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Author/s:

Heerde, JA;Bailey, JA;Kelly, AB;McMorris, BJ;Patton, GC;Toumbourou, JW

Title:

Life-course predictors of homelessness from adolescence into adulthood: A population-based cohort study

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Abstract (248/250 words)

Introduction. Internationally, the prevalence of young adult homelessness is concerning. Few data on life-course predictors from longitudinal studies exist, limiting our capacity to inform prevention strategies at the population-level.

Methods. Data were drawn from a state representative population-based sample of young adults from Victoria, Australia participating in the International Youth Development Study (IYDS; $N = 927$, 54% female). Participants were recruited in state-representative secondary school samples at Grade 7 (age 13, 2002), with follow-up in Grades 9 (age 15) and 11 (age 17) and at ages 21, 23 and 25. Using longitudinal path modelling, we conducted a series of analyses testing life-course predictors of young adult homelessness across multiple socializing contexts, and the interrelationships among them.

Results. The rate of young adult homelessness was 5.5%. Path modelling showed higher levels of family conflict at ages 13 and 15 uniquely predicted homelessness by age 25. This effect remained after accounting for other risk factors in peer-group (e.g., interactions with antisocial peers), school (e.g., low academic performance), and community contexts (e.g., low neighborhood attachment). Peer drug use and interaction with antisocial peers at age 15 mediated the association between family conflict at age 13 and homelessness by age 25.

Conclusions. Findings point to the vulnerability of early adolescents to family conflict. This vulnerability heightens risk for young adult homelessness. Findings strengthen the case for both primary prevention programs that build healthy relationships between family members from early on in adolescence and for investment in homelessness prevention at key developmental periods.

Keywords (max 6). Young adult homelessness; Adolescent risk factors; Family conflict; Antisocial peers; Peer drug use; Longitudinal.

Introduction

In first world countries, the prevalence of young adult homelessness is concerning. In the United States (USA), 8.4% of the 567,000 persons who were homeless in 2019 were aged 18-24 years (Statista, 2020). Estimates from Canada suggest 20% of all homeless persons are aged 13-25 years (Gaetz, Bill, Kidd, & Schwan, 2016). Homelessness among Australian young adults is on the rise, increasing by 26% in the last decade (Australian Bureau of Statistics, 2016). Estimates from Australia suggest 290,400 persons experienced homelessness in 2019, of these 14.2% were between the ages of 18-24 years (Australian Institute of Health & Welfare, 2020).

Positive health and development across adolescence is an important predictor of health and wellbeing across the life-course (Patton, et al., 2018; Patton, et al., 2016). Significant consequences for inequality and marginalization, including homelessness, arise where health and development across the period of adolescence is disrupted (Patton, et al., 2016; Sawyer, et al., 2012). Despite this, we have few data on modifiable predictors or risk factors for homelessness across the formative years from adolescence to young adulthood. This lack of data limits our capacity to respond in an evidence-based way. Longitudinal population-level data that characterizes exposure to modifiable risk factors for homelessness, and the social context in which they occur, across adolescence and into adulthood are ideally suited to identifying specific points in development for primary prevention approaches. The current paper seeks to remedy knowledge gaps in the literature by investigating life-course predictors of homelessness, using longitudinal data from a unique Australian sample.

Life-course and Social Development Theories

Life-course and social development theories are particularly suited to guiding investigation into modifiable drivers of homelessness across social contexts. *Life-course*

theory posits that exposure to risk and protective factors at specific points in development influences later health and social outcomes (Elder, Johnson, & Crosnoe, 2003). *Social Development Theory* (i.e., the Social Development Model [SDM]) posits that social bonds adolescents develop within multiple socializing contexts (e.g. family, peer-group, school, and community), and the opportunities, skills, and rewards within these social units, are important influences on health and social outcomes (Cambron, Catalano, & Hawkins, 2019; Catalano & Hawkins, 1996). Both theories identify transition periods as important points for developmental change. Embedding the current study in these theories, as we propose, permits the analysis of (1) the impact of developmental risk factors on later health and social outcomes (homelessness) and (2) homelessness in the context of multiple and interacting socializing units and as a result of exposure to risk factors, with a view of generating evidence to support a stronger focus on population-level prevention.

Limitations of Previous Homelessness Studies

Relying on retrospective, cross-sectional studies using data from purposefully recruited samples of homeless participants, without a comparison sample of non-homeless participants, has limited our knowledge of life-course predictors of homelessness (citation removed for blind review; Nilsson, Nordentoft, & Hjorthøj, 2019; van den Bree, et al., 2009). This limitation is likely due to inherent difficulties in obtaining comprehensive data on this transient population, including engaging and retaining participants in long-term studies (Aldridge, et al., 2018; citations removed for blind review; van den Bree, et al., 2009).

Longitudinal Australian studies have typically analyzed data collected from purposive samples of disadvantaged adults who were receiving welfare payments and either homeless or at risk of homelessness (e.g., Herault & Ribar, 2017; Johnson,

Scutella, Tseng, & Wood, 2019; Ribar, 2017). Other studies have included young people homeless and at risk of homelessness, with a comparison group of disadvantaged (but not homeless) young people (e.g., Flatau, Thielking, MacKenzie, & Steen, 2015). Conducted over 2-3 years, these studies have largely focused on causes and consequences of homelessness-related issues such as education, labor market conditions, housing instability, employment, food insecurity, and mental health. While study findings have provided important information on the extent to which homelessness influences aspects of social wellbeing and participation, they have not examined life-course predictors of homelessness.

Internationally, there have been few population-based studies of homelessness; these have been limited by cross-sectional study designs (Bearsley-Smith, Bond, Littlefield, & Thomas, 2008; Dadds, Braddock, Cuers, Elliott, & Kelly, 1993; Shelton, Taylor, Bonner, & van den Bree, 2009) and, where longitudinal, narrow data across key development periods (Brakenhoff, Jang, Slesnick, & Snyder, 2015; Tyler & Bersani, 2008; van den Bree, et al., 2009). However, the findings of these studies suggest drivers of homelessness occur across various social contexts. With regard to family factors, lower-quality parent-adolescent relationships, conflictual family environments and childhood abuse have been associated with later homelessness (Bearsley-Smith, et al., 2008; Brakenhoff, et al., 2015; Shelton, et al., 2009; Tyler & Bersani, 2008; van den Bree, et al., 2009). Academic underachievement and school suspension were associated with increased risk for homelessness (Brakenhoff, et al., 2015; Tyler & Bersani, 2008; van den Bree, et al., 2009). Engaging with peers exhibiting antisocial behaviors (Bearsley-Smith, et al., 2008), victimization, higher levels of poverty, and lower attachment to ones' neighborhood (Shelton, et al., 2009; Tyler & Bersani, 2008), were associated with later homelessness.

Identifying Life-Course Predictors of Homelessness

How modifiable life-course predictors differ in their association with homelessness by stage of adolescent development, for example, remains to be established. It is likely that life-course predictors vary in their impact on homelessness, depending on developmental stages or transitions. For example, school connectedness and parent attitudes to behavior predict health risk behaviors across the transition to high school but not at other stages of development (Chan, et al., 2013b). What the field needs are comprehensive longitudinal population-based studies of homelessness that begin early in development and continue into adulthood. Without such data, primary population-level prevention strategies are unlikely to be directed to the developmental staging of risk factors associated with later homelessness.

Such data are present in the prospective, longitudinal International Youth Development Study (IYDS), which draws on state-representative samples from the States of Victoria in Australia and Washington in the United States. In prior analyses using IYDS data, results from multivariable logistic regression analyses found that school suspension and academic underachievement across ages 13-15 uniquely increased risk for homelessness at age 25 (citation removed for blind review). In further analyses, results from longitudinal path modelling found that less positive family management strategies at age 13 uniquely increased risk for homelessness at age 25, after accounting for age 15 risk factors within peer-group, school, and community contexts. This association was mediated by peer drug use, school suspension, academic failure, and lower neighborhood attachment at age 15 (citation removed for blind review). Processes related to young adult homelessness did not differ across the two states. Both prior analyses included Victorian and Washingtonian young people surveyed at ages 13, 14, 15, and 25 years.

The Current Study

The goal of the current study was to provide a more detailed map of life-course predictors of homelessness. In the current study, we build upon our previous findings by analyzing data from a subset of Australian IYDS participants who were surveyed more frequently across adolescence (ages 13, 15 and 17), and young adulthood (ages 21, 23 and 25). We examined changes in homelessness across the early 20s and whether and how family, peer-group, school, and community risk factors from early through to late adolescence predict young adult homelessness. We hypothesized that (1) family risk factors in early (age 13) and mid (age 15) adolescence would predict young adult homelessness; and (2) risk factors in peer-group, school, and community contexts in late (age 17) adolescence would mediate the expected associations between family risk factors and young adult homelessness.

Methods

Sample

Participants in the IYDS were state-representative samples of children and adolescents initially recruited in 2002 using a two-stage cluster sampling approach. Public and private schools with Grades 5, 7 and 9 were randomly selected for recruitment using a probability proportionate to grade-level size sampling procedure (Kish, 1965). One class at the appropriate grade level was randomly selected within each school, resulting in state-representative secondary school samples in both states (McMorris, Hemphill, Toumbourou, Catalano, & Patton, 2007; Rowland, et al., 2020). Across each of the three Grade levels (cohorts), 7782 eligible students (3926 in Victoria) were approached to participate. Of these students, 2885 (74.8%) in Washington State and 2884 (73.5%) in Victoria consented to and took part in the 2002 survey. The Grade 5, 7 and 9 cohorts recruited in 2002 were composed almost entirely

of 11-, 13- and 15-year olds, respectively. Males and females were near equally represented at the study outset (51% female). Full details on the study design, methods, sampling, and recruitment methods have been previously described (McMorris, et al., 2007).

Participants in the Grade 5 cohort in Victoria ($N = 927$; 54% female) have been followed longitudinally, completing surveys in Grades 7 (2004, age 13), 9 (2006, age 15), 11 (2008, age 17) and ages 21 (2010-11), 23 (2012-13), and 25 (2014-15). Funding constraints have limited the waves of data collection conducted in young adulthood with Washington State participants to age 25 only. To gain a clearer picture of the prevalence of homelessness in the early 20s and its life-course predictors, the current study analyzes data from the Grade 5 cohort of the Victorian arm of the IYDS. Retention rates in Victoria were at least 83% at each young adult survey. In Grade 7, the sample ranged in age between 12 and 14 years [mean (M) = 12.95 years, standard deviation (SD) = .39]. Most of the sample identified as Australian (91%). At the age 25 survey, the sample ranged in age between 22 and 24 years ($M = 23.02$, $SD = .44$; 54% female).

Procedure

(Removed for blind review) Human Ethics in Research Committee and the (removed for blind review) Ethics in Human Research Committee provided study approval in Victoria. The (removed for blind review) Human Subjects Institutional Review Board approved the study in Washington State. Permission to conduct the research in schools was obtained from relevant state authorities (for public and private schools) and school principals.

Trained survey staff in both states used a single survey administration protocol. Written parent consent and participant assent were obtained at the study outset (baseline response rate, 76%; McMorris, et al., 2007); participant consent was obtained for the

young adult surveys in 2010-11, 2012-13, and 2014-15. Assessments of high school students were conducted in class time. The young adult surveys were administered online. The survey was voluntarily completed and took 50-60 minutes to complete. To ensure seasonal equivalence in the annual repeated surveys they were conducted from May to November in Victoria. The recruitment process included contact and survey visits to correctional facilities and other community-based services for vulnerable population groups, where some of the participants resided. During adolescence, participants received a small gift (e.g., a stress ball) at the completion of each survey. Young adult participants were reimbursed AUD\$40 for their time.

Measures

Self-report measures of life-course predictors (i.e. adolescent risk factors) and young adult homelessness were adapted from the Communities That Care youth survey (Arthur, Hawkins, Pollard, Catalano, & Baglioni Jr, 2002; Glaser, Horn, Arthur, Hawkins, & Catalano, 2005). The predictive validity and reliability of the CTC survey has been previously established (Baheiraei, et al., 2014; Glaser, et al., 2005; Oesterle, et al., 2012). Demographic data was also collected. The IYDS survey underwent cross-national cognitive pretesting and piloting (McMorris, et al., 2007). The survey and measures analyzed in this study have demonstrated longitudinal reliability and validity with the Victorian sample in adolescence and young adulthood (citation removed for blind review; Hemphill, et al., 2011; Toumbourou, et al., 2014).

Young adult homelessness (dependent variable). Participants were asked “In the past year, have you ever not had a regular place to live (e.g., homeless)?” at both ages 21 and 23. At age 25, they were asked “In the past year, have you been homeless (i.e., not had a regular place to live?).” Response options for these items were dichotomous, ‘yes’ (1) and ‘no’ (0). A total *young adult homelessness* variable was

created based on participant responses to each of these three items: ‘had not experienced homelessness at age 21, 23 or 25’ (0, reference group) versus ‘experienced any homelessness at age 21, 23 or 25’ (1, comparison group). Prior studies demonstrate these items accurately identify homelessness (citations removed for blind review).

Demographics. Participants reported their *age* (date of birth) and *sex* (male [0] or female [1]). *Family socio-economic status* included items for parent (mother and father) self-reported annual family income (ranging from ‘less than \$10,000’ to ‘\$200,000 and above’) and highest level of education (e.g., ‘less than secondary school’, ‘completed secondary school’, and ‘completed post-secondary school’). Responses were obtained in phone interviews conducted with parents around the time their adolescent child took part in the first 2002 survey.

Age 13 and age 15 family risk factors. Three items were used to measure *family conflict* (Cronbach's α at age 13 = .83, α at age 15 = .83), for example, “We argue about the same things in my family over and over”. Nine items were used to measure *poor family management* strategies (e.g., parental monitoring, family rules, negative reinforcement; Cronbach's α at age 13 = .84, α at age 15 = .84). “The rules in my family are clear” (reverse coded) is an example item. *Closeness to parent(s)* was measured using four items (Cronbach's α at age 13 = .77, α at age 15 = .79), such as “Do you feel very close to your mother/father?” and “Do you share your thoughts and feelings with your mother/father?” Response options for items comprising each of these three scales ranged from ‘definitely no’ (1) through to ‘definitely yes’ (4). The measure of closeness to parent(s) was reverse coded so that higher scores indicated *lower closeness to parents*.

Age 15 and age 17 peer-group risk factors. *Friends use of drugs* was measured using four items (Cronbach's α at age 15 = .80, α at age 17 = .77), including

“In the past year (12 months), how many of your best friends have smoked cigarettes?”. Other items assessed alcohol, marijuana, and illegal drug (e.g., amphetamines) use. The item “In the past year (12 months), how many of your best friends have carried a weapon?” was one of eight items measuring *interaction with antisocial peers* (Cronbach's α at age 15 = .88, α at age 17 = .88). Response options for items comprising both scales ranged from ‘none of my friends’ (0) through to ‘4 or more of my friends’ (4).

Age 15 and age 17 school risk factors. The item “How many times in the past year (12 months) have you been suspended from school?” measured *school suspension*. Response options ranged from ‘never’ (1) through to ‘40+ times’ (8). Two items, including “Putting them all together, what were your grades/marks like last year?” were used to measure *academic failure* (Cronbach's α at age 15 = .76, α at age 17 = .75). Response options ranged from ‘very good’ (1) through to ‘very poor’ (4). *Low commitment to school* was assessed using seven items (Cronbach's α at age 15 = .80, α at age 17 = .79). “How often do you feel that the schoolwork you are assigned is meaningful and important?” is an example item. Response options ranged from ‘almost always’ (1) through to ‘never’ (5). The item “My teachers praise me (tell me I’m doing well) when I work hard in school.” was one of four items measuring *recognition for prosocial involvement* in the school environment (Cronbach's α at age 15 = .72, α at age 17 = .59). Response options ranged from ‘definitely no’ (1) through to ‘definitely yes’ (4) and were reverse coded so that higher scores indicated *lower levels of recognition*.

Age 15 and age 17 community risk factors. Three items were used to measure *low neighborhood attachment* (Cronbach's α at age 15 = .78, α at age 17 = .77). “I’d like to get out of my neighborhood” is an example item. *Community disorganization* was measured using three items (Cronbach's α at age 15 = .62, α at age 17 = .67). “How

much do each of the following statements describe your neighborhood: lots of graffiti?” is an example item. Response options for items comprising both scales ranged from ‘definitely no’ (1) through to ‘definitely yes’ (4).

Statistical Analysis

Stata SE software for Windows, Version 15.1 (StataCorp LLC, 2017) was used to conduct tests of differences (*t* tests and chi-square analyses) in means and frequencies for age 13, age 15, and age 17 adolescent family, peer-group, school, and community risk factors, by sex and homelessness status. Effect sizes were calculated using pooled standard deviations (Cohen, 1977). Highly correlated pairs or sets of variables that might result in collinearity in the path analyses were examined using zero-order correlations.

Mplus version 8.2 (Muthén & Muthén, 2017) was used to estimate two longitudinal path models (shown in Figure 1). Full information maximum likelihood estimation was used in all analyses to minimize potential bias due to missing data (Muthén & Muthén, 2017; Schafer & Graham, 2002). Model estimation proceeded as follows. First, we estimated associations between age 13 family risk factors and young adult homelessness by age 25 (Appendix B, Table B1). Next, we estimated associations between the same family risk factors measured at age 15 and young adult homelessness (Appendix B, Table B2). Building on the results from these two models, we then estimated pathways (i) from age 13 family conflict through age 15 peer-group, school, and community risk factors to young adult homelessness (Figure 1, Model A) and (ii) from age 15 family conflict through age 17 risk factors to young adult homelessness (Figure 1, Model B). The indirect (i.e., mediated) effect of age 13 and age 15 family conflict on young adult homelessness were estimated in Steps (i) and (ii), respectively. Demographic factors (age 13) were included in all stages of the modelling. Correlations

between observed variables were accounted for in all models. Model fit indices were examined in accordance with current recommendations (Cangur & Ercan, 2015). The results presented are fully standardized.

[Insert Figure 1 here]

Results

Tests of difference for adolescent risk factors and young adult homelessness.

Intercorrelations among study variables were low-moderate and in the expected direction (range $r = .01$ to $r = .63$; see Appendix A, Tables A1 and A2). Table 1 (Appendix A, Table A3) shows that any experience of homelessness at either age 21, age 23 or age 25 (i.e., by age 25) was reported by 5.5% of participants; rates were not significantly different between males and females. Young adults who experienced homelessness by age 25 reported higher levels of age 13 family conflict and age 15 risk factors in peer-group and school settings (see Appendix A, Table A4).

Path model results.

Higher levels of age 13 family conflict, but not poor family management or low closeness to parents, uniquely increased risk for homelessness by age 25 (see Appendix B, Table B1). When modelled together, none of the family risk factors at age 15 were uniquely related to homelessness by age 25 (see Appendix B, Table B2). Based on these results, poor family management and low closeness to parents at both age 13 and age 15 were dropped from further modeling. For consistency, we tested mediated effects of both age 13 and age 15 family conflict on later homelessness (Figure 1).

Results for Models A and B showed that higher levels of family conflict were uniquely associated with a higher likelihood of risk factors in peer-group, school, and community settings. In Model A, friends' use of drugs and interaction with antisocial peers at age 15 mediated the association between age 13 family conflict and young adult

homelessness by age 25 (see Figure 2). The direct effect of age 13 family conflict on young adult homelessness was no longer significant, however, a small statistically significant total indirect effect was observed (standardized parameter estimate .11). Although all of the age 17 risk factors were related to age 15 family conflict, age 17 risk factor measures did not uniquely increase risk for young adult homelessness by age 25 (Model B). A statistically significant total indirect effect of age 15 family conflict on young adult homelessness was found (standardized parameter estimate .07). Full results for Models A and B are included in Appendix B (Tables B3 and B4).

Insert Figure 2 here

Discussion

To our knowledge, this is one of the first long-term population-based studies to examine risk factors for young adult homelessness and test mediational pathways across multiple socializing contexts from early through to late adolescence. Reducing young adult homelessness remains a challenge. Previous research – much of it cross-sectional, retrospective, and reliant on data collected from purposive samples – has not examined life-course predictors of homelessness using an ecological approach. Robust empirical investigations of early predictors of homelessness and the social context in which they occur, such as we have presented, are central to guiding evidence-based primary prevention approaches targeting individuals who may be at higher risk for homelessness.

Our findings strengthen the case for understanding homelessness from a life-course perspective, highlighting the need for investigation of predictors at key developmental periods and within adolescent socializing units (i.e., family, peer-group, school, and community contexts). In line with SDM and life-course theories (Cambron, et al., 2019; Elder, et al., 2003), our findings suggest that more conflictual family

environments, occurring early in adolescence are an important predictor of young adult homelessness. Where prior studies have shown that family conflict early in adolescence (age 12) increases vulnerability to depressive symptoms and substance use (at ages 13 and 14 years) (e.g., Chan, Kelly, & Toumbourou, 2013a; Kelly, et al., 2016), the current findings suggest that early family conflict (at age 13) has substantial effects further into adolescence (age 15 and 17 years) and into young adulthood. These findings are consistent with our prior work from the IYDS showing broad indicators of family adversity (e.g., less positive family management strategies, lower closeness to parents) are associated with homelessness (citations removed for blind review).

Understanding risk within family environments is essential to identifying adolescents who may be at higher risk of later homelessness. Indeed, more permissive parenting styles, lower parent-adolescent relationship quality and non-traditional family structures have emerged as family-based risk factors in the few existing prior population-based studies of adolescent-young adult homelessness (Brakenhoff, et al., 2015; Dadds, et al., 1993; Shelton, et al., 2009; Tyler & Bersani, 2008; van den Bree, et al., 2009). Jointly, these findings strengthen the case for prevention approaches which target the family milieu across adolescent development (Buttigieg, et al., 2015; Shaykhi, Ghayour-Minaie, & Toumbourou, 2018). Such approaches should respond to the needs of adolescents and families in highly vulnerable circumstances (i.e., in the context of family breakdown), but also focus on promoting quality adolescent-parent (family) relationships more broadly at the population-level. It is possible that adolescent-parent focused programs delivered prior to high-risk periods in development may be useful in reducing risk for young adult homelessness. These programs should include aspects such as conflict management and strategies for increasing communication skills (Spath, Redmond, & Shin, 2001). Various existing, multi-sectoral, tested-effective universal

prevention programs have successfully addressed family management skills and adolescent risk behaviors in the USA (Blueprints for Healthy Youth Development, 2019). For example, *Communities That Care* (CTC) has demonstrated success in reducing a range of adolescent risk behaviors, including those identified here as increasing risk for young adult homelessness (e.g., peer drug use and antisocial behavior; Feinberg, Jones, Greenberg, Osgood, & Bontempo, 2010; Hawkins, Oesterle, Brown, Abbott, & Catalano, 2014; Oesterle, et al., 2018; Toumbourou, et al., 2014; Toumbourou, Rowland, Williams, Smith, & Patton, 2019).

Homelessness prevention requires an ecological approach. In the current study we have explored a subset of ecological domains (i.e., family, peer-group, school, and community) and contributing risk factors that operate within these domains that can be addressed along young people's "pathway" to homelessness. Given that developmental staging of risk factors appears to be important for risk of later homelessness, a potentially important aspect to prevention programming is effectively reducing the family and peer-group risk factors identified here. Drawing on life-course and SDM theory, it is to be expected that risk within the family environment (e.g., conflictual environment, childhood abuse, less positive family management strategies, financial and housing insecurity, out-of-home care placement) is, itself, predicted by multiple factors that emerge prior to early adolescence (e.g., childhood risk; Conger, Ge, Elder Jr, Lorenz, & Simons, 1994; Hawkins & Weis, 2017; Koegel, Melamid, & Burnam, 1995). Factors such as these can and should be addressed at this stage of development. The current findings suggest that there are also risk factors that can be addressed in adolescence. That is, conflict in the early adolescent family environment increased risk of engagement with high risk peer groups (e.g., with substance using peers), which in turn increased the likelihood of young adult homelessness (Cambron, et al., 2019; Elder,

et al., 2003). The field of prevention science has demonstrated that prevention is "never too early, never too late." (Loeber & Farrington, 1998). Our findings suggest that adolescence is not too late to implement homelessness prevention, nor is intervention at earlier stages of development too early.

Prospective links between early adolescent family conflict and other indicators of young adult stressful life events have been previously reported (Herrenkohl, Kosterman, Hawkins, & Mason, 2009). Higher levels of family conflict have been associated with individual susceptibility to alcohol use, mental health problems (depressive symptoms), engagement in antisocial behavior, and bonding with antisocial or substance-using peers (e.g., Kelly, et al., 2016; Kelly, et al., 2012; Kelly, et al., 2011). Indeed, peer drug use and interaction with antisocial peers in mid-adolescence mediated the association between higher levels of family conflict in early adolescence (age 13) and young adult homelessness in the current study. It is possible that engagement with antisocial peer networks is intensified among adolescents where levels of family conflict are high (Herrenkohl, et al., 2009; Kelly, et al., 2016; Kelly, et al., 2011). Our findings point to the vulnerability of early adolescents to family conflict and highlight the potentially important role of primary prevention programs in both building healthy relationships between family members from early on in adolescence, and in ensuring that interactions within other socializing units (e.g., peer-groups) are supportive rather than health-compromising for adolescents in whom heightened levels of family conflict are identified.

Although several longitudinal studies have examined predictors of homelessness from adolescence into adulthood (e.g., Brakenhoff, et al., 2015; van den Bree, et al., 2009), how these predictors change or stay the same across the life-course remains to be established. To build on our findings, a key area for future population-based

longitudinal studies of homelessness is to further understand when risk factors across socializing contexts are most influential, the cascading effect of risk factors, and how risk factors may cluster across time. The analysis of detailed repeated measures data on a wide range of predictors is imperative. Findings from such analyses have the potential to drive primary prevention policy and practice reform around the care of adolescents and their families at the population level, as well as those at higher risk of homelessness (e.g. in the context of family breakdown; citation removed for blind review).

Importantly, such findings are likely to provide vital information for investment in primary prevention such as (a) which existing programs could be adapted to target homelessness prevention more specifically, and (b) where the development of new programming may be needed, allowing targeted spending in the most efficient way possible.

Study strengths and limitations. We analyzed data from a population-based cohort which was state representative at the time of study commencement and has high retention rates. A notable strength is the analysis of detailed data on a wide range of risk factors, measured across the formative years from adolescence to young adulthood. The IYDS survey has demonstrated longitudinal validity in the Victorian sample (citation removed for blind review; Hemphill, et al., 2011; Toumbourou, et al., 2014). Prior analyses had a limited capacity to address the key goals of this study. The use of path analysis permitted the investigation of specific aspects of the family environment that are related to later homelessness, enhancing the specificity of implications for intervention and prevention targets.

Several limitations are acknowledged. The prevalence of young adult homelessness (approximately 5% of the sample by age 25) is lower than the national Australian average (Australian Institute of Health & Welfare, 2020). The rate of

homelessness in the current study is likely to be an underestimation (Hall, et al., 2020). It is possible that participants experiencing homelessness are a high-risk group for attrition and may not have online access to complete surveys; however, the increasing use of mobile technologies for communication and research with homeless young Australians has been reported (Humphry, 2014).

The low prevalence of young adult homelessness means that the analyses conducted may have been underpowered to detect small significant effects. Nonetheless, we were able to detect significant path model parameters as small as .09 (linking age 13 family conflict and age 15 school recognition for prosocial behavior) and a small, statistically significant indirect effect of age 15 family conflict on young adult homelessness (.07). We intentionally did not test for gender differences as subdividing the small number of young adults reporting homelessness would have yielded small cell sizes and negatively affected power to detect gender differences, limiting the reliability of findings.

The use of a single-item, dichotomous measure of homelessness has limited our capacity to examine the variety of conditions that may represent young adult homelessness (e.g., rough sleeping, couch surfing) or the context in which homelessness occurred (e.g., young adults living independently of family). Single item measures of homelessness such as that used here are common in prior studies of homelessness and demonstrate longitudinal associations aligning with theoretical expectations (Heerde, Hemphill, & Scholes-Balog, 2014). Measures of adolescent risk factors and young adult homelessness were based on self-report data. However, self-reports are considered reliable in studies of adolescents and young adults and for the measures analyzed here (e.g., Jolliffe, et al., 2003). Participants were not asked about their parents' mental health or substance use, nor their parents' homelessness

experiences. We are unable to determine the age at which family conflict emerged, the source of conflict within the family (e.g., parent versus adolescent initiated) or who the conflict was between (e.g., between parents or between the adolescent and their parent). It is unknown whether conflict within the family reflected concerns such as parental mental disorder or substance use (Nilsson, et al., 2019; Tyler & Ray, 2019), ongoing family dysfunction (e.g., persisting from childhood into adolescence) or where conflict emerged in the context of puberty (Patton, et al., 2008). If persistent, some of the most effective opportunities for intervention might occur earlier on in childhood.

Our analyses focused exclusively on risk factors. The potential role of protective factors in decreasing, mediating, or moderating the effect of risk factors requires detailed study. Further, our analyses have focused on risk factors within the multiple socializing units (family, peer-group, school, community) in which adolescents interact. Future researchers should consider including individual-level risk factors. Study findings are generalizable only to the sample analyzed here and should be replicated in future longitudinal studies using population-based cohorts. Likewise, measures of childhood abuse were not available in the current study; we acknowledge prior research has noted its association with risk of homelessness (Bearsley-Smith, et al., 2008; McMorris, Tyler, Whitbeck, & Hoyt, 2002). It is possible that the active parental consent strategy utilized at study outset resulted in high risk families declining participation in the study (Kelly & Halford, 2007). Lastly, participants were not asked about their sexual identity or orientation, nor their gender identity beyond the binary question of male or female, during adolescence.

Conclusions

Our findings across a 12-year longitudinal study suggest a cascading developmental staging of life-course predictors of homelessness. Conflict in the early adolescent family

environment was predictive of risks in mid- and late adolescent socializing contexts (e.g., peer groups, school, and community settings), which in turn influenced young adult homelessness. The analysis of prospective, longitudinal population-level data that follows individuals across multiple developmental stages is required to confirm our findings in different settings. Evidence generated from these studies has the potential to establish a life-course understanding of the predictors of homelessness, introducing long-term approaches to prevent young adult homelessness.

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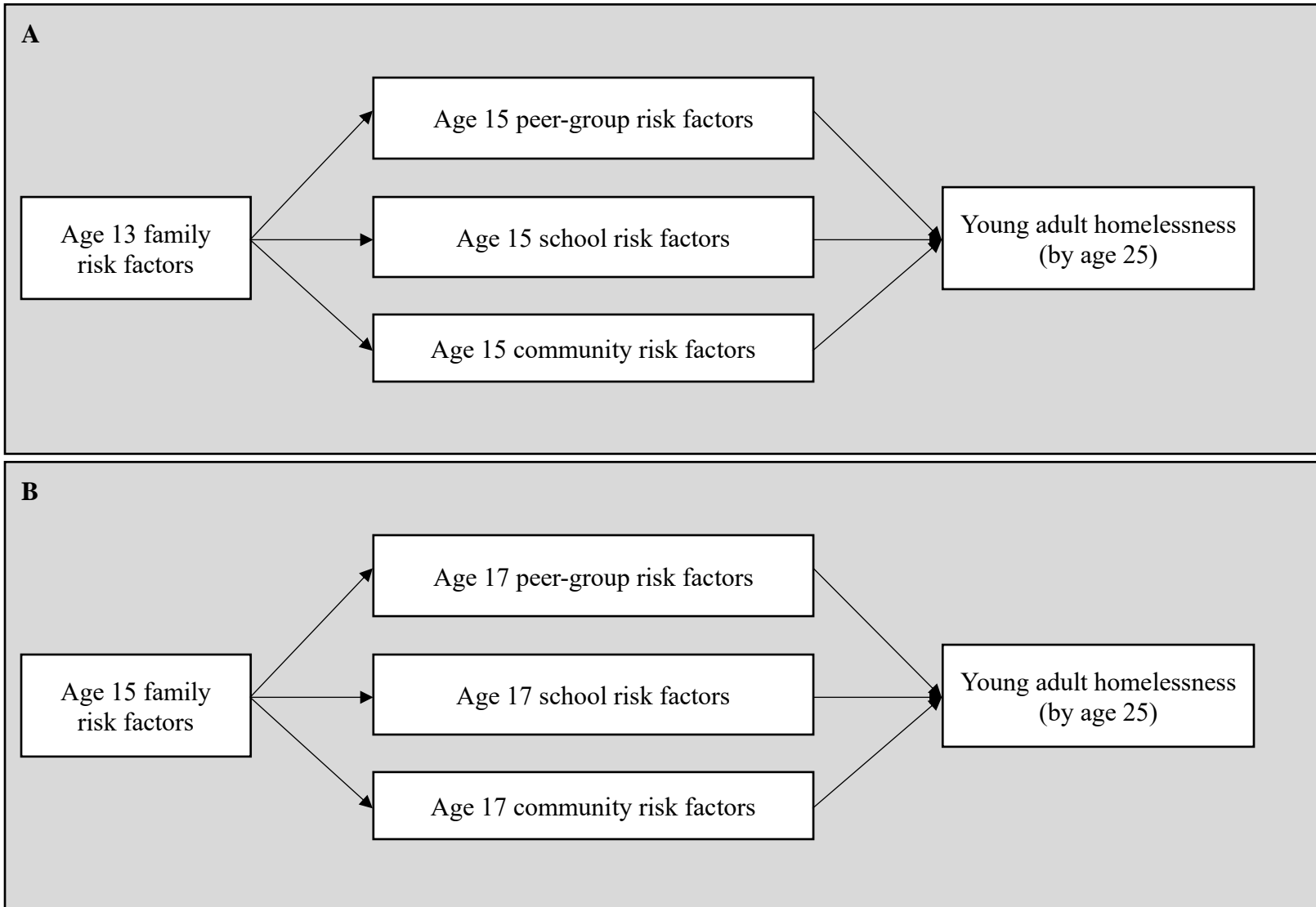


Figure 1. Hypothesized models for adolescent risk factors for young adult homelessness.

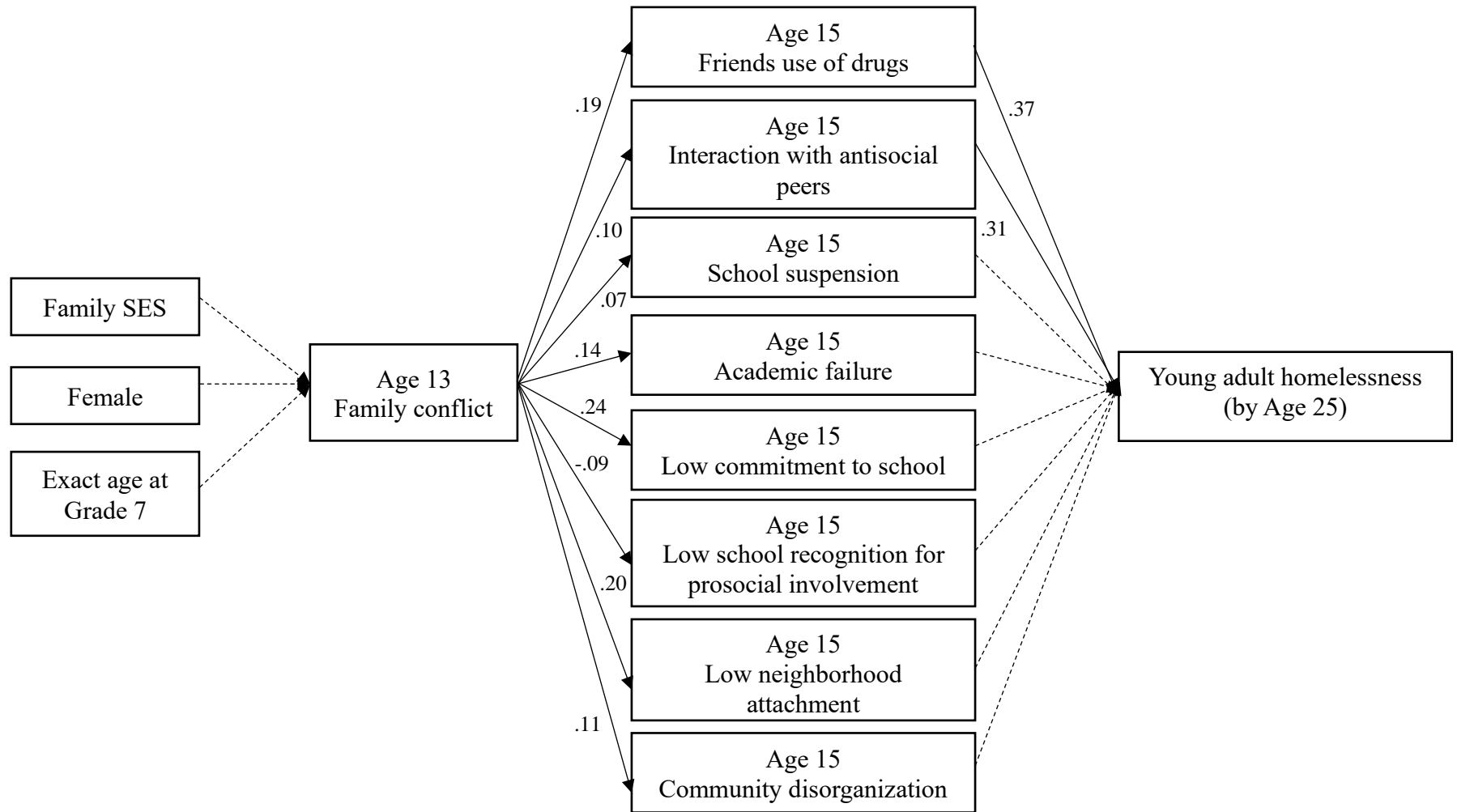


Figure 2. Age 13 and 15 risk factors for young adult homelessness.

Note. Model fit statistics: $\chi^2(75, N = 860) = 2,876.78, p < .0001, CFI = 1.00, TLI = 1.00, RMSEA$ estimate = 0.00. Dashes indicate non-significant paths. Solid lines indicate paths significant at $p < .05$. For ease of viewing, non-significant paths from demographic factors to each of the Grade 9 risk factors are not shown.