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# Manufactured home villages in Australia - a melting pot of chronic disease?

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# Manufactured home villages in Australia - a melting pot of chronic disease?

## **Abstract**

Manufactured home villages (MHVs) are an increasingly popular housing option for older Australians. This paper reports a cross-sectional survey that sought to describe the health status and health service access of MHV residents. The survey tool comprised demographic and health status items, primary healthcare access perceptions and the World Health Organization Quality of Life tool (WHOQOL-BREF). One-hundred-eighty-six MHV residents from regional NSW completed the survey. Hypertension (54.8%) and arthritis (46.5%) were the most prevalent chronic diseases reported. Overall, respondents expressed a high level of satisfaction with the sense of safety and security (82.8%), neighbours (69.4%) and the overall location of the villages (66.7%). There was good to excellent internal consistency of all four WHOQOL-BREF domain scores, with a comparatively lower sample mean score for the 'Physical' and 'Psychological' domains. MHV residents are a significant cohort of older people with high rates of chronic disease and reasonably poor access to transport services, which affects their capacity to access health services. They also have comparatively low levels of quality of physical and psychological life along with low levels of satisfaction with their health.

## **Keywords**

villages, australia, melting, home, pot, manufactured, chronic, -, disease?

## **Disciplines**

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## **MANUFACTURED HOME VILLAGES IN AUSTRALIA – A MELTING POT OF CHRONIC DISEASE?**

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## **ABSTRACT**

Manufactured home villages (MHVs) are an increasingly popular housing option for older Australians. This paper reports a cross-sectional survey which sought to describe the health status and health service access of MHV residents. The survey tool comprised of demographic and health status items, primary healthcare access perceptions and the WHOQOL-BREF tool. One hundred and eighty six MHV residents from regional NSW completed the survey. Hypertension (54.8%) and arthritis (46.5%) were the most prevalent chronic diseases reported. Overall respondents expressed a high level of satisfaction with the sense of safety and security (82.8%), neighbours (69.4%) and the overall location of the villages (66.7%). There was good to excellent internal consistency of all four WHOQOL-BREF domain scores, with a comparatively lower sample mean score for the "Physical" and "Psychological" domains. MHV residents are a significant cohort of older people with high rates of chronic disease and relatively poor access to transport services which impacts on capacity to access health services. They also have comparatively low levels of quality of physical and psychological life along with low levels of satisfaction with their health.

**Keywords:** Manufactured Home Villages, Residential Park, mobile home parks, housing, residents, chronic disease, quality of life

## **WHAT IS KNOWN ABOUT THE TOPIC?**

- MHVs are considered a relatively new housing option in Australia
- Residents of MHVs feel that this style of housing provides a sense of community, evokes a feeling of security and are an affordable alternative for the older population.
- There is limited published information about the health and wellbeing of older MHV residents

## **WHAT DOES THIS PAPER ADD?**

- This paper highlights the high prevalence of chronic disease and poor physical health amongst MHV residents compared to the wider community.
- It highlights that despite the perceived social and psychological benefits of MHV living, demographic factors such as age, financial status, gender and high levels of chronic disease impact on social relationships and psychological health of MHV residents.
- This snapshot analysis highlights that health interventions implemented within MHVs could target individuals with a high prevalence of chronic and complex disease.

## INTRODUCTION

The Australian Government faces significant issues as the burden of chronic disease in an ageing population increases. The combination of an increased proportion of the population over 65 years and the older population living longer have raised a number of concerns for the future management of ageing (Bureau of Health Information 2012). The issues include an increase in welfare and pension dependence, a reduction in the workforce, a change in consumer lifestyle, the provision of housing and an increase in complex health and chronic disease issues (Australian Bureau of Statistics 2008, Bosman 2012).

The NSW Health Chronic Disease Management Office (2012) notes that by 2020 it is expected that 80 per cent of the disease burden in Australia will be due to chronic disease. In the 2007-08 National Health Survey nearly all people aged over 65 years reported having at least one long-term condition. More than 80% of those aged over 65 years reported having three or more long-term conditions. Over the next 40 years, the proportion of the Australian population over 65 years will almost double to around 25 per cent (Australian Government Treasury). The ageing population dilemma is not limited to Australia, the United Nations (2009) projects by 2050 that approximately one third of the world population will be aged over 65.

While most older adults prefer to age in place (Beer & Faulkner 2006, Olsberg & Winters 2005, Sivam 2011), there has been an identified need for an increase in housing choices that are an affordable and viable option for the older population (Goodman, Nelson, Dalton, Cigdem, Gabriel & Jacobs 2013, Grant 2006, Newton 2011). The private sector, ever mindful of an entrepreneurial opportunity, has responded to the need through identifying alternative options that has resulted in the development of manufactured home villages (MHVs). Other terms used to describe this kind of housing include mobile homes and residential parks. These terms are synonymous and are used interchangeably.

MHVs are land leased communities, whereby the residents own their own home and lease the land from the village in which the home is located. The average cost of a manufactured

home ranges between \$80,00 and \$300,00 and residents pay a weekly site rental between \$90 and \$120 (Affiliated Residential Park Residents Association (ARPRA) 2012). Results of the ARPRA (2012) survey suggest 90% of park residents receive a pension and approximately 30% of park residents' income is sanctioned for site fees, however this does not include the additional utilities costs.

Manufactured home communities include villages or estates which exclusively comprise of permanent residents, or parks that have both residential sections and tourist sites for holiday-makers (Goodman et al 2013, Manufactured Housing Industry Association NSW 2009). In NSW MHVs are governed by the Residential Parks Act (1998). The Act clearly defines manufactured homes as a self-contained residence that is not registrable as a moveable dwelling. The park owner must provide the resident with a Residential Tenancy Agreement and there are a number of rights and responsibilities for both parties involved. In contrast, the Retirement Villages Act (1999) clearly states that a retirement village does not include a residential park or a residence governed by a Residential Tenancy Agreement. Despite the Residential Parks Act residents have noted concerns in regards to park owners management styles, little control over rent increases, asset decline and threats of park closures (APRA 2012, Goodman et al 2013).

Affordable housing is a critical issue facing many communities and the older population. Manufactured home living offers a cost effective alternative to mainstream housing (Boehm & Schlottmann 2006, Drury 1977, Newton 2011, Wirtz 2005) and are a phenomenon often overlooked by planners, local governments and housing (Baker, Hamshaw & Beach 2011, Bunce 2010). Studies in the United States estimate that approximately 6-7% of the total housing stock is mobile homes accounting for nearly 7 million occupied mobile homes (Housing Assistance Council 2011).

There is limited Australian data regarding the prevalence and occupation of MHVs. Indeed the 2011 Census does not distinguish between caravan parks, MHVs, cabin and houseboats (Australian Bureau of Statistics 2011). However the Census estimates that approximately 34,800 people in NSW reside in these varied types of accommodation (Goodman et al 2013).

The NSW Ministerial Advisory Group on Ageing (2004) estimated that in 2004 some 26,000 people in NSW over the age of 55 resided in a MHV. Similarly, the Queensland Government (2011) estimated that there were over 200 residential parks providing sites for manufactured homes accommodating approximately 15,000 people.

### ***Health and Lifestyle***

Several factors seem to affect the decision to purchase a manufactured home, including security, health, maintenance, location, economics and family (Dixon 2012, Newton 2011, Woodbridge 2003). A majority of older residents live on very modest incomes and have made the choice to live in a park environment as it offers 'an attractive affordable lifestyle' that is highly valued by the residents for the sense of community, friendships, informal care networks and communal lifestyle that still enables the residents to live independently (NSW Ministerial Advisory Group on Ageing 2004). Tremoulet (2010) suggests MHVs are a naturally occurring retirement community with the potential for adding service programs to enable further ageing in place.

There is growing evidence of social cohesion and enjoyment of park lifestyles. In 2007 Woodbridge, Miller & Buys conducted a study in Queensland that explored and compared the experiences of residents living in retirement villages and MHVs. This study found a generally positive experience of living in a MHV , with residents interacting with each other and participating in social events. Of great significance the participating residents were found to have a higher level of social support and reciprocity, supporting each other with activities of daily living and indicating a high level of general life satisfaction. Tremoulet's study (2010) supports these findings noting that residents described formal and spontaneous social activities that enhanced their quality of life. Two themes emerged from Tremoulet's (2010) focus groups about the physical and social environment of MHVs these included personal safety and a sense of community.

Despite these findings there has been limited attention on the health status of MHV residents and their utilisation of health care services. Therefore this study sought to gain an



understanding of the resident population, their quality of life, health issues and access to primary health care services in the local community.

## **METHODS**

Residents of all the 11 MHVs within the Shoalhaven region of NSW were recruited to the study with participants completing a paper-based survey. The survey was distributed individually to each resident mailbox at the MHVs and collected via return post to the researcher or in a special collection box within each MHV office.

The survey tool included 15 items covering demographic information, information on health status, health needs and access to primary health care services; and 26 items on quality of life and health service utilisation via the WHOQOL-BREF tool (WHO 1998). The tool was developed following a survey of the literature and review of existing relevant tools. Prior to its use the tool was reviewed by 5 health professionals working within the chronic disease and primary care sector for face validity, the tool was not modified for the study. The WHOQOL-BREF questionnaire contains two items from the Overall QOL and General Health and 24 items of satisfaction that divided into four domains: Physical health with 7 items (DOM1), psychological health with 6 items (DOM2), social relationships with 3 items (DOM3) and environmental health with 8 items (DOM4) (Gholami et al 2013).

All data was analysed using Microsoft Excel (V 2013; Microsoft Corporation, USA) and SPSS/WIN 21.0. All WHOQOL-BREF questions were subjected to recoding and data transformations to achieve transformed scores (0-100 scale) for comparison with the WHOQOL-100. Non parametric tests (Mann–Whitney U-test and/or Kruskal–Wallis H test) were conducted to assess significance of differences across demographic categories. Additional brief comparative analysis was conducted on disease self-reported prevalence figures with those of the Australian national estimates as per the Australian Health Survey 2011-13 (Australian Bureau of Statistics 2013). Cohort-specific age standardised disease prevalence figures were calculated for the sample and the Australian estimates.

We compared the transformed mean scores of all age specific WHOQOL-BREF domains with those reported by Hawthorne et al (2006) who have previously pooled randomly sampled community residents from two studies to generate general norms for the WHOQOL-BREF domains. The test of statistically significant difference between the two studies for each domain was determined using two sample tests.

The survey was conducted under the ethics approval of the University of Wollongong and Illawarra Shoalhaven Local Health District Social Sciences HREC (Approval No. HE13/520). Written permission was gained from the WHO to use the WHOQOL-BREF tool.

## **RESULTS**

Of the 602 surveys distributed to mailboxes, 216 (35.9%) were returned. One hundred and eighty-six survey forms (30.1%) were complete and included in the analysis. Respondents were predominantly female (58.1%) and retired from work (80.6%). Respondents had a median age of 73 years (IQR = 67 - 78 years)(Table 1).

**\*\*INSERT TABLE 1 HERE\*\***

While the sense of safety and security was reported as the most liked attribute of village living; the rental costs and poor value for money of the MHVs were identified as the biggest concerns by the respondents. Most (97.8%) respondents had a regular GP/Doctor. Transport availability and costs associated with transport were identified as the biggest problems to respondents accessing health care. Overall respondents expressed a high level of satisfaction with several aspects of their respective villages and consequently 86.6% of respondents identified that in the near future they “plan to live in the village as long as possible”. The sense of safety and security (82.8%), neighbours (69.4%) and the overall location of the villages (66.7%) were reported as the best aspects of village life. The village life indicator least liked by residents (24.2%) was “high rental cost”.

Hypertension (54.8%) and arthritis (46.5%) were the most prevalent self-reported chronic diseases within the sample (Figure 1). On comparative analysis of cohort-specific age standardised disease prevalence it was revealed that for all major conditions such as arthritis,

hypertension, cardiovascular disease, depression, renal disease, osteoporosis and diabetes, the prevalence in the study sample was greater than that of the Australian estimates for comparable aged populations (Figure 2). A relatively low level of social involvement was reported by the respondents, with only 32% respondents identified to be involved in some sort of social activity (such as community volunteer work, belong to or participate in any community groups, social or sporting groups or regular physical activity).

The internal consistency of all four WHOQOL-BREF domain scores ranged from good to excellent (Chronbach's  $\alpha$  ranging 0.7 to 0.9). The mean transformed domain scores for the WHOQOL revealed a comparatively poorer average for the Physical domain compared to other three domains. Sample mean scores for the WHOQOL domains lowest for the Physical domain. Sample mean scores for the transformed domain scores were; Physical = 62.5 (SD=19.9), Psychological = 69.8 (SD=15.9), Social Relationship = 71 (SD=20.9) and Environment = 73.6 (SD=14.6). Mean scores for the two independent non-domain variables that comprise of the overall scores were; Quality of Life = 73.3 (SD=22.9) and Satisfaction with one's health = 64.3 (SD=24.8).

The untransformed scores of all domains, including overall QoL were analysed for differences across genders and age groups (Figure 3). There was statically significant difference in the scores for the Social Relationship domain between males and females (U= 2667.000,  $p=0.025$ ) with males having significantly lower scores for quality of life as per social relationships than females. No other domain scores were different between the genders from a statistical significance level. Statistically significant differences were reported for Psychological ( $\chi^2=9.180$ ,  $p=0.027$ ) and Social Relationship ( $\chi^2=10.829$ ,  $p=0.013$ ) scores between age groups of respondents. Post hoc Mann–Whitney tests with manual adjustment for p-value by the Bonferroni method revealed that compared to people aged 65-74 years, respondents aged 50-64 years reported poorer Psychological quality of life (U=667.00,  $p=0.004$ ) and poorer quality of Social Relationships (U=645.50,  $p=0.005$ ). Respondents aged 50-64 years also had poorer quality of Social Relationships compared to persons aged 75-84 years (U=568.50,  $p=0.002$ ).

Comparison of age specific means for the transformed scores of all domains with those reported by Hawthorne et al (2006) revealed lower means (statistically significant) for our sample respondents of the age groups of 60-69 years and the 80 years and over for the Physical domain. However persons aged 80 years and over in our sample had higher mean scores (statistically significant) for the Social Relationship domain. Differences in means for other domains across all other age groups were not statistically significant.

## **DISCUSSION**

This survey provides evidence of a high burden of disease and highlights the complex health and social issues of older people living in manufactured home villages. The prevalence of reported hypertension in this survey (54.8%) was higher than that reported in the wider population of over 55 year olds. This is even more concerning given the evidence that self-report of hypertension underestimates the presence of high blood pressure (Australian Bureau of Statistics 2013). The presence of more concentrated chronic disease amongst those living in manufactured home villages has been previously suggested in the literature (Newton 2011, Manderson et al. 1999, Zenner & Allison 2010). However, these previously published studies used very rudimentary measures of health and illness (Newton 2011, Manderson et al. 1999). Based on the comparisons to the norms reported by Hawthorne et al. (2006) our sample clearly shows poorer physical scores. Further rigorous research, using validated health measures, is required on a larger scale to facilitate benchmarking comparisons of the health status of residents from manufactured home villages compared to the broader community of the comparable age.

Our study highlighted the major barrier to engagement with health services as being transport issues. Poor transport has been previously identified as a barrier to health service utilisation in both other studies of caravan park residents and the broader literature (Llewellyn-Jones 2004, Jacobs 2012). This finding, combined with the high concentration of chronic disease in the manufactured home village setting, highlights the need to incorporate this setting when planning transport routes and community services. It also highlights the

potential opportunity to bring health services into MHVs to make a difference to this high risk group and reduce the barriers to accessing health services.

The literature describes that individuals are motivated to reside in manufactured home villages as a means of promoting safety and security and being part of a 'community' (Bevan, 2010, Newton 2008, Tremoulet 2010). However, our study found that only 32% of respondents engaged in regular formal and informal social activities. Given the evidence that social involvement has a significant impact on both mental and physical health, this has important implications for the wellbeing of respondents (Stephens 2011).

## **LIMITATIONS**

There are a number of limitations to this study. Firstly, the study was conducted within a defined geographical area. This has implications for the demographics and socio-economic background of participants. However, previous literature has demonstrated that global data from the WHOQOL has striking similarities (Krägeloh, 2015). Secondly, all data was self-reported. Whilst the survey method provided a level of anonymity for respondents, all data was provided by participants and unable to be corroborated by unbiased measures of health status. Finally, the sample size was moderate in nature. Further studies should consider the use of mixed methods to provide a broader range of data to allow a deeper understanding of the context and issues related to the variables of interest.

## **CONCLUSION**

This paper presents the findings of a cross-sectional survey of residents in manufactured home villages within the Shoalhaven Local Government Area. This work provides important insights into this complex population. Findings highlight the concentration of both socio-economic disadvantage and chronic disease prevalence within the setting. These factors combine to significantly impact on the health and wellbeing of residents and potential ability to access health and community services. The findings of this study, highlighting the high levels of self-reported hypertension, depression and chronic disease, have important

implications for health policy, primary health care planning and further research in this area to target the health needs of this vulnerable and neglected group within Australia.

## **ACKNOWLEDGEMENTS**

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## **CONFLICT OF INTEREST**

Nil conflicts

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**Table 1. Characteristics of survey respondents (n=186)**

Indicator	n	%
<b>Residential postcode</b>		
2539	45	24.2%
2540	37	19.9%
2541	31	16.7%
2535	68	36.6%
Missing Data	5	2.7%
<b>Gender</b>		
Male	71	38.2%
Female	108	58.1%
Missing Data	7	3.8%
<b>Age groups</b>		
50-64 years	31	16.7%
65-74 years	68	36.6%
75-84 years	65	34.9%
85 and above	14	7.5%
Missing Data	8	4.3%
<b>Relationship status</b>		
Single	14	7.5%
Married or In a defacto relationship	68	36.6%
Widowed	59	31.7%
Divorced or Separated	42	22.6%
Missing Data	3	1.6%
<b>Employment status</b>		
Employed - full time/part time/ casual	10	5.4%
Unable to work due to health or disability	19	10.2%
Retired	150	80.6%
Unemployed	3	1.6%
Missing Data	4	2.2%
<b>Home ownership status</b>		
Own the home you live in	175	94.1%
Currently paying off a mortgage	3	1.6%
Rent	2	1.1%
Missing Data	6	3.2%
<b>Length of stay in Manufactured Village/s</b>		
1-4 years	62	33.3%
5-10 years	39	21.0%
> 10 years	82	44.1%
Missing Data	3	1.6%

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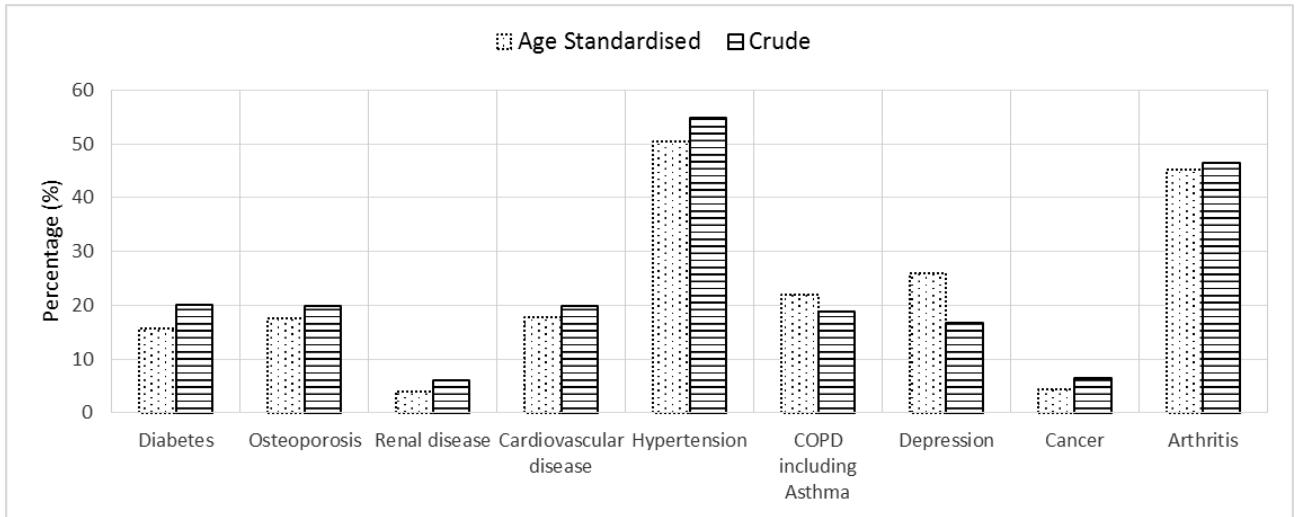
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112 **Figure 1. Self-reported prevalence of major chronic diseases**

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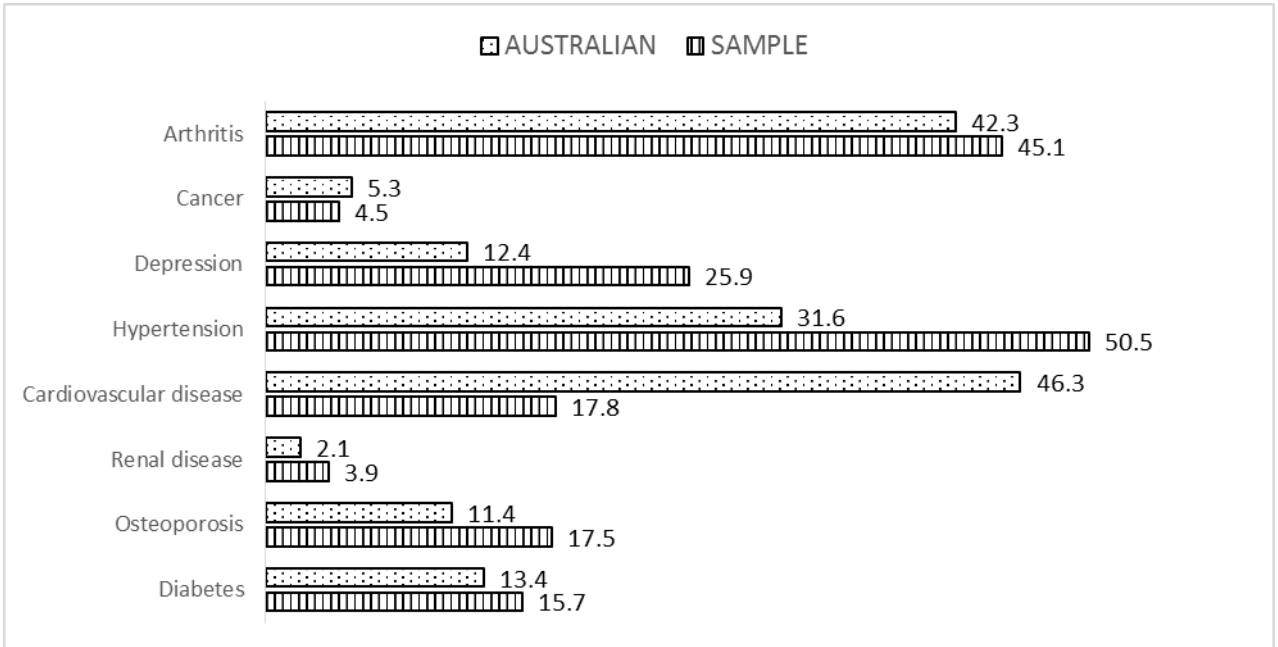
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118 **Figure 2. Age standardised disease prevalence (%) comparison between the**  
119 **sample & Australian estimates**

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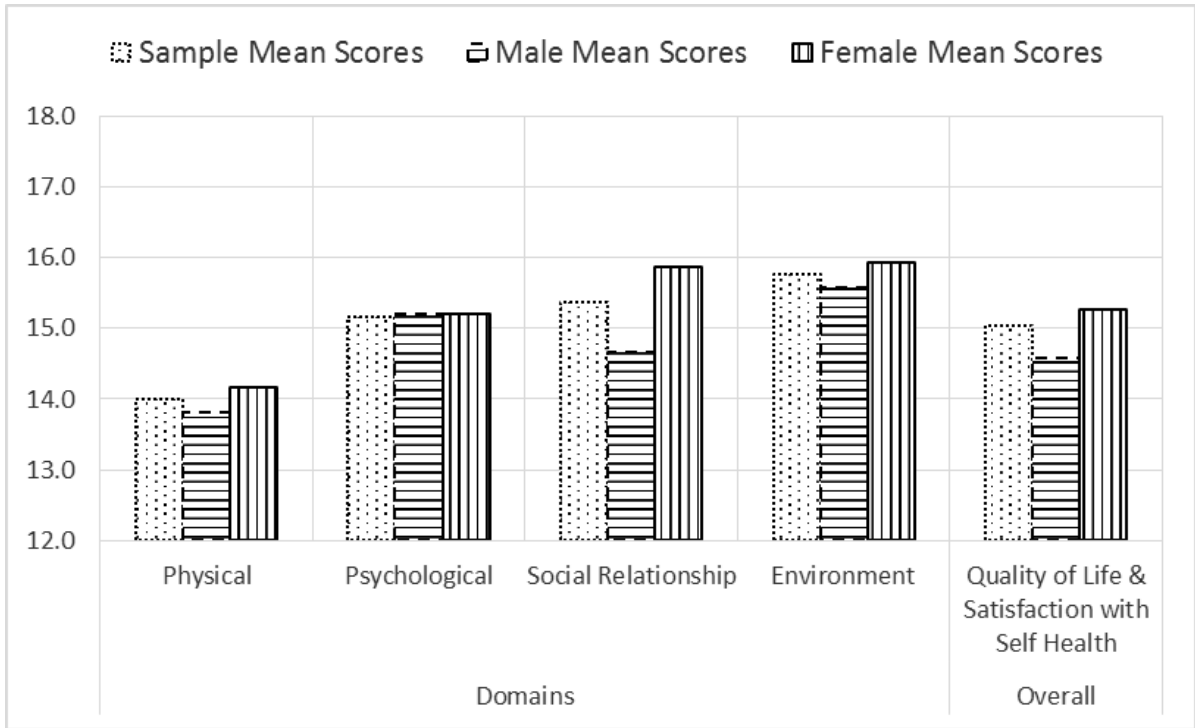
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130 **Figure 3. Mean untransformed scores of all WHOQOL domains**

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