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Cool? Young people investigate living in cold housing and fuel poverty. A mixed methods action research study



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ABSTRACT

Background: Living in cold housing conditions and risk of fuel poverty presents a range of physiological and psychosocial health risks. Limited research has specifically investigated the effects of fuel poverty on children and young people, and even less has been conducted with youth input into the research process.

Methods: The Cool? Study used mixed methods, participatory action research carried out with youth researchers involved at all stages through questionnaire design, analysis, qualitative design, e-interviewing and dissemination of results. This article reports on results of an online survey of 656 adolescents aged 14–16 years completed at 17 schools in New Zealand. Sampling was based on selecting schools for invitation, with the probability of selection weighted proportional to school size, within strata defined by climate zone. Results from a small e-mail interview study of survey respondents who consented to follow-up are also reported.

Results: The study found that almost half of the survey respondents (47%) felt their home was sometimes cold during the winter; a further 40% felt their home was often or always cold. More than two thirds of respondents (70%) had shivered inside at least once during winter. Respondents were more likely to report key indicators of fuel poverty depending on their self-reported ethnicity, with Māori at increased risk. Living in private rental housing or state-owned housing also increased risk of fuel poverty compared to those in owner-occupied dwellings. Participants of email interviews expressed concern about the widespread problem of cold housing for youth and a desire for Government intervention.

Conclusion: The integrated results confirm that cold housing and risk of fuel poverty are important problems for young people in New Zealand. Results contribute to the evidence-base for policy targeting of schemes such as the Government-sponsored retrofitting of insulation to households with dependent children.

1. Introduction

The effects of inadequate housing – from building quality and energy efficiency, suitability of size and access for occupants, housing costs and maintenance, to the availability and affordability of end-use services such as water and energy – are increasingly being linked to poor health outcomes (Marmot Review Team, 2011; Hilary Thomson & Thomas, 2015). Fuel poverty, both a consequence of and contributor to inadequate housing, can be broadly described as energy insecurity, where households are unable to achieve sufficient energy to meet accepted standards of living (Bouzarovski & Petrova, 2015). This includes adequate heating, generally accepted to be the World Health

Organization-recommended 18–21°C range in order to maintain good health (Ormandy & Ezratty, 2012). Building and appliance energy efficiency, energy costs, income as well as other demographic, social, and behavioral factors all combine to cause this multi-faceted problem (Liddell, Lagdon, McKenzie, Morris, & Walker, 2014).

Fuel poverty affects an estimated 25% of the New Zealand's (NZ) population (Howden-Chapman et al., 2012), comparable with recent estimates of fuel poverty in Southern and Eastern European countries such as Portugal, Romania, and Cyprus (Thomson & Snell, 2013). Important local drivers of fuel poverty include weak building regulations and poor building quality, as well as the cost of residential electricity and lack of consumer protections or price regulation, and

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heavy reliance on electrically-powered heating (Howden-Chapman et al., 2012). Payment for heating in New Zealand is almost always the responsibility of the occupants, rather than the property owner, in residential properties. District heating is not used, and the majority of residential dwellings are detached, and heated independently of other buildings/housing. Despite this, fuel poverty is not officially defined, or measured in New Zealand, and neither is fuel poverty explicitly targeted in any Government policy.

Negative health effects of fuel poverty for children include reduced caloric intake (Bhattacharya, Currie, DeLeire & Haider, 2003); increased risk of undernutrition, overweight, or acute hospitalisation (Frank et al., 2006); poorer health and development outcomes (Cook et al., 2008); increased mental health problems and antisocial behavior among adolescents (Liddell & Morris, 2010; Marmot Review Team, 2011). Children and young people are recognised as being at increased risk of fuel poverty due to spending more time at home and having increased physiological vulnerabilities to cold than adults (Tod et al., 2016). However research investigating fuel poverty has prioritised the voices of adults, and particularly older adults (see for example (Brunner, Christanell & Spitzer, 2012; Burholt & Windle, 2006; Day & Hitchings, 2011; Gilbertson, Stevens, Stiall, & Thorogood, 2006; Harrison & Popke, 2011; O'Neill, Jinks, & Squire, 2006; Royston, 2014; Rugkasa & Shortt 2007)).

Very little fuel poverty research has previously been undertaken with children living in cold homes (Children in Wales, 2011; Gibbons & Singler, 2008; Liddell, 2008). Child participation in research and as co-researchers, achieving “deep participation”, is growing in childhood and youth studies, often driven by consideration of the “participation” Article 12 of the United Nations Convention on Rights of the Child (Horgan, 2016). Research privileging children's knowledge finds them capable, willing, research collaborators (Ergler, 2011; Oliver et al., 2011). Local evidence that fuel poverty affects a significant proportion of New Zealand's children and young people warranted further investigation (Howden-Chapman, Bierre, & Baker, 2013; McChesney, 2013; O'Sullivan, Howden-Chapman, Hales & Stanley, 2013).

The Cool? study aimed to explore the experiences and insights of New Zealand youth living in, or at risk of fuel poverty, using mixed methods action research (O'Sullivan, Telfar Barnard, Viggers, & Howden-Chapman, 2016). Our collaborative process allowed a group of young people in the study to be co-researchers, from helping to design the survey and interview questions through to research dissemination (Alderson, 2001; Eng, Israel, Parker & Schulz, 2012; Eng, Israel, Parker, Schulz & Satcher, 2005; Jacquez, Vaughn, & Wagner, 2013; McCarry, 2011; Schäfer & Yarwood, 2008). We outline the integrated research results, and discuss policy implications of these, which strongly support government intervention to improve housing and thermal comfort for young people in New Zealand.

2. Methods

Ethics approval was obtained (Reference number: 14/178) through the University of Otago's Human Ethics Committee (Health), and research consultation with Māori, the indigenous population, was undertaken prior to the research beginning.

We held three sets of classroom workshop sessions with young researchers during 2015 at a school ranked in the 10–20% of New Zealand schools with the highest proportion of students from low-socioeconomic communities (O'Sullivan et al., 2016).¹ During the workshops the young researchers developed a quantitative survey in consultation with senior researchers, which was followed by a qualitative e-interview study. Survey questions included some of those used in

previous studies by He Kainga Oranga/Housing and Health Research Programme,² and questions for comparison with the NZ Census. New questions to explore youth experiences of fuel poverty were developed during group and class discussions. The youth researchers strongly favoured the inclusion of multi-answer questions, with an “other, please describe” option, as they felt that this would be more likely to encourage survey completion. Multi-answer responses were based on previous qualitative research on fuel poverty to provide common strategies for coping with the cold, for example, and through brainstorming typical youth experiences within the research team. Open questions were included in the survey to further explore fuel poverty and financial security indicators.

2.1. Target population, sample frame, and sampling methods

The Cool? survey was conducted as a complex survey. Selection of schools was stratified by Climate Zone, with school selection conducted using probability proportional to size (PPS) sampling, and student respondents clustered by school (students were from one or more classes within that school). This gave a total population (N) of 59,200 year 10 students (aged 14 to 16 years) in three climate zones across NZ (22,779 in zone 1, the warmest region comprising the upper North Island; 22,965 in zone 2, most of the rest of the North Island; and 13,456 in zone 3, the coolest region including all of the South Island and the mountainous Central Plateau of the North Island). The climate zones correspond to specifications in the regulation of Building Standards for insulation for new-build housing (Department of Building & Housing, 2011), and correspond roughly to NZ climatic regions. Stratified sampling allowed for reasonably precise estimates in each of these zones.

2.2. Recruitment of schools and students

Selected schools were contacted by emailing principals with a letter and information outlining the study and URL linking to a trial version of the online survey. However, of 36 schools contacted in the first recruitment round, only one responded positively. A second recruitment round was more successful, with 16 schools recruited by contacting department heads of social sciences or health by phone and/or email including a presentation about the research for classes and the trial survey URL. Year 10 students in each school were invited to participate. Participants were offered the opportunity to enter a prize draw to win one of 10 NZ\$25 gift cards as an incentive for completing the survey.

Qualtrics internet survey platform was used to administer the survey (Qualtrics LLC, Provo, Utah). We used the Complex Survey procedure of SPSS Version 22 to analyse survey data (IBM Corp, 2013). Estimates for the target population (all Year 10 students in NZ) were calculated using methods to deal with the sampling design (strata for climate zone, clustering by school, and inverse sampling weights derived from each school's relative probability of selection into the sample).

Respondents to the survey that indicated difficulty achieving thermal comfort at home, consented to follow-up and provided email addresses, were invited by email to take part in an email interview study. Email was selected as the interview medium, to facilitate asynchronous data collection and reduce scheduling issues impeding the study (Kazmer & Xie, 2008). Potential interviewees were provided with a set of guidelines for the interview (Mason & Ide, 2014). Email interviews were confined to a total of 10 emails once the email began (five from the researcher and five from the participant). Up to three new questions were included in each email from the researcher, unless the participant indicated they wished to have further discussion. Email

¹ (<http://www.education.govt.nz/school/running-a-school/resourcing/funding-staffing-and-allowances-handbook/chapter-1-operational-funding/decile-ratings/>)

² (<http://www.healthyhousing.org.nz/>)

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