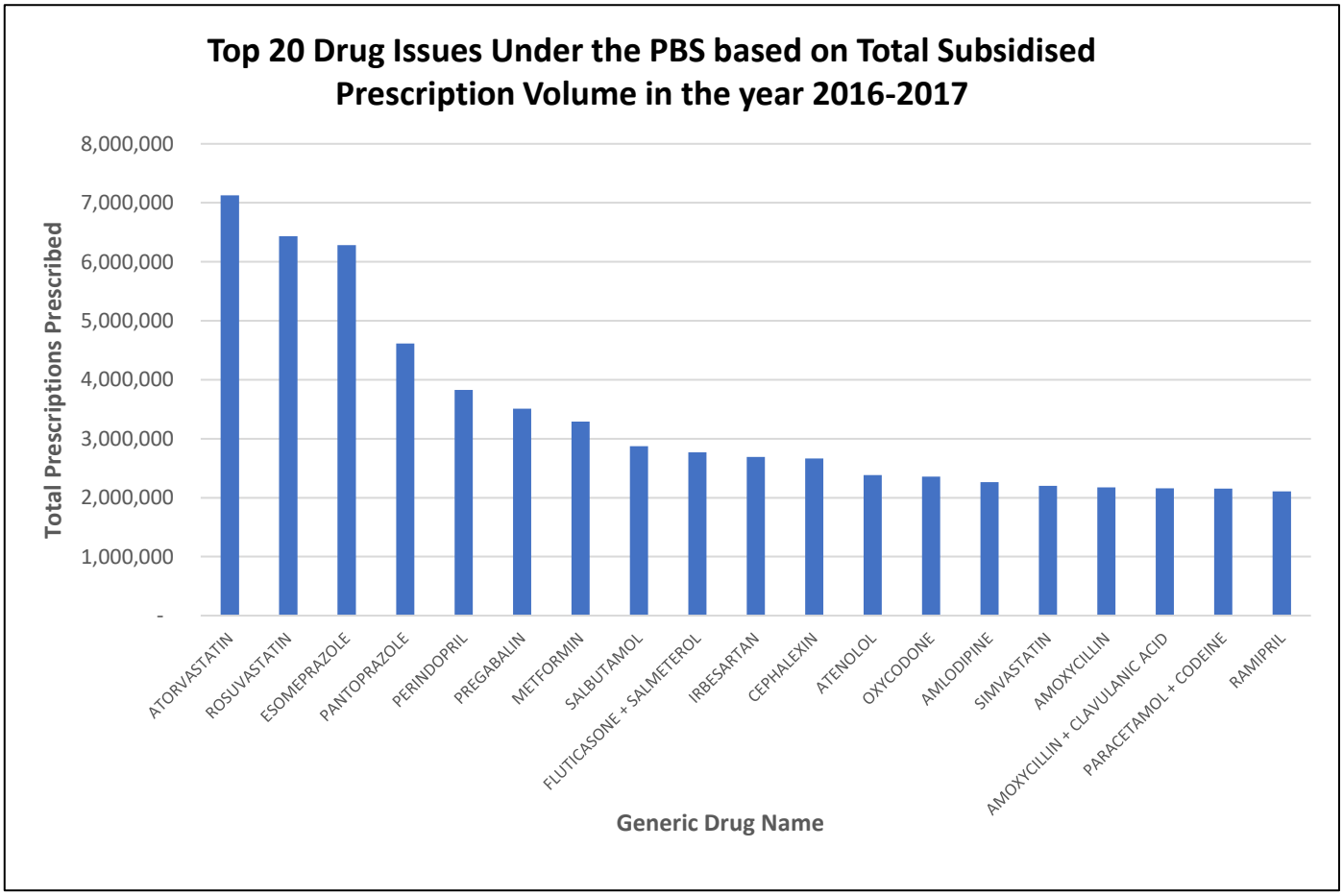
Graph 2 shows the most frequently prescribed medications for the sample population over the course of a year. Tramadol was the most frequently prescribed medication with 27 prescriptions, this suggests a high prevalence of pain associated with poverty in the study cohort. Pain is a common cause of morbidity in the study cohort with Paracetamol and Codeine and Oxycodone and Naloxone also highly represented in the top 20 most prescribed medications with 22 and six respectively. Diazepam was the second most frequently prescribed medication with 26 prescriptions. The study cohort received eight medications for mental illness: mental illness, medicines such as Diazepam, Sertraline, Amitriptyline, Pregabalin, Olanzapine, Quetiapine, Mirtazapine and Oxazepam, are used to treat a wide range of mental illness such as anxiety, depression, schizophrenia and Bipolar Disorder. Of the top five medications, two are prescribed for pain relief (Tramadol and Paracetamol and Codeine) and three are used for the treatment of psychiatric disorders

(Diazepam, Pregabalin and Mirtazapine).

Chronic illness does feature in the study cohort group. Atorvastatin, for example, was prescribed 13 times and is used in the treatment of heart disease. Management of Type 2 Diabetes was also highly prescribed in this group with Metformin and Gliclazide prescribed 11 and five times respectively.

Esomeprazole was prescribed 12 times which indicates a high incidence of peptic ulcers in the population. Other Antibiotics included Cephalexin and Amoxycillin and Clavulanic acid which had a frequency of six and five respectively. Prednisolone and Budesonide and Formoterol are commonly used in the treatment of respiratory and anti-inflammatory conditions, each had a frequency of six and four respectively.

Graph 3: Top 20 subsidised prescription drugs issued by the Pharmaceutical Benefits Scheme from 2016 – 2017

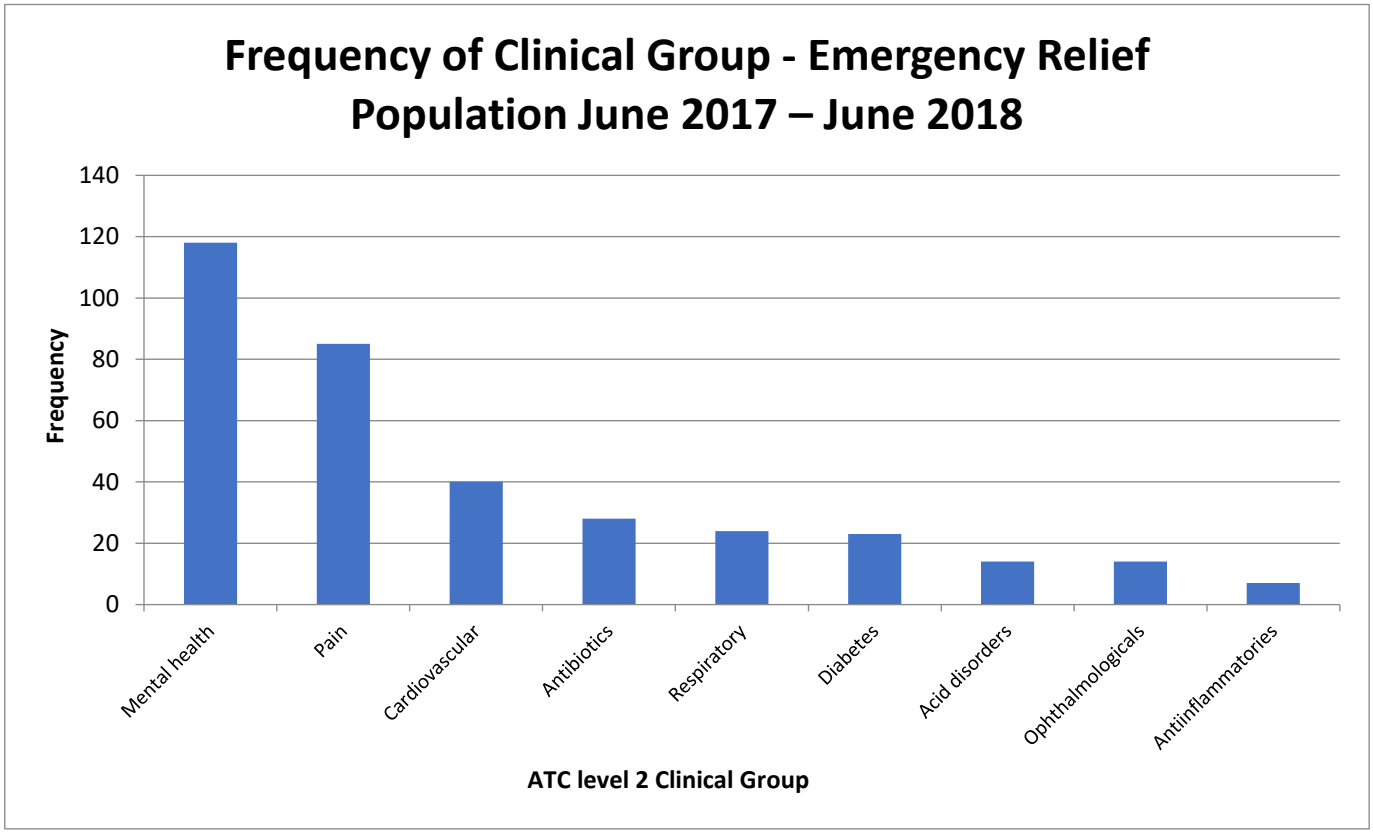


Definitions and understandings of respective medications are outlined in Appendix, Table 1.

Atorvastatin, Rosuvastatin and Esomeprazole were prescribed at a significantly higher rate

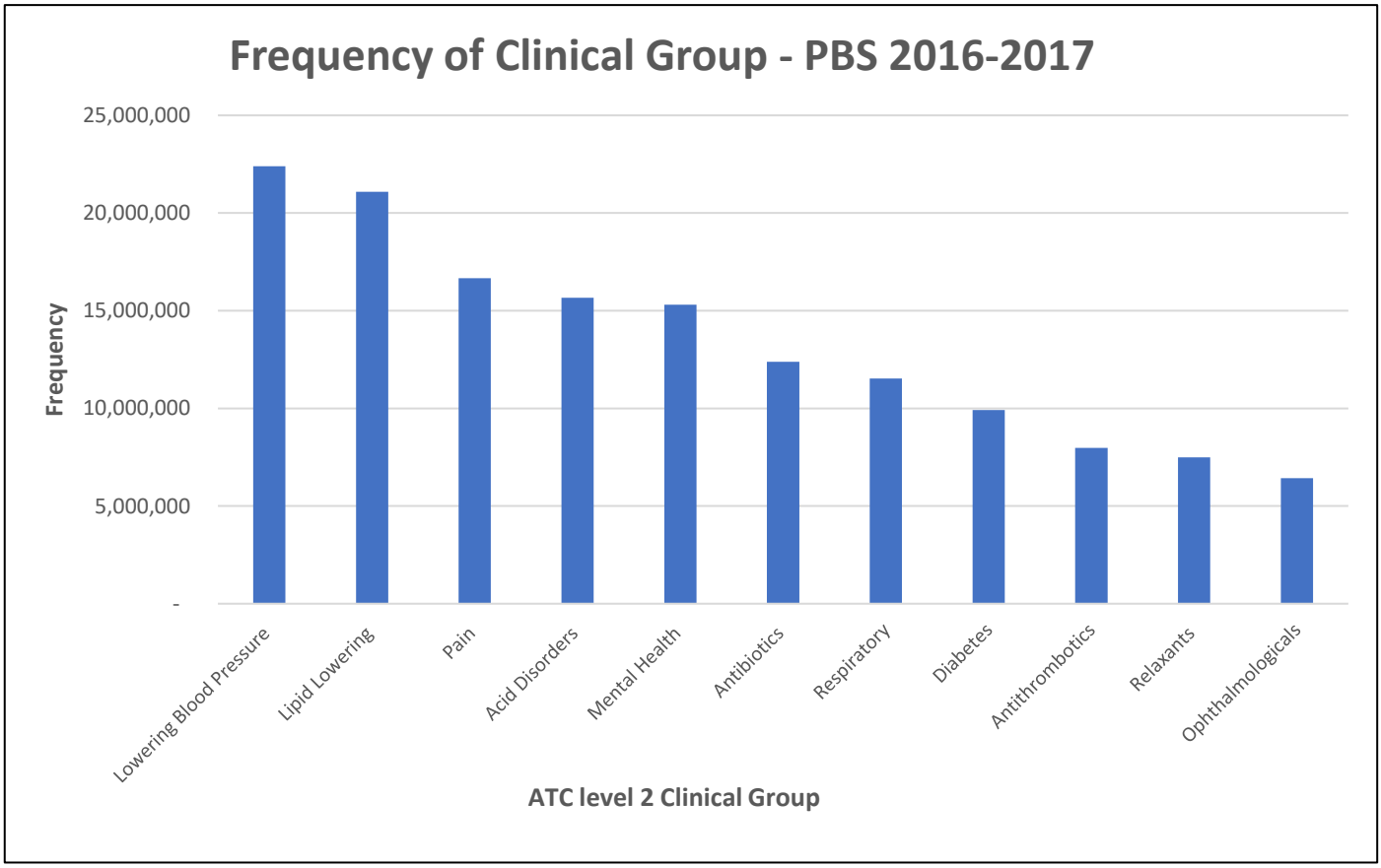
than the rest of the top 20 medications in the Australian population. Atorvastatin was the most frequently prescribed drug under the Pharmaceutical Benefits Scheme (PBS) in 2017-2017 with 7,126.125 prescriptions. The results of Graph 3 indicate that there is a high prevalence of hypertension in the Australian population with Perindopril, Irbesartan, Atenolol, Amlodipine and Ramipril prescribed all in the top 20 prescribed medications. Pregabalin is used in the treatment of neurotic pain and the management of epilepsy, it was prescribed 3,509,499 time throughout the year. Metformin was the only medication prescribed for the treatment of Type 2 Diabetes with 3,288,233 prescriptions. Salbutamol and Fluticasone and Salbutamol are used to treat the effects of asthma, bronchitis and Chronic Obstructive Pulmonary Disease, both prescribed at a frequency of 2,872,673 and 2,766,903 respectively. Infections were prominent among the Australian population with Cephalexin, Amoxycillin, Amoxycillin and Clavulanic all featuring in the top 20 medications. Paracetamol and Codeine was the only pain-relieving medication in the top 20 prescriptions in the PBS, prescribed at a frequency of 2,152,265.

Graph 4: Frequency of prescriptions categorised into clinical group – emergency relief population June 2017 – June 2018



Medicines used for the management of mental health were the most frequently prescribed in the study cohort with 118 prescriptions. Medicines used for pain management were also in high demand with a total of 85 prescriptions across the course of the year. Graph 4 suggests that cardiovascular illnesses were also a significant contributor to morbidity in the study cohort with a total of 40 prescriptions. There was a total of 28 prescriptions for antibiotic medications. Respiratory illness was common among this study cohort with a frequency of 24 prescriptions. Medications for management of diabetes were prescribed 23 times. Medications for the treatment of acid disorders and ophthalmologicals (eye conditions) where both prescribed 14 times in this cohort. There were 7 anti-inflammatory medications prescribed throughout the year.

Graph 5: Frequency of prescriptions categorised into clinical group – Pharmaceutical Benefits Scheme data 2016 – 2017

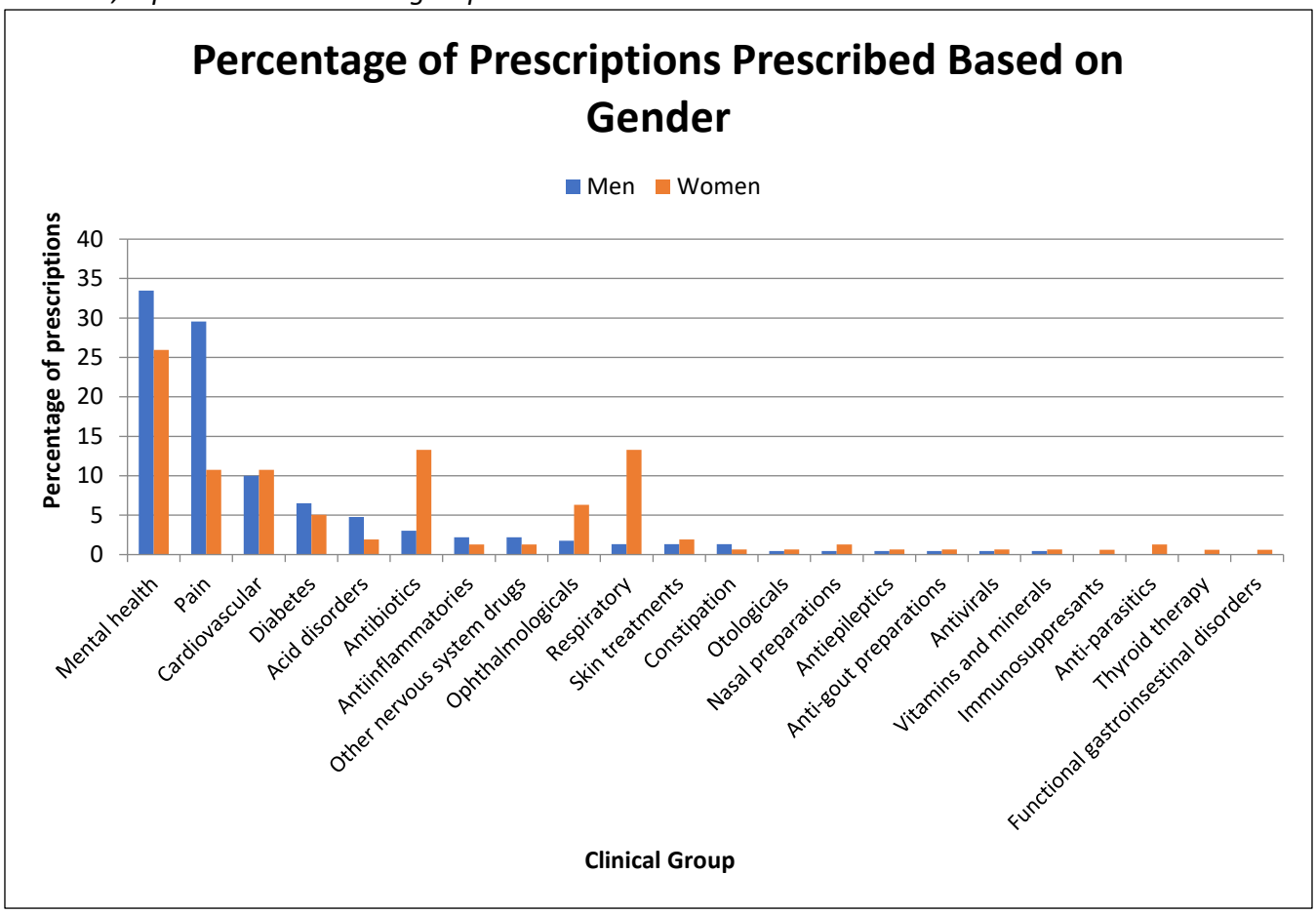


Medications used for lowering blood pressure were the most commonly prescribed amongst the Australian population with 22,402,837 prescriptions. Secondly lipid lowering

medications were prescribed 21,094,535 times.

Pain medication was prescribed at a lower rate of 16,670,083 and was the third most commonly prescribed medication. Acid disorders and mental health medications were prescribed with similar frequency in the population, only a 350,193 difference favouring acid disorders. Antibiotic medications were prescribed 12,389,460 times throughout the year. Medications to treat or manage respiratory illness were prescribed 11,520,780 times. Diabetes medications were prescribed 9,911,233 times.

Graph 6: Percentage of prescriptions prescribed based on gender between June 2017 – June 2018, represented in clinical group.

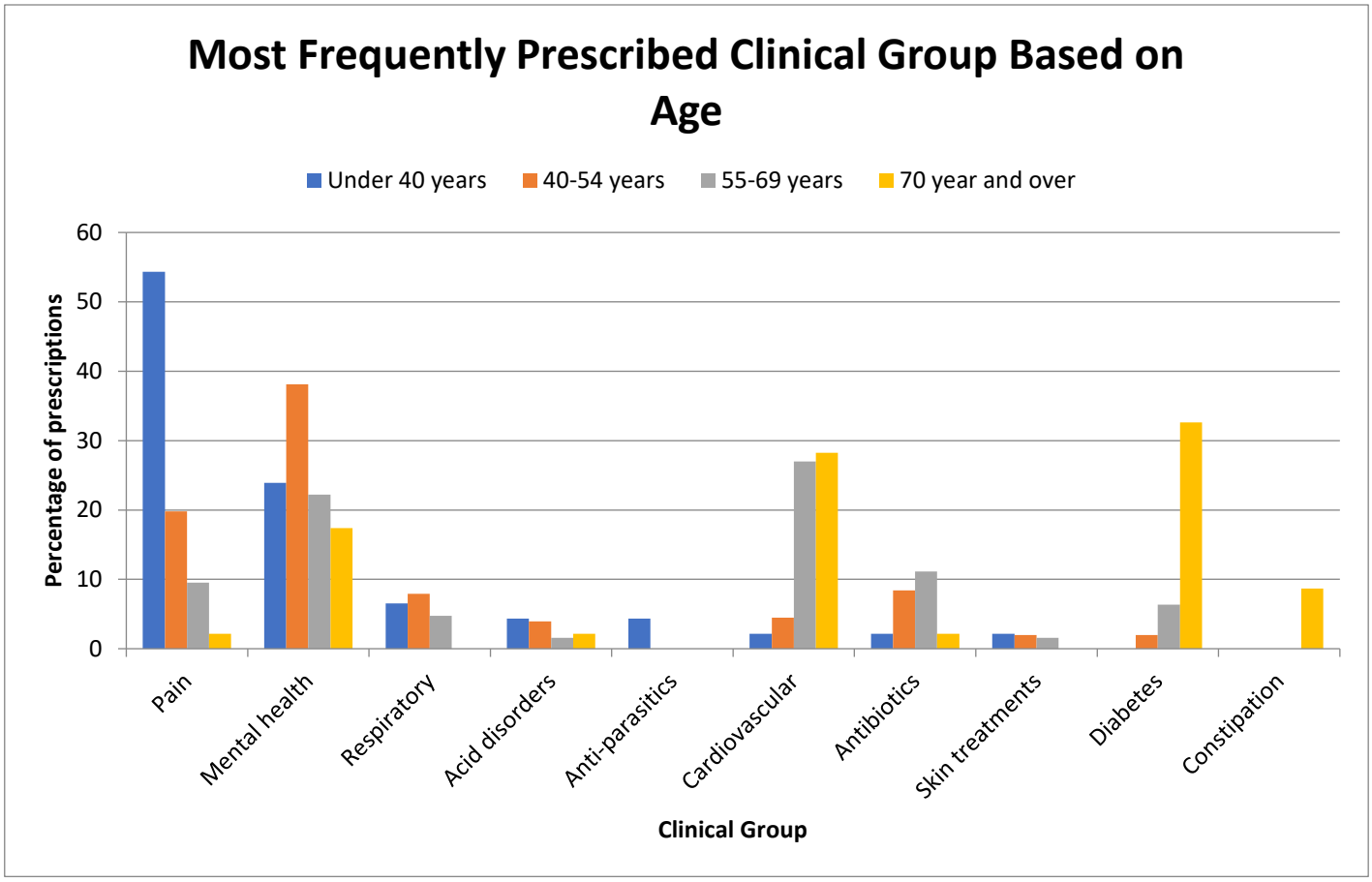


Graph 6 represents the demand for medicines based on clinical group compared with gender. Frequency is represented as a percentage of total prescriptions for each group.

In the study cohort medicines used for the management of mental health were the most commonly prescribed drugs for both men and women, however, men used mental health medications at a much higher rate with 33.5% of total prescriptions for males being mental

health related compared to 25.9% for females. Men also disproportionally required pain management medications compared to women, 29.6% compared to 10.8% respectively. Antibiotic and respiratory medication use was significantly higher in women, with both clinical groups making up 13.3% respectively of total medications prescribed for women. Women also required more treatment for ophthalmological conditions than men, with 6.3% and 1.7% respectively. Both men and women had a similar need for cardiovascular medications with only 0.8% difference between the two groups. The data suggests that males suffered more from diabetic disorders with 6.5% of medications prescribed for males compared to 5.1% prescribed for women. Men also experienced greater morbidity from acid disorders with 4.8% compared to 1.9% in women.

Graph 7: Frequency of prescription between June 2017 – June 2018 based on age group



Graph 7 shows prescriptions as a percentage of total prescriptions for each age group in the study cohort.

For individuals under the age of 40 years, pain is the most significant cause of morbidity,

54.3% of all prescriptions in the age group are prescribed for the management of pain. Mental health was significant across all age groups, however, individuals aged between 40-54 years had the highest prevalence of mental health in the population with 38.1%. Mental health was also the second biggest contributor to morbidity for the under 40 years age group comprising 23.9% of total prescriptions. For individuals aged 55-69 years cardiovascular medication management was the most commonly prescribed with 27.0% of total medications, mental health was the second biggest contributor to ill health in this age group with 22.2%. Medications prescribed for the management of diabetes were most common among those who were 70 years or over, making up 32.6% of total prescriptions. Cardiovascular and mental health management as well as treatment of constipation were also significant contributors to morbidity in this group with 28.3%, 17.4% and 8.7% respectively.

Findings from the raw data were presented to Baptist Care SA in an informal meeting to discuss the preliminary results of the analysis and to ask some further questions about the study cohort. From this discussion the representatives from Baptist Care SA were able provide some additional information about the cohort:

- There is an onsite nurse and a fortnightly doctor at the emergency relief centre
- Individuals rarely access medications for children;
- Individuals do have contact with other emergency relief providers;
- Little information on the safe use of drugs is received by the individuals as they are often just stopping in the centre to have their script filled and then leave;
- There is a potential that clients aren't receiving enough information from doctors;
- This program is not designed to keep track of client's condition or previous illness;
- Highly biomedical approach to giving out medications, no focus on prevention of ill health; and
- Baptist Care SA have expanded their emergency relief medicines program, however each individual can still only access 3 scripts per year.

When presented with the data, the representatives from Baptist Care SA were not surprised at the high levels of pain in the study cohort and attributed it to individuals experiencing prolonged periods of inadequate sleeping arrangements, pre-existing illness or injury and a

dependence on pain relievers. The high prevalence of mental illness was also not unexpected, many individuals who access to emergency relief have often experienced trauma and difficult circumstances may have potentially worsened existing conditions.

Discussion

This report has analysed the current literature, critiqued relevant policy documents and conducted analysis of primary data to determine the negative impact that living in poverty and the associated lack of affordable housing has on individual health and the health of the precariously housed population.

A review of the literature on housing and health highlighted the social structures that underpin an individual's ability to function at their full potential in society, housing is a key determinant of health. Housing affordability is a significant issue in Adelaide and Nationally, the inability for individuals living on low incomes to afford to rent or own their own home forces many individuals into situations of precarious housing which can have a detrimental impact on health. Situations of precarious housing are associated with significant barriers to healthcare such as booking appointments, getting to appointments, following up referrals and so on, which commonly increases negative health outcomes.

An analysis of State and Federal housing and health policies found that there is a great need for clear and concise action areas to address stations of precarious housing. Health policies have a heavily biomedical standpoint, this must change in order to view access to safe and affordable housing as a preventative measure against ill health for vulnerable population groups.

Overall findings from the analysis of the primary data received from Baptist Care SA on medications prescribed from June 2017 - June 2018, were significantly different when compared with the medicines used by the wider population in the PBS data from 2016-2017.

It is not uncommon for individuals to receive more than one medication per prescription, however, as Graph 1 depicts receiving multiple medications is common in this study cohort. This may be attributed to the availability of the emergency relief program as Baptist Care SA can only provide up to three scripts a year for each client due to a funding eligibility criteria.

Limited accessibility to affordable medications can cause complications for some patients; individuals who need long term, constant medication for chronic or lasting conditions may need more than three prescriptions per year. Of the top 20 prescriptions for the study cohort, 14 are considered essential medicines and 11 are for treatment of chronic conditions. Both essential and chronic use medicines are used at a higher frequency, posing a significant harm to the individual if these medications are not regularly maintained.

As previously discussed in the review of the literature, individuals who are experiencing poverty or who are precariously housed have many challenges when accessing healthcare services.

It can be assumed that if individuals accessing any form of emergency relief, they are most likely in some form of stress whether that be financially or family violence and so on. In these situations, health is not always a top priority, as previously discussed, using Maslow's theory on the hierarchy of needs, individuals will prioritise food and shelter over personal care in order to survive (Mathes, 1981). In the study cohort there is a potential that some of the large amount of pain-relieving medications prescribed are attributable to untreated, long-term conditions. Individuals accessing emergency relief may not be in a financial position to meet the costs associated with treating chronic conditions, a knee replacement for example, therefore they must use pain medication in order to manage their condition (Davies & Wood, 2018), (Rogers, 2013).

Another challenge that the study cohort may have accessing health care is that the medicines available under the emergency assistance program can only PBS subsidised medicines. If an individual who is accessing emergency assistance needs a medication that is not PBS listed as they cannot afford it outright then they are forced to go without it or choose a potentially less suitable alternative. This can lead to mismanagement of a condition or prolong an illness and is not seen as quality use of medicines.

A comparison between Graph 2 and Graph 3 provides a useful insight into the differences in the needs of the study cohort and the wider Australian community. The analysis of primary data suggests that there is a high level of pain experienced by the study cohort as well as a high prevalence of anxiety related illness and/or stress.

In the study cohort, the high frequency of mental health and pain medications suggests that these conditions are a significant contributor to morbidity. While we do not know for certain if all the individuals who were accessing the emergency assistance were precariously housed or sleeping rough, there is a high likelihood that they are experiencing some sort of physical or emotional stress which would be directly impacting their mental and emotional state. Pain was the third most commonly prescribed clinical group for the general population data, while this is still significant, when the proportional differences in the two populations sizes are considered pain is a more significant factor among the study cohort receiving emergency assistance.

The presence of pain-relieving medicines in the study cohort compared to the absence of them in the general population group could suggest that pain in the study cohort can to some extent be attributed to situations of poverty and associated precarious housing and rough sleeping. The wider Australian population suffered more from conditions such as hypertension and coronary heart disease. Medications prescribed for the management for chronic conditions such as heart disease and hypertension were most common in the Australian population, this is typically what we would expect to see as an ageing populous experiencing high rates of obesity and lifestyle diseases (Australian Institute of Health and Welfare. 2018).

Pain in the precariously housed population has been well documented, but there is not enough information about the individuals in the study cohort to determine their exact condition, however, if people put off treatment of existing health conditions and face barriers to accessing primary healthcare it would be unsurprising to find the need for pain relief.

In the study cohort males and individuals under the age of 54 stand out as a unique group. Males disproportionately received mental health and pain medication compared to women. On the other hand, women had a significantly higher need for antibiotics and respiratory medications than men. The study cohort reflected illnesses common to those in other studies (Stafford & Wood, 2017) and the types of medicines prescribed indicate a high prevalence of mental illness and pain management along with a high incidence of bacterial infection and respiratory complications. Cardiovascular conditions and diabetes were common chronic conditions.

The majority of preventable illnesses were observed in individuals who were 54 years of age or under with high prevalence of mental illness, pain, respiratory and antibiotic medications. Medicines used to treat chronic conditions were more commonly prescribed to individuals over the age of 55; in this half of the cohort there was a higher use of medications prescribed for cardiovascular health and diabetes management as well as mental health and constipation. The results in Graph 7 were more reflective of the health of the wider population, as with an ageing population it is more common that individuals who are over 60 years will experience chronic conditions (Australian Institute of Health and Welfare, 2018). However, it is not common to see such high use of pain medications in the younger ages in the study cohort when compared to the wider population.

By providing access to a nurse and a fortnightly doctor, the Baptist Care SA emergency relief program does help to overcome some of the barriers to health care associated with living in poverty. However, the information provided from the representatives at Baptist Care SA suggests that individuals are not receiving enough information at the point of receiving their medication and they may not be getting enough information from doctors or pharmacists, this leaves a critical gap in knowledge of medicines use.

As previously discussed, socio-economic status is a key indicator for health. Individuals of a low socioeconomic status and associated precarious housing situations often experience worse health than the wider population. Health policies must acknowledge how much influence living conditions directly impact health, and the improvement of health through the provision of stable housing.

Limitations

This study was limited by the amount of information provided on each individual in the data set. This made it difficult to determine each individual's living situations at the time of seeking assistance, also the intended purpose of the medications they were supplied.

Conclusion

The health inequalities faced by individuals who are living in poverty and experiencing precarious housing could be improved with greater access to safe and affordable housing and more accessible health care in South Australia. Analysis of primary data provided by Baptist Care SA from their emergency relief medicines program has shown that mental

illness and pain management are the primary causes of morbidity among the study cohort. When compared to the health of the wider Australian population, the study cohort experienced higher prevalence mental illness and pain. These conditions are strongly associated with a lack of access to safe and affordable housing. The health of the precariously housed population could be greatly improved with the implementation of a Federal housing policy, as well as improvements in both State and Federal health policies to recognise the importance of housing as a means for preventing ill health in vulnerable populations, new targets to increase the supply of social housing and support for people living in poverty.

Recommendations

- A Federal housing policy must be established with the goal of improving housing affordability and reducing homelessness. It is imperative that tax reform, including negative gearing and capital gains tax, is addressed and adequate funding for the growth of social housing is provided by the Commonwealth Government;
- State and Federal health policies must recognise housing as a key determinant of health and as a preventative measure against ill health. Reasonable targets should be set to ensure that health policies direct the implementation of services to ensure that individuals can achieve their maximum potential and achieve the quality use of medicines for all citizens;
- State and Federal health and housing policies must cross-reference each other to improve effectiveness;
- Federal funding for Centerlink benefits must be increased to reduce the levels of people living in poverty;
- Federal funding needs to be expanded for emergency assistance programs to allow greater access to essential medications for individuals living in poverty and where needed, more than three provisions per year;
- Specific health services for people living in poverty must be provided to overcome the access and affordability barriers they face;
- A housing first model should be adopted for all people who are precariously housed or sleeping rough;

- General practitioners, prescribing pain medications for people with health care cards, should be prompted to seek long term pain management plants, rather than the continuing to treat symptoms;
- Emergency assistance programs should provide more information to clients about the use of medications and access to other support services where possible; and
- Emergency assistance programs could collect data about health conditions for individuals when they receive emergency assistance medications to keep a more thorough record of the health of the population and identify areas of need.

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Definitions

Definitions of Social Housing:

Public Housing – dwellings or properties that are leased and managed by State and Territory housing authorities.

State Owned and Managed Indigenous Housing (SOMIH) - dwellings or properties that are leased and managed by State and Territory housing authorities, which are leased exclusively to Indigenous Australians.

Community Housing – properties that are managed by community-based organisations. These organisations receive either capital or subsidies form the government to manage these properties, however, additional self-funding is often required.

Indigenous Community Housing (ICH) – Properties that are managed and leased by Indigenous community housing organisations for Indigenous Australians on low incomes or those with additional needs.

Crisis Accommodation – temporary forms of accommodation available to individuals who are experiencing precarious housing or who are sleeping rough. These are managed by non-for-profit and non-government agencies.

Appendix

Table 1: Definitions of most frequently prescribed medications

Prescription	Prescribed Use	Drug Class	Possible Adverse Effects
Diazepam	Treatment of anxiety, symptoms associated with alcohol withdrawal including agitation and tremor, and to relax muscles.	Benzodiazepines	Diazepam should not be taken if an individual suffers from: lung disease, liver disease, sleep apnoea, myasthenia gravis (complications with nervous system), drug and/or alcohol dependence, depression and/or anxiety associated depression or a mental illness which is not being treated by additional medications.
Ramipril	Lower high blood pressure, prescribed for hypertension	Angiotensin converting enzyme (ACE) inhibitors	Should not be taken if the patient has kidney problems, low blood pressure, pregnant or breastfeeding
Simvastatin	Lower high cholesterol levels	HMG-CoA reductase inhibitors	Should not be taken if the patient has liver disease or muscle tenderness
Amlodipine	Treatment of hypertension and angina	Calcium Chanel Blockers	Could cause difficulties in patients with previous heart failure and liver problems
Atenolol	Lowering high blood pressure in the treatment	Beta blockers	Can interfere with asthma medications

	of hypertension, angina and heart disease		
Irbesartan	Lowering high blood pressure, prescribed for hypertension	Angiotensin-II receptor antagonists	Should not be taken if breastfeeding, if diabetic or have kidney problems
Fluticasone and Salbutamol	Treatment of asthma, bronchitis and other breathing problems, 'preventer'	Corticosteroids	Cautioned use when pregnant
Salbutamol	Treatment of asthma, bronchitis and other breathing problems	Beta 2 agonists	Cautioned use when pregnant
Perindopril	Lowers high blood pressure, prescribed for hypertension	Angiotensin converting enzyme (ACE) inhibitors	Should not be taken if pregnant or breastfeeding, if there are kidney problems
Pantoprazole	Treatment of duodenal and gastric ulcers and reflux disease	Proton Pump Inhibitor	Should not be taken if suffering from liver or kidney disease
Rosuvastatin	Lower high cholesterol levels	HMG-CoA reductase inhibitors	Should not be used if pregnant or breastfeeding, hypothyroidism, muscular defects, history of alcohol abuse, Asian heritage, kidney difficulties
Budesonide and formoterol	Inhaled for the treatment of asthma or Chronic Obstructive Pulmonary Disease (COPD).	Budesonide belongs to a group of medicines called corticosteroids.	

		Formoterol belongs to a group of medicines called beta-2-agonists.	
Gliclazide	It is used to control blood glucose (sugar) in patients with Type 2 diabetes mellitus.	Sulfonylureas	Should not be taken if already suffering from Type 1 diabetes, have liver or kidney disease
Amoxycillin and clavulanic acid	It is used to treat a wide range of infections in the body caused by bacteria. These infections may affect the chest (bronchitis or pneumonia), bladder (cystitis), sinuses (sinusitis), the ears (otitis media) or the skin.	Penicillin	Not recommended for individuals with liver complications
Prednisolone	Wide ranging ant inflammatory used to treat: severe allergies, severe or chronic asthma, skin problems, arthritis, inflammatory diseases of the bowel, cancer and "auto-immune" diseases	Corticosteroids	
Oxycodone and naloxone	Relieve moderate to severe pain	Opioid analgesics	Should not be taken if the patient suffers from respiratory illness of disease, has heart

			problems, has alcohol dependence or withdrawal, suffers from seizures, any head injury, abdominal pain, kidney or liver disease
Cephalexin	Used to treat infections in different parts of the body caused by bacteria, such as: respiratory tract, sinuses, ears, skin, genitourinary tract	Cephalosporins	Should not be taken is individual has an intolerance to lactose
Sertraline	This medicine is used to treat depression and conditions called obsessive compulsive disorder (OCD) and panic disorder.	Selective serotonin reuptake inhibitors	Not recommended for individuals under the age of 18
Oxazepam	Rapid control of agitation and disturbed behaviours in patients with schizophrenia and related psychoses and in patients with acute mania associated with Bipolar I Disorder	Antipsychotic	
Olanzapine	Rapid control of agitation and disturbed behaviours in patients with schizophrenia and related psychoses and in patients	Antipsychotic	Not recommended for individuals under the age of 18

	with acute mania associated with Bipolar I Disorder		
Amitriptyline	Treatment of depression	Tricyclic antidepressants	Should not be taken if there are any previous heart conditions.
Quetiapine	Treatment of schizophrenia and bipolar disorder	Antipsychotic	Not recommended for children or adolescents and the elderly
Tramadol	Relieve moderate to severe pain	Analgesics	Tramadol should not be taken if an individual is a heavy drinker or is on any other medication to treat depression.
Pregabalin	Treatment neuropathic pain (pain caused by abnormality/damage to nerves), lyrica is also used to control epilepsy, has pain relieving capabilities & can be used in combination with other medications.	Anticonvulsants	
Paracetamol and Codeine	Relief of moderate to severe pain and fever.	paracetamol belongs to the Analgesic drug class and codeine is classes as an Opioid.	Panadeine Forte should not be taken if there is a history of drug dependence or during pregnancy.

Mirtazapine	Treatment of depression including relapse prevention	Tetracyclic antidepressants	Should not be taken if a patient has an existing intolerance to lactose.
Metformin	Control blood glucose levels in individuals with Type 2 diabetes	Biguanides	Metformin should not be used for Type 1 diabetes or Type 2 diabetes that is being controlled by diet alone, kidney disease, dehydration, liver disease, acute or chronic alcohol dependence, blood circulation issues or heart problems, blood clots in the lungs, severe infections, and inflammation of the pancreas
Atorvastatin	Lower high cholesterol levels also prescribed for individuals with high blood pressure and coronary heart disease	HMG CoA reductase inhibitors	Atorvastatin must be taken in conjunction with a low-fat diet and sufficient exercise, Atorvastatin must not be taken if pregnant, suffering from liver disease or taking the antibiotic fusidic acid

Esomeprazole	Treat peptic ulcers by killing off the bacteria Helicobacter pylori	Antibiotic	Nexium should not be taken in conjunction with any of the following: ergotamine, dihydroergotamine, astemizole, terfenadine, cilostazol, atazanavir, colchicine, simvastatin, lovastatin, ticagrelor, and oral midazolam
Oxazepam	Treatment of anxiety associated with depression as well as tremor, anxiety and confusion associated with alcohol withdrawal	Benzodiazepines	Oxazepam should not be taken if the patient has chronic respiratory disease or sleep aponia

Table 1 Reference:

Therapeutic Goods Administration, 2018, *Consumer Medicines Information*, Department of Health, viewed October 2018 <https://www.tga.gov.au/consumer-medicines-information-cmi