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Mental Health and Wellbeing During the Transition to Adulthood

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Statement of Originality

The thesis contains no material which has been accepted for the award of any other
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I hereby certify that the work embodied in this thesis contains a manuscript submitted
for publication, of which I am a joint author. Below is a written statement, endorsed by
my supervisors, attesting to my contribution to the joint publication:

Emma Gallagher conceived of the study, participated in the design of the study,
coordinated the study, performed the measurements, statistical analyses, interpretation
of data, and drafted the manuscript; Linda E. Campbell conceived of the study,
participated in the design of the study, participated in interpretation of data, and helped
to draft the manuscript; Mick Hunter participated in the design of the study, participated
in interpretation of data, and helped to draft the manuscript. All authors read and
approved the final manuscript.
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“What we do for ourselves dies with us. What we do for others and the world, is and remains immortal.”

— Albert Pine
Abstract

Scope. Studies have shown that the early years of adulthood tend to have a high incidence of mental health problems (Newman et al. 1996). Internalising disorders such as depression and anxiety are also large contributors to the total burden of disease in Australia (Begg et al. 2003). Numerous studies have attempted to investigate factors associated with depression in young adults, with the view of identifying groups in need of early intervention. Some studies have looked longitudinally to find that early childhood trauma, family instability and parental psychopathology have lasting impacts on mental health into adulthood (Frye and Liem 2011; Stoolmiller et al. 2005). Other studies have employed a more contextual approach. Factors such as current levels of social support and attachment style were identified as having protective effects against current depression levels (Pettit et al. 2011; Riggs and Han 2009). Despite the large body of work to date on young adult mental health, there remains a need for studies using multi-factorial models (Riggs and Han 2009). Purpose. One purpose of the current study was to replicate Arnett’s (1997; 2000) model of agreed criteria for adulthood. The second purpose of the study was to investigate potential links between depressive symptoms and psychological factors such as insight, self-reflection, positive social comparison, and coping ability while controlling for the potentially confounding variables of anxiety and hopelessness. Methodology. A sample of 127 mainly undergraduate university students (78%) completed an online survey. Data was first analysed in a hierarchical multiple linear regression before a path analysis was employed to create a model that best explained the direct and indirect links between observed variables. Results. The four most commonly endorsed criteria for adulthood came from factors relating to independence and biological transitions. The independence factors matched the results of Arnett’s (1997) study. The results of the study also showed that
after controlling for anxiety and hopelessness, there were positive associations between low depression levels and positive social comparison, insight, and norm compliance. Overall, insight was found to be the strongest individual predictor of mental wellbeing.

**Conclusions and Implications.** The present study highlights the importance of considering internal factors in the investigation of predictors of young adult mental health. Future studies would benefit from including such an approach when exploring structural predictors to assist in identifying at-risk groups. The implication of focusing on internal factors, and in particular the finding that insight levels play an important role in young adult mental health, is the possibility of targeted clinical interventions. Such interventions could dramatically improve the health, wellbeing, and future of young adults.
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**Extended Introduction: Mental Health in Emerging Adulthood**

The existence and impact of mental health problems in young adults is an important area for research. Studies into the prevalence and trajectories of psychopathology in youth consistently find that rates tend to increase from childhood to adolescence, peaking in young adulthood (Newman et al. 1996). The three most common mental health problems affecting young Australian adults are depressive disorders, anxiety disorders, and substance use disorders. Population research puts the 12 month prevalence of depressive disorders at 6.3% for 16-24 year olds, and 7.9% for 25-34 year olds. Anxiety disorders yearly affect 15.4% of 16-24 year olds and 16.3% of 25-34 year olds, while 12.7% of 16-24 year olds and 7.3% of 25-34 year olds suffer from substance use disorders (Australian Bureau of Statistics 2008). Depression is characterised by symptoms such as low mood, sleep disturbance, decreased self-care, concentration difficulties, as well as feeling helpless and hopeless (National Institute of Clinical Excellence 2009). It is also one of the leading causes of disability worldwide (World Health Organization 2004). Generalised anxiety disorder is one of the most common anxiety disorders, and is characterised by excessive worry about a variety of events and situations, as well as chronic feelings of tension (NICE 2011). The impairments caused by both depression and anxiety in social, health and behavioural functioning also affect the family and community (Trudeau, Spoth, Randall, Mason, & Shin 2012). In Australia it has been estimated that anxiety and depression significantly contributes to the total burden of disease (10% for women; 4.8% for men) (Begg, Barker, Stevenson, Stanley, & Lopez 2003). Those who suffer from internalising disorders such as depression and anxiety also have an associated risk of poor interpersonal functioning (Tanner et al. 2007). It is therefore important to identify risks
and protective factors that can assist in promoting psychological wellbeing among young people.

Research has shown that adolescents’ coping mechanisms, level of functioning, and adaptability tend to continue into young adulthood (Schulenberg and Zarrett 2006). For better or worse, what they bring to the transition time manifests in a person-context interaction. It is at this time that childhood distal factors such as parental psychopathology combine with current proximal factors such as levels of social support to effect a young person’s mental health (Schulenberg, Sameroff & Cicchetti 2004). As such, the purpose of this introduction is twofold, firstly to present an overview of recent discourse surrounding the time between adolescence and adulthood, its effects on mental health, and the proposition that it is a unique developmental stage. Secondly, to present a critical literature review of research into predictors of impaired mental health of young adults. The literature review has been organised firstly by theoretical orientation. Two broad categories of structurally focused and developmentally focused studies will be presented. Where applicable, within each category studies are divided between methodological designs. Finally, gaps in previous research are highlighted in order to introduce the purpose of the current study. The structure of the literature review was chosen in order to orientate the present study as having a cross-sectional design and a developmental focus.

**Emerging Adulthood as a Proposed Developmental Stage**

*The aim of this section is to discuss the apparent emergence of a new developmental stage, that of ‘emerging adulthood’. It will review the arguments made for and against the applicability of emerging adulthood to all socioeconomic groups,*
as well as review of research using the emerging adulthood model and the current agreed criteria for defining adulthood.

In recent decades, economic, social and demographic shifts in industrialised Western societies has seen the gap between adolescence and adulthood increasingly widen (Arnett 1998). In Australia young people achieve a variety of traditional adult markers significantly later compared to similarly aged people in the mid-1970s (ABS 2013). Young adults now tend to delay marriage; only 14% of current 24 year olds are married compared to 67% in 1976. The median age for men to marry is now 31.4, while for women it is 28.2 years. Young people are instead turning to alternative de facto partnerships, with the vast majority living together before marriage (de Vaus 2004). Young adults also tend to remain in the family home longer, and many more attend university (ABS 2013). Whilst only 14% of young adults in the 1970s attended university, today the rate has increased to 26%. As a result fewer young people are working fulltime, with 35% employed part-time compared with only 11% in 1976 (ABS 2013). Coinciding with broad historical and economic changes influencing industry and employment rates (Shanahan 2000), a more flexible labour market allows young adults to pursue studies while financially supporting themselves at the same time.

**Proposition of the Emerging Adulthood Developmental Stage**

The typical living situation and the employment and marital status of young adults have changed over time, resulting in increasing delays in the attainment of the traditional markers of adulthood. Jeffrey Arnett coined the term ‘Emerging Adulthood’ to describe what he claims is a distinct developmental stage between the ages of 18 and 25, where certain adolescent roles are left behind yet many adult roles are postponed (Arnett 2000). He contends that emerging adulthood is a time of instability where individuals experience numerous simultaneous changes in areas such as education,
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intimate relationships, living situation, and employment. It has also been described as a time of identity exploration, where young people use changing life experiences to discover themselves and decide on life choices (Arnett 2000). Similarly it can be seen as a self-focused age where, without the constraints of institutionalised high school life, young people have the freedom to pursue personal growth. Emerging adulthood is “an age of feeling in-between” (Arnett 2006 page 11), a sense of living in limbo between two different worlds. Arnett (2006) also claims it is an age of possibilities, where there is often a sense of hopefulness for the future.

Criticism of the Applicability of Emerging Adulthood

Arnett’s descriptions of emerging adulthood rest strongly in a person-focused psychological framework. He has come under criticism from sociologists for failing to emphasise the important role of structural factors such as ethnicity, gender and social class on emerging adulthood (Bynner 2005). Such criticisms echo previous research from authors such as Shanahan (2000) who discuss the influence of changing historical contexts and cohort effects on the transition to adulthood. Bynner (2005) questions the generalisability of the term across different social classes, for instance Bynner uses population evidence from Europe to argue that recent economic changes in industrialised societies have created labour markets with a selection preference for tertiary education. This has led to dwindling opportunities for unskilled workers, often forcing many into part-time and casual work together with periods of unemployment. Young women who do not enter tertiary education often leave the labour market in favour of early partnership and parenthood. Individuals in this economically disadvantaged class often do not experience emerging adulthood, and instead through financial pressures and lack of opportunity, many transition into adult roles of employment, housing, and parenthood much earlier than their peers. Thus there is a
growing disparity between the ‘haves’ and ‘have nots’, where the purported adaptive function of emerging adulthood is only available to the affluent (Bynner 2005). A latent class analysis study from 2005 revealed that only one group of young people fit Arnett’s (2000) model of emerging adulthood, and that group membership was partly tied to socioeconomic class (Osgood, Ruth, Eccles, Jacobs & Barber 2005). While university-educated young single adults living with their parents tended to come from families with considerably higher income and education levels, Osgood and colleagues found other pathways to adulthood. These included the ‘fast starters’ who were typically partnered young adults settled into a non-professional career and raising children, who were more likely to come from families with no tertiary qualifications. There were also the ‘slow starters’ who by their mid-twenties were typically still living with their parents, single, working casual low-income jobs, and not pursuing further education. This group also tended to come from low-income families of origin (Osgood et al. 2005). Côté and Bynner (2008) argue from a life-course perspective that structural factors shape the many possible trajectories of the transition to adulthood, and that the term ‘emerging adulthood’ does not meet criteria for a distinct developmental stage as not all humans experience it.

There has also been contention regarding the driving forces behind the shift towards emerging adulthood. Arnett (2000) has argued that emerging adults are more frequently taking the time during their early twenties to explore a variety of vocational, educational, and romantic options, before eventually choosing to settle into traditional adult roles. Again highlighting the difference between psychological and sociological theorists, Côté and Bynner (2008) contend that the origins of this increasing trend are not due to personal choice, but due to shifts in economics and global economies, as well as a decline of social norms in Western societies. Without the guidance from
standardised consensus regarding adult roles, they argue that the identity formation process becomes more difficult for the lone individual, and thus takes longer compared to previous generations. Essentially, they argue that Arnett’s model mistakes reactions to structural changes as a freely chosen delay in entering adulthood. They present an alternative explanation for emerging adulthood being a developmental stage. They argue that a more appropriate way to view emerging adults is as a cohort who have been economically denied the means to achieve financial independence until their late twenties. In the context of a decline in overarching agreed social norms of what is expected of adult roles, these individuals have coped with the uncertainty of their situation by viewing it as a ‘new normal’ (Côté and Bynner 2008). From an Australian perspective, Blatterer (2007) argues that instead of a postponement of adulthood, what is occurring is a redefinition of normalised ideals of adulthood towards a more personalised approach.

**Arnett’s Response to Criticism**

Arnett (2006) argues that sociological criticisms of emerging adulthood tend to place the importance of structural factors above factors such as personality, intelligence, family, and peer relationships. He states that developmental psychologists view individuals as capable of affecting purposeful changes to their life, instead of merely being buffeted by structural factors. He also emphasises that he and his colleagues have consistently replicated his research findings in a variety of employment, ethnic and social groups (Arnett 2003). For example, in one study he found that apparent differences between ethnic groups on reported adulthood status (Latino and African-American participants were significantly more likely than Caucasians to state that they had reached adulthood) was mediated through other factors such as age, socioeconomic status, and parenthood (Arnett 2003). Arnett (2006) states that diverse trajectories do
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not invalidate the concept of emerging adulthood, as heterogeneity exists within all developmental periods. He argues that for the most part, the theoretical components of emerging adulthood (demographic instability, self-focused identity exploration, feeling in-between, and hopefulness for future possibilities) are still available to low socioeconomic status groups. Arnett proposes that although these individuals may not have the financial means to travel extensively or explore different educational pathways, they still have the opportunity to explore a variety of lifestyles with the goal of achieving person-environment fit. He suggests that the freedom to choose different causal jobs and rental properties could facilitate this exploration process. In later writings however he does concede that the lived experience for emerging adults attending university would be quite different to those working or seeking employment (Arnett 2012). He also acknowledges that the demands of parenthood are too strong to realistically promote identity exploration, and so early parenthood, particularly for women, would be an excluding factor from the emerging adult process (Arnett 2006). He nevertheless concludes that upon accepting Emerging Adulthood as a diverse period shaped by numerous structural factors, it still offers a useful framework for understanding human development (Arnett 2012).

**Researching Criteria for Adulthood**

Arnett argues that as the delay in attaining traditional adult milestones grows and Western societies become increasing individualistic, so too are young people’s definitions of what it means to be an adult (Arnett 1998). In the first major study attempting to systematically measure what criteria emerging adults held to be important for adult status, Arnett (1997) created a 40-item questionnaire assessing potential criteria for adulthood taken from the sociological, psychological and anthropological literature. The items reflected diverse areas of research, ranging from role transitions to
behaviour choice and emotional capacity. Arnett (2001) organised the items into subscales based on their common theoretical origin. The subscales include ‘independence’, ‘interdependence’, ‘role transitions’, ‘norm compliance’, ‘biological transitions’, ‘chronological transitions’, and ‘family capacities’. Arnett collated the similar items based on discipline origin (e.g. family capacity from anthropology and role transitions from sociology). He tested the adulthood criteria in 1997 firstly with a sample of young college students and then with a smaller community sample of adults aged between 21 and 28 years. Arnett found that both groups of participants were more likely to endorse individualistic markers of adulthood such as having responsibility for oneself, making important decisions independently, and having financial independence from parents. The study also found that the majority of participants described themselves as feeling in between adolescence and adulthood, supporting Arnett’s definition of emerging adulthood. Arnett used the criteria in two other population groups, teenagers and middle-aged adults (2001) and emerging adults of various ethnic descent (Hispanic, African, Asian and Caucasian) (2003) and found that individualistic markers of adulthood were widely endorsed; all three studies were American-based.

Studies have employed this theory-driven approach to questionnaire development. Nelson and Barry (2005) used the Arnett subscales in their comparison of agreed criteria for adulthood between young people who identified themselves as either emerging or perceived adults. While they found no statistical differences between the two groups on markers of adulthood, perceived adults reported greater attainment of the criteria for adulthood (Nelson and Barry 2005). Several studies have also examined Arnett’s theory-driven subscale classification in different cultural contexts. Cheah and Nelson (2004) compared Indigenous and European Canadian college students, finding Indigenous students were more likely than European Canadians to state that they had
reached adulthood. Similar to other studies (Arnett 1997; Arnett 2001; Arnett 2003) items such as ‘accepts responsibility for the consequences of one’s actions’ were most commonly endorsed by both groups as being necessary for adulthood (Cheah and Nelson 2004).

Badger, Nelson and Barry (2006) compared endorsement of adult criteria between North American and Chinese college students, finding that Chinese students were more likely that American students to declare themselves an adult. The authors also found that certain criteria relating to norm compliance, family capacity and role transitions were more likely to be endorsed by Chinese students compared to Americans. A factor analysis using data from both cultures also found a model that merged independence and interdependence into a single factor called relational maturity best fit the data (Badger et al.2006). Nelson (2009) examined the applicability of the proposed adulthood criteria for Romanian college students using an exploratory factor analysis. She found five factors instead of the seven subscales used by Arnett, these were ‘family capacity’, ‘norm compliance’, role transitions’, ‘financial independence’, and ‘relational maturity’; nineteen items did not load on any factor (Nelson 2009).

Conclusion

To conclude, in light of the increasing trend of young people delaying attainment of traditional adult roles such as marriage and parenthood, Arnett (2000) proposed emerging adulthood as a distinct developmental period. It is an ‘in-between’ time, full of opportunities and exploration, however critics question its generalisability to low socioeconomic status groups who out of economic necessity are often forced to take on adult responsibilities (Bynner 2005). Arnett (2001) created a theory-driven list of possible criteria for adulthood, which studies such as Nelson
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and Barry (2005), Badger, Nelson and Barry (2006), and Nelson (2009) have replicated the core finding that individualistic criteria are generally the most commonly rated as being necessary for adulthood. While these finding add to the body of research on defining adulthood, the relationship between emerging adulthood and mental health has not been sufficiently explored.

Brief Literature Review: Studying the Mental Health of Emerging Adults

Considering the variety of contextual and role changes emerging adults experience, it is little wonder such an unstable time impacts on functioning and adjustment (Schulenberg, Sameroff & Cicchetti 2004). As previously discussed, the prevalence of psychopathology tends to peak in young adulthood (Newman et al. 1996), with depressive disorders of particularly high prevalence in Australian young adults (Goldney, Eckert, Hawthorne, & Taylor 2010). It is therefore vital to study risk factors associated with mental health disorders in order to better screen for and treat individuals (Reinherz, Giaconia, Carmola Hauf, Wasserman, & Silverman 1999). The theoretical orientation of researchers will invariably influence the focus and methodology of their studies. As previously discussed, sociologists place a greater importance on structural factors such as age, gender, ethnicity, and socioeconomic status, while developmental psychologists focus on more individual and interpersonal factors such as personality and social support (Arnett 2006). It is thus useful when collating known risk factors for depression in emerging adults to consider findings within a theoretical and methodological context.

Therefore, in order to delineate the influence theory has on methodology and study findings, the following two sections will focus on studies investigating emerging adult mental health from a structural and developmental context. Within each
section, studies are organised according to what type of analytical modelling was employed. This approach was chosen in order to orientate the present study within developmental studies that focus on proximal factors. The specifics of the present study, including the proximal factors being investigated and the study aims and hypotheses, will be presented in the manuscript introduction.

Structurally Focused Studies

This section will review a small selection of sociological studies that focus on structural factors, including age, race, gender and socioeconomic status. Variable-centred research which seek to find overall trends are first presented, followed by person-centred research that seeks to find sub-groups within main effects. This section serves as a brief introduction to structurally focused studies before presenting a review of developmental studies, within which the present study is placed.

Variable-centred research using regression analyses. An example of this type of study is Graber, Seeley, Brooks-Gunn and Lewinsohn’s (2004) investigation of the effects of pubertal timing. They found that early maturing women had a higher lifetime prevalence of major depression, anxiety, conduct disorder, oppositional defiant disorder, and higher rates of elevated antisocial personality traits compared to the on-time and late-maturing females. Male early-maturers had higher lifetime prevalence rates of conduct disorder, oppositional defiant disorder, and higher current rates of substance use compared to other groups. Overall the results highlight the particular vulnerability of early pubertal maturation on lifetime psychopathology and impaired functioning (Graber et al. 2004). A major limitation of the study however is the failure to consider what factors might underlie early maturation, and thus indirectly influence psychopathology in emerging adulthood. For example, studies have shown associations
between childhood physical and/or sexual abuse and early menarche in females (Foster et al. 2008).

Two structural factors that have received research attention are relationship and family transitions and their associations with depression in emerging adulthood. Booth, Rustenbach and McHale (2008) found that individuals making early transitions into cohabitation, marriage and parenthood compared to North American national averages tended to come from low income families. Both men and women who reported high delinquency levels in adolescence were also more likely to go on to cohabit and become parents. However there was no evidence that individuals entering into marriage or parenthood incurred a significant change in depressive symptoms. The authors conclude that individuals making early relationship and family transitions were more likely to come from disadvantaged backgrounds, but as the transition did not negatively impact their mental health their choices may be considered to be sensible (Booth et al. 2008).

Aligned with this research focus Uecker (2012) investigated potential mental health benefits marriage might confer during emerging adulthood. For both genders married young adults were found to be less depressed than single young adults, but no more so than those who were engaged or cohabitating. There was no evidence to suggest that waiting to marry later in adulthood lowered the risk of psychological distress. Single and cohabitating young adults were found to drink significantly more than married or engaged adults and married young people did have a greater level of life satisfaction compared to being single or dating, even when controlling for potentially explanatory factors such as socioeconomic status, parenthood, relationship stability, and religious participation. Uecker suggests married young adults may have been benefiting from an unmeasured sense of permanency and accomplishment of an important life transition (Uecker 2012).
Variable-centred research using growth modelling. A major limitation of studies that rely on traditional regression analyses is the lack of consideration for the inherent variable nature of Arnett’s (2000) emerging adulthood model. Emerging adulthood has been described as an age of exploration through a variety of possible pathways, which does not well suit analysis methods that assume homogeneity of a sample. For example, regression analyses seek to find average trends across an entire sample population, however studies have shown that there is great variability in individual developmental trajectories during this critical time (Cohen, Kasen, Chen, Hartmark, & Gordon 2003). As such, some studies have begun to use multilevel modelling to examine within-person covariances nested within between-person trajectories (Galambos, Barker, & Krahn 2006). The results of their study indicate that from ages 18-25 depressive and expressed anger symptoms tended to decrease, while self-esteem rates tended to increase (Galambos et al., 2006). Within each of the three outcome variables, women’s decline in depressive symptoms were faster than men’s, and while family background was not associated with depression trajectories at age 18, by age 25 individuals from university-educated families had significantly lower levels of depression. Further analyses also showed that increases in social support over time, less unemployment, and marriage transitions were associated with improved changes in depression trajectories. Increases in social support also positively affected self-esteem trajectories and negatively affected expressed anger trajectories. Overall the results imply that some distal family background factors decline in their influence on mental health trajectories over time, while interpersonal proximal factors such as social support have a continuous impact (Galambos et al., 2006).

Continuing the use of multilevel modelling, Galambos and Krahn (2008) investigated the effect of leaving home on depression and expressed anger trajectories.
The results found that when young emerging adults lived independently they tended to report higher levels of depression than those who stayed at home. However for those who stayed too long the reverse trend was true, and they experienced higher rates of depression than those who had moved out (Galambos and Krahn 2008). In sum, structural factors such as gender and parental education have been found to influence depression and self-esteem trajectories (Galambos et al. 2006), while age of leaving the parental home has also been shown to influence depression trajectories over time (Galambos and Krahn 2008). However studies that are variable-centred have a different inherent focus and design to person-centred approaches, as outlined below.

**Person-centred approaches.** Each of the previously described studies has employed traditional statistical methods such as multiple and logistic regressions, as well as multilevel modelling. Such methods are variable-centred, and seek to predict outcomes, find relationships among variables, or relate dependent and independent variables together (Muthén and Muthén 2000). However many psychological research questions are best answered by person-centred approaches that seek to find exceptions to the norm. Methods such as latent class analysis and growth mixture modelling are used to group data from similar individuals into subcategories, as opposed to grouping data based on theoretical constructs. These groups of individuals represent heterogeneity within a sample, and can provide important information about those who do not follow average developmental trends (Muthén and Muthén 2000).

Stoolmiller, Kim and Capaldi (2005) investigated predictors of differing depression trajectories using self-report yearly data from ages 15-25. They found four separate classes of depression trajectories; persistently high depression levels (high-persistent; \( n = 50 \)), initially high depression levels that decreased over time (high-decreasing; \( n = 74 \)), moderate initial depression levels that decreased over time
(moderate-decreasing; \( n = 70 \)), and consistently low depression levels (very-low; \( n = 12 \)). None of the participants in the ‘very-low’ group and 5.7% of the moderate-decreasing group at age 25 had a lifetime diagnosis of a depressive disorder, while 20% of the high-decreasing and 29.2% of the high-persistent group did. Parental transitions (the number of relationship breakdowns and re-partnerings a child was exposed to) uniquely separated the high-persistent group from the other three groups. For all bar the very-low group, high parental antisocial behaviour was positively related with high levels of child depression at age 15, and was also negatively related to the decline in depressive symptoms over time. High rates of paternal depression and negative life events uniquely separated the high-persistent group from others. The results of the study suggest that there was a small group of individuals, typically from unstable family environments, that were at significant risk for chronic depression (Stoolmiller et al. 2005).

In a more recent study, Frye and Liem (2011) found four subgroups of depression trajectories that had some similarities with Stoolmiller et al.’s (2005) findings; high-stable, high-decreasing, low-stable, and low-increasing. The low-stable group made up 75% of the sample, followed by the high-decreasing (17%), low-increasing (7%) and the high-stable (1%) groups. Membership in the high-decreasing group was found to be predicted by poverty, female gender, and trauma history. Membership in the low-increasing group was predicted by poverty, trauma history, and African-American race, while membership in the high-stable group was predicted by trauma history and female gender (Frye and Liem 2011).

**Summary of structurally-focused studies.** To summarise, structurally-focused studies have found that individuals who reach puberty early are at greater risk of impaired mental health and psychosocial functioning (Graber et al. 2004).
One study found that transitioning into cohabitation, marriage, or parenthood was not significantly associated with changes in depression levels (Booth et al. 2008), while Uecker (2012) found that early marriage may be desirous for depressed adolescents. By the end of emerging adulthood those from university-educated families tend to be less depressed (Galambos et al. 2006), but if young people continue to live at home too long they become at risk of depression (Galambos and Krahn 2008). While depression levels generally decline over the course of emerging adulthood, there are subgroups of individuals who are at risk of chronic severe depression. These people tend to be females with a history of trauma (Frye and Liem 2011), as well as people from unstable family backgrounds with a parental history of depression (Stoolmiller et al. 2005). These studies offer invaluable information about external factors that can help identify individuals at risk of psychopathology in emerging adulthood. Though a quite generalised statement, there is face validity in the suggestion that while structurally-focused studies can help us understand the why of emerging adult depression, they cannot truly explain the how. Perhaps developmental studies that explore internal factors can offer some assistance.

Developmental-Psychology Focused Studies

The following section will review studies that come from a developmental perspective. Such studies use psychological theories and place more emphasis on internal factors such as personality, intelligence, family, and social relationships. One of the major drawbacks of cross-sectional study designs is the limited ability to suggest causation, however for studies with a developmental focus that investigate more internal factors, low-cost cross-sectional studies can aid understanding of proximal factors impacting on current mental health. The results of Galambos et al.
further suggest that factors such as current levels of social support do play an important role in psychological wellbeing. There has also been specific calls for further research into the role of proximal influences on the emerging adulthood process (Schulenberg, Sameroff & Cicchetti 2004).

Cross-sectional research using regressions and modelling methods. Hänninen and Aro (1996) investigated gendered coping styles in a cohort of Finnish 22-year-olds. Women were found to employ more dysfunctional coping strategies than males (e.g. self-blame), while individual resilience (as measured by items assessing beliefs of personal control, self-esteem, and experiencing life as meaningful) was the strongest overall predictor of low depressive symptoms, above coping style and negative life events (Hänninen and Aro 1996).

A more recent study by Riggs and Han (2009) used structural equation modelling (SEM) to investigate a complex mediation model of various internal proximal factors on current depressive symptoms. Chronic anxiety was found to be the strongest direct predictor of depressive symptoms. Perceived current trauma predicted depression indirectly through irrational beliefs and chronic anxiety, while the relationship between attachment avoidance and depression was partially mediated through low self-esteem and chronic anxiety. Attachment anxiety affected depressive symptoms through a number of pathways such as directly through anxiety, as well as more indirectly through irrational beliefs and self-esteem. The authors stress the importance of studying cognitive-affective factors in depression research, and suggest hopelessness or perceived blame as potential avenues for future research (Riggs and Han 2009). While the study could have been improved through the use of multi-informant data and retrospective accounts of distal factors such as parental
psychopathology, it nevertheless represents a novel and under-researched avenue in emerging adulthood research.

*In sum, while acknowledging the limitations of cross-sectional studies such as the reliance on retrospective reporting, they can be used to explore the influence of proximal factors on mental health. In two such studies, individual resilience was found to be a strong predictor of current depressive symptoms (Hänninen and Aro 1996), while Riggs and Han (2009) found evidence to suggest the importance of unhelpful cognitions, chronic anxiety, attachment issues, and perceived current trauma to understanding current depression.*

**Longitudinal research using regression analyses.** Returning to longitudinal research which has the advantage of examining changes over time and being able to determine causality between factors, traditional regression models are often used to investigate internal and interpersonal factors affecting depression in emerging adulthood. Eberhart and Hammen (2006) investigated a gap in research regarding the temporal order of depressive symptoms and interpersonal dysfunction. After excluding participants due to having a current or past major depressive episode, they followed participants who developed a major depressive episode in the following two years. Preliminary analyses confirmed that a variety of structural factors such as socioeconomic status, relationship status, family composition, and living situation did not predict the onset of depression in the sample. The results found that poor family relationship quality and an anxious attachment style (particularly with a fear of abandonment) predicted the onset of major depression over the two-year study. The authors suggest that the effect of these two interpersonal factors on depression may be mediated through a negative view of self. They also suggest that as impaired interpersonal problem-solving skills did not predict onset of depression, it may be a
consequence of depression. Future research is needed to examine the interplay of social skills, coping ability, and depression, perhaps through path analysis (Eberhart and Hammen 2006).

Liem, Cavell and Lustig (2010) investigated interpersonal predictors of depression in emerging adulthood. They assessed how authoritative (warm and open, but with clear limits) a large group of young adults perceived their parents to be. Hierarchical linear regressions first found that authoritative parenting was associated with lower levels of depressive symptoms across several years of emerging adulthood. Several internal factors such as perceiving oneself as worthy and efficacious also predicted lower levels of depression by the end of the study. These internal factors were found to mediate the relationship with authoritative parenting and later depression levels. The authors conclude that an authoritative parenting style facilitated adolescents to develop a sense of self-worth and mastery that would later protect them against depression (Liem et al. 2010).

A recent well-designed study investigated if cognitive factors such as hopelessness mediated the relationship between culturally related stressors and depressive symptoms as well as suicidal ideation (Polanco-Roman and Miranda 2013). Acculturative stress (the negative psychological and physiological effects of changes to minority cultures coming into contact with a dominant culture) as well as perceived discrimination at baseline were associated with higher levels of hopelessness two years later. Ethnic identity did not however moderate these relationships. Further analyses controlling for baseline depression showed that hopelessness mediated the relationships between both acculturative stress and perceived discrimination with later depressive symptoms, but only for individuals with low levels of ethnic identity. Similar results were also found for suicidal ideation. The authors conclude that a strong ethnic identity
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may buffer against the effects of acculturative stress and discrimination in emerging adulthood (Polanco-Roman and Miranda 2013).

**Longitudinal research using growth modelling.** Longitudinal research within a developmental psychology framework is also beginning to more frequently use modelling data analysis techniques. In 2011 Katz, Conway, Hammen, Brenna and Najman used structural equation modelling (SEM) in their investigation of social withdrawal during childhood, ongoing interpersonal impairments, and links to emerging adulthood depression. The model found that childhood social withdrawal was a significant yet indirect distal predictor of depression at both age 15 and 20, mediated through social impairment. This effect was equally significant for both genders. The authors highlight the unique impact that childhood disengagement from peers has on long-term depression risk, controlling for all other factors. Though a methodologically strong study with a prospective design and multi-informant data, it would have benefited from inclusion of anxiety symptoms, and more data points continuing into later emerging adulthood years (Katz et al. 2011).

Pettit, Roberts, Lewinsohn, Seeley, and Yaroslavsky (2011) examined data from a stratified sample of emerging adults selected for a prior history of psychopathology and age-matched with controls. The results showed that women had higher initial depression levels compared to men, and that while both men and women declined in depression rates over time, as a whole men experienced a slower rate of change. Women reported higher initial levels of perceived family support, though men reported a faster increase in support over time. Women also reported higher initial levels of perceived friend support, however while some men experienced an increase in friend support over time, others did not. It was found that particularly for women, those with higher initial levels of depression tended to report low levels of family support. Subsequent analyses
determined however that initial depression levels did not predict the rate of change for family support. In contrast, higher initial levels of perceived family support predicted a slower decline in depression. The authors suggest this finding could represent a floor effect, or that despite high family support, other factors were promoting or maintaining depression over time, particularly for young women. A major strength of the study was the frequent data collection across the entire emerging adulthood period, however was limited to only self-report measures (Pettit et al. 2011).

Summary of developmental studies. To summarise, developmental studies have much to offer the field of emerging adulthood depression research. Internal factors such as resilience have been found to play an important part in protecting against depression development (Hänninen and Aro 1996). Attachment anxiety and avoidance have been shown to indirectly affect depression through the cognitive-affective factors of irrational belief systems and low self-esteem (Riggs and Han 2009). Attachment anxiety was also found to be a significant longitudinal predictor of depression by Eberhart and Hammen (2006) along with poor family relationships. A loving but firm authoritative parenting style in adolescence has also been found to promote a sense of self-worth, which serves to protect emerging adults from depression (Liem et al. 2010). Individuals with low levels of ethnic identity have been found to be particularly vulnerable to the effects of acculturative stress and discrimination on depression levels (Polanco-Roman and Miranda 2013), while more generally, children who consistently withdraw from peers are vulnerable to interpersonal impairments in adolescence and consequent depression in emerging adulthood (Katz et al. 2011). Support from family and friends has also been found to affect the rate of general decline in depression found across emerging adulthood, particularly for women (Pettit et al. 2011).
Extended Introduction

Whilst there is research highlighting the challenges of emerging adulthood and the increased risk for mental health problems associated with this life period, the research has primarily focused on structural factors such as race, gender, and socioeconomic status, or distal (long-term) factors such as parental psychopathology and childhood trauma. Meanwhile, there are also other factors such as proximal (current) internal factors, such as coping ability and psychological insight. These factors may play an important role in the development of depression. However despite these factors having been implicated in research, they are currently not very well understood. The current study aims to look at this, and hence in the following sections the research undertaken so far on these factors will be reviewed. In accordance with the requirements of a doctoral thesis at the University of Newcastle, the following section will be structured as a journal manuscript. The manuscript introduction is intended to be read in conjunction with this extended introduction, and it is there that the study variables are introduced and the research aims and hypotheses are discussed.
Manuscript: Proximal Influences on Mental Health and Wellbeing During the Transition to Adulthood

Abstract

The mental health of young people transitioning into adulthood is an area of clinical concern. By identifying risks and protective factors for mental illness within the population, researchers can lead the way to improve the wellbeing of young adults. This study investigates potential links between coping factors, cognitive-affective factors, and mental health symptoms. Participants were 127 young Australians aged 18 to 30 years. Using the results of an online survey, a hierarchical multiple linear regression and a path analysis were performed. The results revealed that after controlling for anxiety and hopelessness symptoms, there were associations between insight, positive social comparison, and norm compliance behaviour with low levels of depressive symptoms. The cross-sectional study design focused on proximal influences on mental health, and highlights the adaptive importance of internal factors such as insight. There are clinical implications from the study findings towards early intervention programs promoting insight development and teaching adaptive coping skills.

Key Words: emerging adulthood, transition to adulthood, depression, coping, insight, path analysis.
The first few years of adulthood are an exciting time for many individuals, but for others they may be associated with impaired emotional wellbeing. Mental health problems are reported to increase from childhood to adolescence, peaking in young adulthood (Newman et al. 1996). In Australia, depression is one of the most common mental health problems for young people, with a recent study showing a point prevalence rate of 10.8% for 15-29 year olds (Goldney, Eckert, Hawthorne, & Taylor 2010). Depression is characterised by symptoms such as low mood, sleep disturbance, decreased self-care, concentration difficulties, as well as feeling helpless and hopeless (National Institute of Clinical Excellence 2009) and is one of the leading causes of disability worldwide (World Health Organization 2004). One of the first symptoms to emerge in the beginning of a depressive episode are feelings of hopelessness (Iacoviello, Alloy, Abramson, Choi, & Morgan 2013). The two most commonly co-occurring disorders in young adults are depression and anxiety, with comorbid prevalence rates of depression in anxiety sufferers estimated at 40% (Merikangas et al. 2010). The impairments in social, health and behavioural functioning that sufferers face also affects the family and community (Trudeau, Spoth, Randall, Mason, & Shin 2012). In Australia it has been estimated that anxiety and depression significantly contributes to the total burden of disease, 10% for women; 4.8% for men (Begg, Barker, Stevenson, Stanley, & Lopez 2003). It is therefore important to identify risks and protective factors that can assist in promoting psychological wellbeing among young people.

Persons who are transitioning into new social roles and contexts are more vulnerable to mental health problems (Schulenberg, Sameroff & Cicchetti 2004b). This is particularly pertinent for young adults who experience rapid life changes when deciding on career paths, forming worldviews and consolidating their identity (Berry 2004). In addition, relationships and feelings of personal control often change (Aalto-
Setala, Marttunen, Tuulio-Henriksson, Poikolainen, & Lönnqvist 2001; Schulenberg et al. 2004b). Whilst new opportunities for self-exploration without the constraints of standardised student roles (Schulenberg et al. 2004b) can increase personal wellbeing for some, for others the abrupt cessation of institutionalised supports such as high school can negatively affect their mental health. This period of life between the ages of 18 and 25 has been labelled ‘emerging adulthood’, denoting a stage in life where certain adolescent roles are left behind yet many adult roles are not yet achieved (Arnett 2000).

In order to explore how emerging adults define adulthood, Arnett (1997) developed a list of possible criteria for adult status which has been used in numerous studies to assess an agreed sense of defined adulthood (Arnett 2003; C. Mc Barry and Nelson 2005; L. J. Nelson 2009; L. J. Nelson and Barry 2005; L. J. Nelson and Padilla-Walker 2013; Larry J. Nelson et al. 2007). The most commonly endorsed criteria for adulthood are individualistic traits such as accepting the consequences of one’s actions, independently deciding personal beliefs, establishing an equal relationship with parent/s as an adult, and having financial independence from parents (Arnett 1997).

Some studies have taken adulthood criteria research further by exploring which criteria emerging adults have actually achieved. Nelson and Barry (2005) found those calling themselves an adult reported greater adulthood achievement compared to those classifying themselves as emerging adults, while Barry, Madsen, Nelson, Carroll and Badger (2009) found that individuals who had met more adulthood criteria reported better quality romantic relationships. Success or failure at negotiating common adult developmental tasks can also impact on mental wellbeing. Specifically, success in the domains of work, friendships, romantic relationships, and citizenship over the course of emerging adulthood are vital in maintaining a sense of wellbeing (Schulenberg, Bryant, & O’Malley 2004a). Schulenberg and colleagues found that over the course of eight
years, people who initially scored highly on measures of self-esteem, self-efficacy and social support, and who later achieved key developmental tasks such as education and financial independence continued to maintain high wellbeing scores over the next eight years. However, a small percentage of people with initially high wellbeing scores who did not achieve a number of key developmental tasks showed a decline in wellbeing over time (Schulenberg et al. 2004a).

Research has begun to examine the impact of unmet personal expectations for adulthood achievement on mental health. A recent longitudinal study found that young people who attained a lower level of education than they expected, or who unexpectedly found themselves unemployed, or who entered into unplanned parenthood, were more likely to experience depressive symptoms during the next two decades of life (Mossakowski 2011). The authors suggest that regret and disappointment mediate this relationship, implying that not only is achieving normative developmental tasks important for mental health, but an individual’s personal expectations also play a role. Moreover, their response to stress and disappointment is implicated in their ability to either overcome problems or succumb to mental health issues (Mossakowski 2011).

Internal factors such as self-focused attention and coping ability may be important in understanding why some young people are particularly vulnerable to mental health problems. The manner in which an individual responds to stressful events is arguably just as important as the event itself in shaping psychological functioning (Karekla and Panayiotou 2011). Coping styles are either problem-focused, where individuals actively address the stressful situation or event, or emotion-focused, where attempts are made to manage the emotions generated in response to the stressor (Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer 2004)(Hänninen and Aro 1996; Karekla and Panayiotou 2011). In addition, through avoidant coping strategies the
individual aims to lessen the impact of a stressor either by avoiding the situation or
using distractions from the emotional and cognitive distress (Man, Dougan, & Rector
2012). Regardless of the categorisation of coping strategies, research consistently show
some strategies such as problem-solving to be positively related to mental health
outcomes and therefore considered adaptive, while others such as self-blame have a
negative, maladaptive effect (Garnefski et al. 2004).

Why individuals adopt one coping mechanism over another is likely to depend
on an array of factors such as temperament, personality, social learning, personal
experience and contextual circumstance, but ultimately it will be a function of
underlying cognitive-affective processes. Two cognitive-affective mechanisms that have
been investigated previously are distress tolerance (Keough, Riccardi, Timpano,
Mitchell, & Schmidt 2010) and experiential avoidance (Hayes, Wilson, Gifford,
Follette, & Strosahl 1996). It has been suggested that individuals with low distress
tolerance over-emphasise the negative emotions associated with stressful situations.
Meanwhile, research has found individuals high in experiential avoidance tend to use
emotion-focused and avoidant coping strategies (Karekla and Panayiotou 2011) and
employ these strategies inflexibly (Kashdan, Barrios, Forsythe, & Steger 2006).

A proposed cognitive-affective mechanism that particularly relates to the use of
emotion-focused coping strategies is the tendency towards private self-focused attention
and its subcomponents insight and self-reflection (Harrington and Loffredo 2011).
Trapnell and Campbell (1999) distinguish between ‘rumination’ as a repetitive mental
activity driven by perceived threat or loss and ‘self-attention’ as curiosity-motivated
thought aimed at achieving awareness of internal mental processes. Self-attention, or
insight, is a significant positive predictor of psychological wellbeing and perceived life
satisfaction (Harrington and Loffredo 2011), while rumination, or self-reflection, has
been linked to neuroticism (Trapnell and Campbell 1999). Social self-perception has also been suggested as a cognitive-affective process linked to coping skills and mental health, with perceived high social status identified as a protective factor (Aderka, Weisman, Shahar, & Gilboa-Schechtman 2009). In the spinal injury literature, positive social comparison has been linked to adaptive coping styles that are both problem-focused and emotion-focused (Buunk, Zurriaga, & González 2006). Inversely, young adults with a history of depression have been found to have lower positive affect compared to healthy controls after being asked to compare themselves to someone of higher social status (Bázner, Brömer, Hammelstein, & Mayer 2006).

The transition to adulthood has been described as a possible turning point in the course of mental health problems (Schulenberg et al. 2004b). While some studies have focused on early childhood experiences and other long-term risk factors for later depression development (Frye and Liem 2011) (Stoolmiller, Kim, & Capaldi 2005), Schulenberg and colleagues argue that the major life changes inherent in such a transition time have the potential to alter the course of psychopathology. As a consequence they emphasise the importance of investigating proximal factors that are influencing current mental health symptoms, as well as a focus on internal developmental factors (Schulenberg et al. 2004b). While many studies have replicated Arnett’s (1997) agreed criteria for adulthood and some have assessed achievement of adulthood markers (Barry, Madsen, Nelson, Carroll, & Badger 2009)(L. J. Nelson and Barry 2005), no study has taken the approach of Mossakowski (2011) and used Arnett’s adulthood criteria to explore personal expectations for adulthood and the impact on mental health.

As such the aim of the current study is to replicate the findings of studies such as Arnett (1997) and Nelson and Barry (2005), as well as extend the model to expected
adulthood criteria. Specifically, it is hypothesised that individualistic criteria will be the
most commonly endorsed as being necessary for adulthood, and that while participants
will not differ in personal expectations for adulthood, those who consider themselves to
be adults will report having achieved more on adulthood markers than emerging adults.
The second aim is to explore the relationships between agreed, expected and achieved
adulthood criteria, adaptive and maladaptive coping strategies, and cognitive-affective
mechanisms (insight, rumination/self-reflection, and positive social comparison) with
depressive symptoms during the transition to adulthood. In line with earlier research
into comorbidity it is hypothesised that depression symptoms will be strongly and
positively correlated with anxiety and hopelessness symptoms. Secondly, it is
hypothesised that low depressive symptom scores will be associated with the ability to
cope well with stress, as measured by high scores on adaptive coping and low scores on
maladaptive coping. Thirdly, it is predicted that effective cognitive-affective abilities, as
measured by high scores on insight, self-reflection and positive social comparison, will
be associated with low depression symptom scores. Lastly it is hypothesised that lower
depression symptom scores would be associated with higher scores on agreed, expected
and achieved adulthood criteria.

Method

Participants

Participants were recruited as part of a larger project examining protective
factors against depression in vulnerable groups of young adults. Participants were
recruited via two sampling methods. Eighty-seven first-year psychology students from a
regional Australian university participated in the study in exchange for course credit. An
additional 40 volunteers from the general Australian population responded to social
media notices inviting completion of the online survey. Individuals with a physical or intellectual disability were excluded from the study. A general demographic profile of the sample is shown in Table 1. Most of the 18 to 30 year old participants were female, unmarried, working part-time, and living with parents. Due to sampling methods enrolled undergraduate university students were over-represented and made up 78% of the sample.

[Table 1 about here]

**Part 1 Measures**

**Emerging adulthood criteria and status.** Possible criteria for adulthood were taken from the Arnett (1997) study and were grouped into six theory-driven categories defined by Arnett (2003); independence ($\alpha = .42$), interdependence ($\alpha = .64$), role transitions ($\alpha = .73$), norm compliance ($\alpha = .83$), biological transitions ($\alpha = .76$), and family capacities ($\alpha = .88$).

**Agreed adulthood criteria.** The Agreed Adulthood subtest is designed to measure markers considered necessary for adulthood. Participants were asked “What things do you think are necessary for someone to be called an adult?” and answered “yes” or “no” for questions such as “Does someone need to be married to be called an adult?”. Frequency scores for group endorsement of possible adulthood criteria were created, and binary coding was used to create individual scores for number of endorsed criteria.

**Achieved adulthood.** The Achieved Adulthood subtest is designed to measure perceived achievement on common adulthood status markers. Participants were asked “How much of an adult do you think you are right now?” and used a yes/no response format for 11 items before using the five-point Likert scale to answer remaining questions such as “Are you financially independent from your parents?”. Within each subcategory items were reverse-scored, summed, and divided by the number of items,
with higher scores indicating a greater objective sense of achievement on proposed adulthood criteria. An additional item was also added to assess perceived adulthood status. Participants were asked “Do you think you have reached adulthood?” and could answer “Yes”, “No”, or “In some ways yes, in some ways no”. This single self-classification item has shown good face validity in several studies (e.g. Arnett 2001; Nelson and Barry 2005). The Agreed and Achieved Adulthood subtests were taken from the Nelson and Barry (2005) study and extended to also assess expectations for adulthood.

**Expected adulthood.** The Expected Adulthood subtest is designed to measure personal expectations for adulthood. Participants were asked “What things do you think you should be doing by now in your life?” and for 11 items (e.g. purchased a house) answered “true” or “false”. For the remaining items participants used a five-point Likert response scale from “always” to “never” to answer questions such as “Should you have moved out of your parents’ home by now?”. Within each subcategory items were reverse-scored, summed, and divided by the number of items, with higher scores indicating higher personal expectations for self against proposed adulthood criteria.

**Coping ability.** The Brief COPE (Charles S Carver 1997) self-report measure was used to assess dispositional coping style. The factor structure of the measure accounts for 72.4% of response variance, with acceptable internal consistency. Participants answered 28 items using a four-point Likert response scale measuring 14 categories such as planning, e.g. “I try to come up with a strategy about what to do.” (α = .73), behavioural disengagement, e.g. “I give up trying to deal with it.” (α = .65), and using emotional support, e.g. “I get emotional support from others.” (α = .71). Eight of the categories form a composite subscale of Adaptive Coping strategies, while the remaining six categories are thought to represent Maladaptive Coping (Meyer, 2001).
Previous research has found that use of adaptive rather than maladaptive coping strategies was associated with lower rates of perceived distress in early-stage breast cancer patients (C. S. Carver et al. 1993).

**Depressive symptoms.** Depressive symptoms were assessed via self-report using the Glasgow Depression Scale for people with a Learning Disability (GDS-LD; Cuthill et al. 2003). The measure has shown good internal consistency ($\alpha = .90$) and test-retest reliability ($r = .97$). It has also displayed adequate criterion validity by correlating highly ($r = .94$) with results from a standard general population depression inventory, the Beck Depression Inventory – Second Edition (BDI-II) (Beck, Steer, & Brown 1996). Participants used a three-point response format (“never”, “sometimes”, “a lot”) to answer 20 items measuring the recent presence of depressive symptoms such as “Have you felt sad?”, “Have you felt as if everything was your fault?” and “Have you thought that bad things keep happening to you?”. The use of this measure, as with the anxiety and hopelessness measures, was because the obtained data formed a separate normative control sample for an additional study investigating the transition to adulthood for people with an intellectual disability. This separate study used the same questionnaires to investigate whether intellectual disability moderates associations between psychological variables and depression symptoms.

**Part 2 Measures**

**Anxiety symptoms.** Anxiety symptoms were measured via self-report using the Glasgow Anxiety Scale for people with a Learning Disability (GAS-LS; Mindham and Espie 2003). The measure has shown good internal consistency ($\alpha = .96$) and test-retest reliability ($r = .95$). It has also displayed reasonable criterion validity ($\rho = .72$) by correlating with results from a standard general population anxiety inventory, the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown & Steer 1988). Participants used a
three-point response format to answer 27 items measuring three categories of worries, e.g. “Do you worry about your family members?” (α = .92), specific fears, e.g. “Are you afraid of dogs?” (α = .80), and physiological symptoms, e.g. “Do your hands and legs ever shake or tremble suddenly?” (α = .90).

**Hopelessness.** Hopelessness was measured using the Hopelessness Scale for Children (HSC; Kazdin, Rodgers and Colbus 1986). Participants answered true or false to 17 items, e.g. “I want to get older because I think things will get better”. Eight items were reverse-scored before being summed, with higher scores indicating reported hopelessness. Kazdin et al. found good internal consistency (α = .97) and moderate test-retest reliability (r = .52). In accordance with previous research adapting the measure for use with adults (Esbensen and Benson 2005) one item was reworded from ‘kids’ to ‘people’ and five items were reworded from ‘growing up’ to ‘getting older’.

**Positive social comparison.** The Social Comparison Scale (SCS; Allan and Gilbert 1995) was used to measure how participants compared themselves to others. The six items used a five-point bipolar Likert-scale assessing constructs of rank and achievement, social attractiveness, and perceived group membership, with a good internet consistency (α = .87) and test-retest reliability (r = .84). Participants would for example rate how ‘different’ or ‘the same’ they generally felt when around other people. Higher scores indicate more positive social comparison (i.e. thinking oneself to be better than others).

**Psychological mindedness.** The Self-Reflection and Insight Scale for Youth (SRIS-Y; Sauter, Heyne, Blöte, van Widenfelt and Westenberg 2010) was used to assess levels of psychological mindedness. The measure has shown good internal consistency (α = .77) and as a demonstration of convergent validity, both the self-reflection and insight subscales have shown moderate and significant correlations with a measure of
cognitive flexibility (Sauter et al. 2010). Self-reflection is defined as giving deliberate though to one’s feelings and actions, while insight is defined as an accurate and deep understanding of one’s underlying motivations. Participants used a six-point Likert-response scale to answer 17 items, 11 of which were combined to form the Self-Reflection subscale, e.g. “I often examine my feelings” ($\alpha = .74$), leaving the remaining six to form the Insight subscale, e.g. “I usually know why I feel the way I feel” ($\alpha = .58$). Research on the original SRIS (Grant et al. 2002) has found the insight subscale to be a robust positive predictor of psychological wellbeing (Harrington and Loffredo 2011).

**Procedure**

The study was approved by the Hunter New England Health and the University of Newcastle research ethics committees (Approval Number H-2010-1134). The study was administered in two sections to prevent cognitive fatigue, as each section took approximately 30 minutes to complete. All participants were given access to the survey via the Zoomerang online survey hosting website (www.zoomerang.com). The part one survey consisted of standard demographic questions; measures of emerging adulthood expectations and achievements; depressive symptoms; and coping skills questionnaires. The presentation order of survey measures was randomised. Following completion of part one, participants were emailed an invitation and link to complete part two, which consisted of the anxiety symptoms; hopelessness; perceived social comparison; and psychological mindedness questionnaires. 127 participants completed part one of study which contained the core measures, while 81 participants also completed the part two supplementary measures.

**Results**
Data Screening and Preliminary Analyses

Missing data due to 47 participants not completing part two was left missing (10.7%); while 157 (.006%) random missing data points were replaced using the individual participant’s mean score for the relevant subtest of the measure. Unless specified, data analyses were conducted using SPSS version 17.0 software (SPSS, 2008).

Table 2 contains frequency statistics for criteria endorsed as being necessary for adulthood status. The Australian sample of emerging adults endorsed a profile of an adult that included not only basic transitions such as having finished puberty and being over 18 years old, but who also follows basic social norms such as not stealing or drink-driving, and has the ability to run a household and keep a family of their own safe. Interdependence criteria such as being considerate of others and having control over emotions were also frequently endorsed, as were independence criteria of accepting consequences of actions and developing independent beliefs. The most commonly endorsed criteria were accepts responsibility for own actions (82.7%) and independently decide on personal beliefs (67.7%) which fall into the Independence factor, and finished puberty and able to conceive children (89.0%) and reached age 18 (78.0%) which fall into the Biological and Chronological Transitions factor.

Group means were compared between participants who did and did not complete the part two survey battery across part one variables to check for between-group differences related to attrition. A Bonferroni corrected alpha value was set at \( p = .0045 \), which showed no significant differences. A number of analyses were also conducted to
determine whether depressive symptoms differed as a function of demographic factors such as gender, education level, sibling position, and antidepressant use. No significant differences were found with a Bonferroni corrected alpha value of \( p = .0016 \).

In response to the question ‘Do you think you have reached adulthood?’ 38 participants answered ‘yes’, five answered ‘no’, and 84 answered ‘in some ways yes, in some ways no’. Due to unequal sample sizes, results were grouped into declared \((n = 38)\) and non-declared \((n = 89)\) adults. No significant results were found between groups in rating the importance of agreed criteria for adulthood, however significant differences were found between groups for expected biological transitions, \(U(122) = 969.50, p < .00\), and for achieved biological transitions, \(U(123) = 897.00, p < .00\). Further analyses revealed the effect was due to items assessing chronological age transitions. Declared adults tended to be significantly older than non-declared adults, \(t(124) = -4.76, p < .00\). As no further significant differences were found, declared adult status was not treated as a confounding variable. Table 3 presents means, standard deviations, and Pearson correlations (two tailed) for all study variables.

[Table 3 about here]

**Regression Analyses**

In order to determine whether sociodemographic factors needed to be controlled for in regression analyses of *Depression Symptoms*, a stepwise multiple linear regression analysis was conducted. Results showed that demographic variables such as *Gender, Age, Marital Status, Sibling Order and Current Living Situation* did not predict *Depression Symptoms*. The only significant predictors were *Antidepressant Use* and
**Education Level.** Individuals using antidepressant medication tended to exhibit higher levels of depression, $\beta = .37, t = 3.13, p < .01$. Conversely, the higher the level of education completed, the lower the depression level, $\beta = -.25, t = -2.16, p < .05$. Consequently these two variables were controlled for in the following analysis.

A six stage hierarchical multiple linear regression was performed with Depression Symptoms as the dependent variable, the results of which are displayed in Table 4. Antidepressant Use and Education Level were entered into the first two steps respectively, followed by Anxiety Symptoms at step three and Hopelessness at step four. Anxiety and Hopelessness were chosen as potentially confounding variables due to large significant positive correlations with Depression; $r = .59, p < .01$ for Anxiety and $r = .41, p < .01$ for Hopelessness, as shown in Table 3. Anxiety disorders are often found to be comorbid with depression in young adult community samples (Merikangas et al., 2010), and hopelessness is one of the key diagnostic features for depression (NICE 2009). In step five the psychological variables of Adaptive and Maladaptive Coping Skills, Insight, Self-Reflection, and Positive Social Comparison were entered. The six variables (Independence, Interdependence, Role Transitions, Biological and Chronological Transitions, Norm Compliance and Family Capacity) for each of the Agreed, Expected and Achieved Adulthood factors were finally entered into stage six.

The results of the hierarchical multiple linear regression are presented in Table 4. The results showed that while Antidepressants and Education Level were significant predictors of Depression, they quickly lost statistical significance once further variables were added in subsequent models. Once Anxiety and Hopelessness were added in step
four, the model explained 46% of the variance of Depression and was statistically significant at $p < .001$. Higher Anxiety levels predicted higher Depression levels ($\beta = .45$, $p < .001$), while Hopelessness was also positively associated with increases in Depression ($\beta = .28$, $p < .01$). Of the psychological variables added in step five, only Insight was a significant negative predictor of Depression ($\beta = -.29$, $p < .01$), increasing the model’s explained variance to 57%. Furthermore, adding Insight along with the other psychological variables produced an $R^2$ Change effect of 20%. In the final model that added the Agreed, Expected and Achieved Adulthood factors, Insight was the strongest individual predictor ($\beta = -.53$, $p < .001$), showing that individuals who were particularly insightful were less likely to be exhibiting depressive symptoms. Anxiety ($\beta = .23$, $p < .01$) and Hopelessness ($\beta = .25$, $p < .01$) were still significant predictors of Depression, and by adding the Adulthood factors Positive Social Comparison ($\beta = -.33$, $p < .001$) reached significance.

Generally the more criteria an individual endorsed as being necessary for adulthood the less depressed they tended to be, as shown by Agreed Interdependence ($\beta = -.38$, $p < .001$) and Agreed Role Transitions ($\beta = -.25$, $p < .01$). However the more Agreed Independence criteria participants tended to endorse, the more likely they were to report Depression Symptoms ($\beta = .38$, $p < .001$). Generally lower Depression scores were associated with greater expectations for adulthood, as shown by Expected Biological Transitions ($\beta = -.37$, $p < .01$) and Expected Norm Compliance ($\beta = -.20$, $p < .05$). The exception was a positive correlation for Expected Interdependence ($\beta = .30$, $p < .01$). Item analysis revealed the effect was mainly due to the item become less self-orientated and more considerate of others. There was a small but significant effect of higher achievements of Norm Compliance being linked to lower Depression scores ($\beta = -.22$, $p < .05$). There was also positive correlations between Depression and Achieved

Mental Health in Emerging Adulthood
Biological Transitions ($\beta = .26, p < .05$) as well as with Achieved Independence ($\beta = .18, p < .05$). The final model explained 83% of the variance in Depression levels, and was statically significant, $F(27, 49) = 8.59, p < .001$. The variance inflation factor (VIF) was checked for each variable within the final model, with no variable having a statistic higher than 1.75. This suggests that there was no evidence of multicollinearity between predictor variables.

**Path Analysis**

To further explore the direct and indirect effects of the predictor variables in predicting variance in Depression Symptoms, the final model from the hierarchical linear regression was presented in a path analysis model using AMOS 19.0 software (Arbuckle, 2009). Variables that were not significant in the final regression model such as Self-Reflection, Adaptive and Maladaptive Coping, as well as many of the Emerging Adulthood variables were not included in the path analysis. Maximum likelihood estimations were used for missing data, and a number of fit statistics such as chi-square and probability level, the Tucker-Lewis Index (TLI), the Comparative Fit Index (CFI), the Akaike Information Criterion (AIC), and the Root Mean Square Error of Approximation (RMSEA) were used to evaluate model fit. Figure 1 shows the standard estimates of Model 1, the hierarchical linear regression model. The model included all correlations between variables that emerged in the correlation analysis presented in Table 3, however not all regression weights and correlations reached statistical significance. Fit statistics are presented in Table 5, while model estimates for each variable are presented in Table 6.

[Figure 1 about here]

[Table 5 about here]
In order to refine the model depicted in figure 1, Model 2 was created that removed correlations between variables that were not significant in Model 1 but left non-significant regression weights. Model 3 removed all non-significant regression weights but retained the non-significant correlations between variables. Model 4 removed the non-significant correlations from Model 1 and continued to remove non-significant regression paths until only significant paths and correlations remained. Finally, variables that had no statistically significant direct or indirect effects on Depression Symptoms were removed in Model 5 in order to aid model interpretation. The standard estimates of Model 5 are shown in figure 2. While Model 5 did not account for as much of the variance in Depression Symptoms as Model 1 (55% compared to 66%), the chi square statistic showed that the model did not significantly differ from the data, $\chi^2 = 19.15$ (17), $p = .32$ (see Table 5). Other fit statistics also showed excellent model fit, such as a CFI of .985 and an RMSEA of .032. A CFI that approaches 1.00 and a RMSEA that approaches .00 are considered indicators that the model is reasonably consistent with the underlying data.

As Table 6 shows, in the final model Anxiety and Insight had the largest total effect on Depression Symptoms, $\beta = .58$ and $\beta = -.55$ respectively. Figure 2 further shows that anxious individuals tended to be more depressed, but were also less insightful and tended to think others were better than them, which weakened the protective effect of these two variables. Compared to the large indirect effect of Anxiety
at $\beta = .24$, the indirect effect of *Insight* was smaller at $\beta = -.16$ (see Table 6). Insightful individuals tended to be less depressed and also less anxious (see figure 2). Hopeless individuals were generally more likely to be depressed ($\beta = .20$), however there was also a slight indirect effect through buffering the protective effects of *Positive Social Comparison*, $\beta = .04$. The total effect of *Positive Social Comparison* was split between a direct effect of $\beta = -.17$ and through buffering the adverse effects of *Anxiety* and *Hopelessness* to create an indirect effect of $\beta = -.17$. Finally, individuals who set higher expectation for themselves to comply with social norms tended to be less depressed $\beta = -.19$, and while working indirectly through other variables, individuals who achieved norm compliance as well as those who expected themselves to be more focused on interpersonal concerns tended to also be slightly less depressed, $\beta = -.10$ and $\beta = -.08$ respectively.

**Discussion**

**Defining Adulthood Criteria**

The study investigated criteria that a sample of Australian emerging adults agreed to be necessary for adulthood. It also explored potential predictors of current depression symptoms from a variety of potential factors such as anxiety, hopelessness, adaptive and maladaptive coping ability, certain cognitive-affective factors (insight, positive social comparison, self-reflection), and agreed, expected and achieved adulthood criteria. It was hypothesised that individualistic criteria would be the most commonly endorsed, and that while participants would show no significant differences on expectations, declared adults would score higher than emerging adults on achieved criteria for adulthood. The study population most frequently endorsed *Biological and Chronological Transitions* and *Independent* criteria as being the most necessary to be
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classed as an adult. An adult was generally agreed to be an individual over the age of 18 who had finished puberty, who accepts responsibility for their actions and independently decides on their own personal beliefs. The two Independent criteria were also among the most commonly endorsed in Arnett's (1997) study, while establishes and equal relationship with parents as an adult and financially independent from parents (among the top criteria of the Arnett study) were quite highly rated at 46.5% and 41.7% respectively. These results partially confirm the hypothesis, however after controlling for declared adults being older than non-declared adults, no significant differences were found between groups for any of the expected or achieved adulthood criteria. This may have been due to the small sample size of groups, with only 38 participants reporting that they considered themselves to have reached adult status.

Proximal Predictors of Depression

For the second study aim of exploring predictors of Depression Symptoms, it was hypothesised that there would be strong positive correlations between Depression, Anxiety and Hopelessness. It was also hypothesised that low Depression scores would be predicted by strong cognitive-affective ability (high scores on Insight, Self-Reflection and Positive Social Comparison) and strong coping ability (high scores for Adaptive Coping and low scores for Maladaptive Coping). Finally, it was predicted that higher scores on Agreed, Expected and Achieved Adulthood factors would be associated with lower Depression scores. A preliminary regression analysis found that Depression scores were positively associated with antidepressant use and negatively associated with level of education. It is logical to assume that higher levels of reported depressive symptoms would increase the chances of an individual being prescribed antidepressant
medication. Taken as a measure of socioeconomic status, the finding that university-educated individuals were less likely to experience depression compared to those who had only completed secondary education fits with general research into the socioeconomic inequalities associated with risks of depression (Lorant, Deliège, Eaton, Robert, Philippot & Ansseau 2003).

The results of the hierarchical multiple linear regression show that depressed individuals tended to also be anxious and hopeless, supporting the second hypothesis. These findings are in line with previous research regarding the high rates of comorbidity between depression and anxiety (Merikangas et al. 2010) and the strong component of hopelessness during major depressive episodes (Iacoviello et al. 2013). In the final regression model, even when controlling for the amplifying effects of anxiety and hopelessness, insightful individuals and those who viewed themselves favourably compared to others tended to be less depressed, supporting the second hypothesis. The strong association between Insight and low levels of Depression as well as the ultimate removal of Self-Reflection as a significant predictor mirrors the findings of Harrington and Loffredo (2011). The negative association between Positive Social Comparison and Depression scores is also similar to previous research finding low levels of reported self-esteem in depressed young adults after comparing themselves to others of higher social status (Bätzner et al. 2006). It was surprising that neither Adaptive nor Maladaptive Coping was a significant predictor of Depression, as other studies have found maladaptive coping strategies such as catastrophizing and adaptive coping strategies such as positive reappraisal have been directly and inversely related to depression symptoms respectively (Garnefski et al. 2004). Correlational analyses reported in Table 3 show associations between Depression and Adaptive Coping ($r = -.21, p < .05$) as well as Maladaptive Coping ($r = .51, p < .01$). However Adaptive
Coping was positively correlated with Agreed Independence and Interdependence, and Maladaptive Coping was strongly correlated with Insight ($r = -.49, p < .01$). It is entirely possible that the predictive power of Coping Ability variables was overshadowed by stronger variables such as Insight.

The hierarchical multiple linear regression revealed that several Agreed, Expected and Achieved Adulthood variables supported the hypothesis that they would be positively associated with low Depression levels. Participants with low levels of depressive symptoms tended to endorse a profile of adulthood characterised by traditional role transitions and a strong sense of interdependence with others. These individuals expected themselves to have progressed through biological transitions and be complying with societal behaviour norms. They were also tending to report that they had achieved a largely independent emerging adulthood lifestyle. These findings are similar to some of the findings of Nelson and Padilla-Walker (2013) that well-adjusted emerging adults tended the endorse the importance of Norm Compliance and Family Capacity. Some variables also showed surprising results that were not in line with expected hypotheses. Individuals who endorsed, expected and achieved Independent Adulthood criteria as well as those who achieved Biological Transitions criteria were more likely to report Depression Symptoms. However when variables and correlational links from the present study were entered into a path analysis predicting Depression scores, many of the Agreed, Expected and Achieved Adulthood variables lost predictive power in the face of the combined direct and indirect effects of other predictor variables. Ultimately it was found that insightful emerging adults who were less depressed also tended to expect themselves to be interdependently tied to others, and that those who achieved their personal expectations for norm compliance were less likely to be depressed. This last finding echoes previous research demonstrating that particularly for
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males, risk taking behaviour (i.e. low levels of norm compliance) is frequently associated with depressive symptomatology (Cochran and Rabinowitz 2003).

**Study Limitations and Conclusion**

While there have been numerous studies investigating the interplay of longitudinal factors on mental health during the transition to adulthood (Booth et al. 2008), (Grabber et al. 2004), (Mossakowski 2011), (O'Connor et al. 2011), (Pettit et al. 2011), (Schulenberg et al. 2004a), the present study followed Riggs and Han (2009) in its examination of proximal influences on wellbeing during the transition to adulthood. Riggs and Han held the position that distressing events may exacerbate underlying anxious symptomatology, which if untreated could form a precursor to hopelessness and depression. The present study did not make such an assumption, instead favouring a more parsimonious model predicting correlations between the variables. This conservative approach was chosen due to the cross-sectional design of the study and resultant inability to support claims of longitudinal influence and causality.

The cross-sectional design of the study is a major limitation, for the above-stated reasons of inability to infer causality. Without longitudinal data it is impossible to answer questions such as whether unmet expectations for adulthood increase the risk of depression, or whether expectations are retrospectively adjusted in order to buffer against depression. Another major limitation of the study is the over-representation of 18 to 19 year old university students in the sample. Compared to the 10.8% point prevalence rate of depression in young Australians (Goldney et al. 2010), the worldwide prevalence of depression in university students is averaged at 30.6% (Ibrahim, Kelly, Adams and Glazebrook 2013). Perhaps the present findings are only generalisable to such a vulnerable population who could be suffering from chronic stress regarding their future prospects and dissatisfaction from having to largely put their lives on hold while
finishing their education (Ibrahim et al. 2013). Further studies using community samples with a wider age range are needed to confirm the applicability of the results.

To conclude, the current study highlights the importance of studying depression in the context of other comorbid conditions such as anxiety. During such a varied and uncertain time as emerging adulthood, it is pertinent to be aware of different manifestations of poor psychological functioning and the combined influence of multiple proximal factors. Feelings of hopelessness and low self-esteem (i.e. low levels of positive social comparison) as well as increased risk-taking behaviour have been shown to be potential warning signs as to the development of poor psychological health. The implication of insight (that is, the ability to consciously understand one’s motivations, thinking patterns and emotional reactions) being the strongest predictor of depressive symptoms is that it is vital to psychological wellbeing, particularly in emerging adults. The realisation of the importance of insight in mental health has significant clinical implications. Over the last decade a type of self-awareness training, ‘mindfulness training’, has become widely used in clinical practice. This involves non-judgemental self-focused attention towards present thoughts and feelings (Hayes and Feldman 2004). The findings from the current study suggest that education, particularly training in coping skills such as mindfulness, offers an appropriate strategy for ensuring mental wellbeing in emerging adults.
References


Mental Health in Emerging Adulthood from Early Adolescence to Young Adulthood. *Journal of Youth and Adolescence, 41*(6), 788-801.

Table 1: Frequencies (and Percentages) of Demographic Information

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (N = 127)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>41 (32.3)</td>
</tr>
<tr>
<td>Females</td>
<td>86 (67.7)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>60 (47.2)</td>
</tr>
<tr>
<td>Partnered</td>
<td>63 (49.6)</td>
</tr>
<tr>
<td>Married</td>
<td>4 (3.2)</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
</tr>
<tr>
<td>Not employed a</td>
<td>33 (26.0)</td>
</tr>
<tr>
<td>Casual/part-time employment</td>
<td>77 (60.6)</td>
</tr>
<tr>
<td>Full-time employment</td>
<td>17 (13.4)</td>
</tr>
<tr>
<td>Housing status</td>
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</tr>
<tr>
<td>Lives with parents / family</td>
<td>70 (55.1)</td>
</tr>
<tr>
<td>Lives alone</td>
<td>3 (2.4)</td>
</tr>
<tr>
<td>Lives in share-house / with friends</td>
<td>32 (25.1)</td>
</tr>
<tr>
<td>Lives with partner</td>
<td>19 (15.0)</td>
</tr>
<tr>
<td>Lives with partner and children</td>
<td>3 (2.4)</td>
</tr>
<tr>
<td>Highest education status</td>
<td></td>
</tr>
<tr>
<td>Some high school</td>
<td>3 (2.4)</td>
</tr>
<tr>
<td>Graduated high school</td>
<td>3 (2.4)</td>
</tr>
<tr>
<td>Trade certificate</td>
<td>4 (3.1)</td>
</tr>
<tr>
<td>Enrolled in undergraduate study</td>
<td>99 (78.0)</td>
</tr>
<tr>
<td>Completed undergraduate degree</td>
<td>8 (6.3)</td>
</tr>
<tr>
<td>Enrolled in postgraduate study</td>
<td>4 (3.1)</td>
</tr>
<tr>
<td>Completed postgraduate degree</td>
<td>6 (4.7)</td>
</tr>
</tbody>
</table>

*a Either not in the workforce, unemployed, or receiving only a student / disability government pension
Table 2: Frequencies (and Percentages) of Endorsed Criteria for Adulthood (n = 127)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Criterion</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independence</td>
<td>No longer living in parents’ household</td>
<td>49 (38.6)</td>
</tr>
<tr>
<td>α = .42</td>
<td>Financially independent from parents</td>
<td>53 (41.7)</td>
</tr>
<tr>
<td>52.6%</td>
<td>Not deeply tied to parents emotionally</td>
<td>49 (38.6)</td>
</tr>
<tr>
<td></td>
<td>Decide on personal beliefs independent of parents or other influences</td>
<td>86 (67.7)</td>
</tr>
<tr>
<td></td>
<td>Accepts responsibility for own actions</td>
<td>105 (82.7)</td>
</tr>
<tr>
<td></td>
<td>Establishes equal relationship with parents as an adult</td>
<td>59 (46.5)</td>
</tr>
<tr>
<td>Interdependence</td>
<td>Interested in dating</td>
<td>10 (7.8)</td>
</tr>
<tr>
<td>α = .64</td>
<td>Has good control over emotions</td>
<td>63 (49.6)</td>
</tr>
<tr>
<td>27.3%</td>
<td>Committed to long-term love relationships</td>
<td>3 (2.3)</td>
</tr>
<tr>
<td></td>
<td>Become less self-orientated and more considerate of others</td>
<td>63 (49.6)</td>
</tr>
<tr>
<td>Role transitions</td>
<td>Finished education</td>
<td>19 (15.0)</td>
</tr>
<tr>
<td>α = .73</td>
<td>Obtained paid employment</td>
<td>43 (33.9)</td>
</tr>
<tr>
<td>7.2%</td>
<td>Settled into long-term career</td>
<td>6 (4.7)</td>
</tr>
<tr>
<td></td>
<td>Purchased a house</td>
<td>9 (7.1)</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>3 (2.3)</td>
</tr>
<tr>
<td></td>
<td>Have at least one child</td>
<td>2 (1.6)</td>
</tr>
<tr>
<td>Norm</td>
<td>Avoid becoming drunk</td>
<td>9 (7.1)</td>
</tr>
<tr>
<td>Compliance</td>
<td>Avoid illegal drugs</td>
<td>29 (22.9)</td>
</tr>
<tr>
<td>α = .83</td>
<td>Have no more than one current sexual partner</td>
<td>37 (29.1)</td>
</tr>
<tr>
<td>30.5%</td>
<td>Drive safely and close to the speed limit</td>
<td>45 (35.4)</td>
</tr>
<tr>
<td></td>
<td>Avoid driving under the influence of alcohol</td>
<td>67 (52.8)</td>
</tr>
<tr>
<td></td>
<td>Avoid use of swear words</td>
<td>15 (11.9)</td>
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<tr>
<td></td>
<td>Use of contraceptives if sexually active and not trying to conceive a child</td>
<td>45 (35.4)</td>
</tr>
<tr>
<td></td>
<td>Avoid petty crimes such as shoplifting</td>
<td>63 (49.6)</td>
</tr>
<tr>
<td>Biological</td>
<td>Reach age 18</td>
<td>99 (78.0)</td>
</tr>
<tr>
<td>Transitions</td>
<td>Reach age 21</td>
<td>47 (37.0)</td>
</tr>
<tr>
<td>α = .76</td>
<td>Finished puberty and able to conceive children</td>
<td>113 (89.0)</td>
</tr>
<tr>
<td>52.3%</td>
<td>Grow to full height</td>
<td>55 (43.3)</td>
</tr>
<tr>
<td></td>
<td>Have had sexual intercourse</td>
<td>18 (14.2)</td>
</tr>
<tr>
<td>Family</td>
<td>Capable of independently caring for children</td>
<td>37 (29.1)</td>
</tr>
<tr>
<td>Capacity</td>
<td>Capable of supporting a family financially</td>
<td>39 (30.1)</td>
</tr>
<tr>
<td>α = .88</td>
<td>Capable of independently running a household</td>
<td>66 (52.0)</td>
</tr>
<tr>
<td>41.4%</td>
<td>Capable of keeping a family physically safe</td>
<td>69 (54.3)</td>
</tr>
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</table>

Note: Frequency percentages of Agreed Adulthood factors are displayed in the factor column below alpha levels.

<table>
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<th></th>
<th>1</th>
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<th>4</th>
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<th>6</th>
<th>7</th>
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<tr>
<td>1. Depression</td>
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<td>2. Anxiety</td>
<td>.59**</td>
<td>-</td>
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<td>3. Hopelessness</td>
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<td>.23*</td>
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<td>4. Brief Cope: Adaptive Coping</td>
<td>-.21*</td>
<td>-.06</td>
<td>-.25*</td>
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<td>5. Brief Cope: Maladaptive Coping</td>
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<td>.40**</td>
<td>.39*</td>
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<td>.06</td>
<td>-.09</td>
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<td>8. Insight</td>
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<td>-.22</td>
<td>-.07</td>
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<td>11. Agr. Role Transitions</td>
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<td>.04</td>
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### Mental Health in Emerging Adulthood

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Table 5: Explained Variance of Depressive Symptoms and Fit Statistics for Each Model

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<th>Model</th>
<th>R² Depression</th>
<th>χ² (df)</th>
<th>p</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA</th>
<th>AIC</th>
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<td>.66</td>
<td>64.63 (59)</td>
<td>.29</td>
<td>.97</td>
<td>.98</td>
<td>.08</td>
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<tr>
<td>Model 2: correlation revised model</td>
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<td>70.84 (62)</td>
<td>.21</td>
<td>.96</td>
<td>.98</td>
<td>.03</td>
<td>184.84</td>
</tr>
<tr>
<td>Model 3: regression revised model</td>
<td>.59</td>
<td>73.10 (64)</td>
<td>.20</td>
<td>.96</td>
<td>.97</td>
<td>.03</td>
<td>183.10</td>
</tr>
<tr>
<td>Model 4: correlation and regression revised model</td>
<td>.55</td>
<td>87.62 (70)</td>
<td>.08</td>
<td>.93</td>
<td>.95</td>
<td>.05</td>
<td>185.62</td>
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<tr>
<td>Model 5: significant predictor variable model</td>
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<td>19.15 (17)</td>
<td>.32</td>
<td>.97</td>
<td>.99</td>
<td>.03</td>
<td>73.15</td>
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</table>

Note: TLI = Tucker-Lewis Index; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; AIC = Akaike Information Criterion.
Table 6: Standardized and Unstandardized Model Estimates for Each Variable in Models 1 and 5

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<tr>
<th>Variables</th>
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</table>
### Mental Health in Emerging Adulthood

| Exp. Bio Transitions | -1.53 | .017 | -.21 | .13 | -.08 | - | - | - | - | - | - |

*Note: Agr = Agreed, Ach = Achieved, Exp = Expected*
Fig 1. Model 1: Path model depicting the variable Depression Symptoms. Arrows are regression coefficients (or direct effects), double-headed arrows are correlation coefficients. Rectangles indicate variables, circles indicate residual error variances. Not all correlation and regression weights are statistically significant.
Fig 2. Model 5: Revised path model depicting the variable Depression Symptoms. Arrows are regression coefficients (or direct effects), double-headed arrows are correlation coefficients. Rectangles indicate variables, circles indicate residual error variances. All correlations and regression weights are statistically significant.
**Extended Discussion**

**Study Strengths**

The study benefitted from several design strengths. It addressed an identified gap in the literature for investigations of complex multi-factorial models (Riggs and Han 2009). Rather than studying depression in isolation, path analysis was used to predict Depression scores in the context of the two potentially confounding factors; Anxiety and Hopelessness. This approach recognises the often comorbid nature of mental health. The study also addressed the call for research into the role of proximal influences on emerging adulthood (Schulenberg et al. 2004b), and in particular internal factors such as coping ability and insight. Another major strength of the study was the replication of the Arnett (2000) model of adulthood criteria in an Australian emerging adult sample population. This is the first time the model has been tested on the Australian population.

**Study Limitations**

There were however several limitations to the design of the study. A major limitation was the sampling method, which as a result led to over-representation of undergraduate students, mostly who completed the study for course credit. As a result, though participant ages ranged from 18 to 30 years, the sample was highly skewed towards younger ages. In the current study Age was originally intended as an experimental variable, however due to its non-normal distribution Age was not retained in the path analysis model. Being able to account for how influential participant age was on personal expectations and insight levels would have greatly added to the validity of the study results. Another consequence of the over-representation of 18 to 19 year old emerging adults was the lack of heterogeneity in structural role transitions.
Approximately 17% of participants reported cohabitating with a partner, while only 3.2% were married, and 2.4% were parents. Only a few participants reported attainment of traditional adulthood roles, meaning that it was not possible to investigate the potential mediating impact of adult role transitions on emerging adult mental health. Furthermore, there may well have been a selection bias of depressed individuals being more likely to identify with the subject matter of the research and thus volunteer to participate.

There are several other variables whose inclusion could have improved the scope of the study. Ethnicity is a structural factor known to exert influence over young adult mental health (Gore and Aseltine Jr 2003), while university students are known to experience higher rates of depression than the general population (Ibrahim et al. 2013). However due to the homogeneity and small size of the sample, neither ethnicity nor education level was able to be investigated. Due to the sampling method, over 92% of participants had completed or where enrolled in some level of university education. Furthermore, in the regional Australian town where the study was conducted, around 82% of the population are Australian-born, and only 8.3% speak a language other than English at home (ABS 2011). As such the study warrants replication with an ethnically diverse community sample, stratified for age and education level.

**Recommendations for Future Research**

Future studies would benefit from an additional focus on interpersonal factors such as relationship attachment style and current levels of social support, which have been found to be significant predictors of depression (Eberhart and Hammen 2006; Pettit et al. 2011). It would also be beneficial to include a retrospective assessment of lifetime prevalence of a major depressive episode, or to track depressive symptoms in a longitudinal study. A past major depressive episode may influence the current use of
maladaptive coping skills, thus obscuring the results. Spriggs and Halpern (2008) note the importance of controlling for prior depression levels due to possible reverse-causality issues. Future studies could also be strengthened through the inclusion of a retrospective measure of childhood abuse and/or neglect, as well as a retrospective measure of parental psychopathology, as studies have shown these two distal factors to have lasting effects on mental health (Foster et al. 2008; Yaroslavsky et al. 2013). The patterns of direct and indirect effects these distal factors would have on internal and interpersonal factors, and the combined influence they would have on mental health, could be explored through path analyses.

With greater funding opportunities, there are certain methodological design additions that would enhance future research into emerging adulthood mental health. The inclusion of multi-informant data such as observational measures of depression and anxiety completed by parents or significant others would add to the strength of the results. Having multiple observed variables of the same theoretical construct would also allow the use of latent variables in a Structural Equation Modelling (SEM) analysis, which has a less restrictive set of statistical assumptions than path analysis. Ideally, future research in this area would employ a prospective longitudinal design, allowing for conclusions to be made about causality of mental health issues and psychosocial functioning. Additionally, yearly self-report questionnaires could assess core measures of mental health, coping skills, role transitions, insight and self-esteem, as well as interpersonal functioning. This type of study design would extend the work of studies such as Spriggs and Halpern (2008).

A future study that uses a developmental-contextual approach, investigating the combined influence of structural, internal and interpersonal factors on mental health, which has multi-informant data and follows a diverse cohort through regular
measurement waves across the entirety of emerging adulthood, would represent an extremely robust research design. This study could employ a person-centred analytical approach, which would group data from similar individuals into subcategories, as opposed to grouping data based on theoretical constructs. Such groups of individuals would represent heterogeneity within a sample, and could provide important information about those who do not follow average developmental trends (Muthén and Muthén 2000). Using either growth mixture modelling or latent class analysis, subgroups of depression trajectories could be identified within the sample. Further regression analyses could examine if certain factors such as personal expectations for adulthood and social self-perception at age 18 predict membership in the different classes, and whether factors such as level of insight and coping ability affect the slope of class trajectories. This type of analysis would assist in answering important research questions such as whether expectations for adulthood, i.e. whether an individual feels it is time to grow up, affects the trajectory of their psychosocial development over the course of emerging adulthood. Not only would studies of this nature help screen for at-risk groups, it would also provide suggestions for improving clinical practice. If insight and coping ability were found to influence mental health improvements over time, these factors would be a warranted focus of individual psychological therapy, or mental health interventions at a population level.

Summary and Conclusions

The transition from adolescence to adulthood can be a time of great exploration, endless possibilities, and newfound freedom. It can also be an unstable time of uncertainty and feeling between worlds. Arnett (2000) has labelled this transition time ‘emerging adulthood’, and claims that it is a distinct developmental stage. Others
however question whether emerging adulthood applies to vulnerable low-socioeconomic status youths who out of necessity are forced to grow up fast (Bynner 2005). In recent decades there has been a growing level of research into emerging adulthood, particularly with a focus on mental health conditions such as depression. Certain factors such as unstable families of origin, a history of child abuse, adult role transitions, attachment style, and social support levels, have been found to impact on depression levels during emerging adulthood (Foster et al. 2008; Pettit et al. 2011; Uecker 2012; Stoolmiller et al. 2005; Riggs and Han 2009). There has been however, a lack of focus on proximal influences on mental health, particularly with a multi-factorial research design (Riggs and Han 2009). As such the present study investigated the influence of coping ability and certain cognitive-affective factors on depression symptoms after controlling for anxiety and hopelessness.

In a cross-sectional study of mainly undergraduate university students, a path analysis model showed that individuals who were insightful, hopeful, had good self-esteem and did not engage in risk-taking behaviours also tended to have positive mental health. While the study would benefit from replication with a more ethnically diverse sample that was stratified for age and education, the results do indicate the utility of investigating internal factors such as insight and coping ability when studying risks and protective factors for mental health. Future studies could continue this line of research longitudinally, particularly through person-centred analysis methods in order to explore the large variability of mental health trajectories during emerging adulthood. Ultimately, the present study fits within a psychological research focus, with a driving goal of informing best-practice clinical interventions. Assisting emerging adults to cope with the stresses and strains of such a variable time benefits not only the individual, but also their families and communities.
Mental Health in Emerging Adulthood

References


Appendix A:

Journal of Youth and Adolescence Author Guide

The Journal of Youth and Adolescence (Springer publishing) provides a single, high-level medium of communication for psychologists, psychiatrists, biologists, criminologists, educators, and professionals in many other allied disciplines who address the subject of youth and adolescence. The journal publishes papers based on experimental evidence and data, theoretical papers, and comprehensive review articles. The journal especially welcomes empirically rigorous papers that take policy implications seriously. Research need not have been designed to address policy needs, but manuscripts must address implications for the manner society formally (e.g., through laws, policies or regulations) or informally (e.g., through parents, peers, and social institutions) responds to the period of youth and adolescence.

Types of papers

Editorial procedure
Double-blind peer review
This journal follows a double-blind reviewing procedure. Authors are therefore requested to submit:

- A blinded manuscript without any author names and affiliations in the text or on the title page. Self-identifying citations and references in the article text should be avoided.
- A separate title page, containing title, all author names, affiliations, and the contact information of the corresponding author. Any acknowledgements, disclosures, or funding information should also be included on this page.

Manuscript selection
The Editor and Editorial Board members control manuscript review and selection. Manuscripts are reviewed by the Editor, the Editorial board and perhaps by invited reviewers with special competence in the area represented by the manuscript. The Editor determines whether the manuscript will be sent for review. The Editor's decision depends on the relative importance, scientific rigor, and appropriateness of submissions to the journal readership. The Editor retains the discretion to integrate solicited reviews with his own opinions and recommendations into a determinative response.

Manuscript submission
Submission of a manuscript implies: that the work described has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors, if any, as well as by the responsible authorities – tacitly or explicitly – at the institute where the work has been carried out. The publisher will not be held legally responsible should there be any claims for compensation.
Permissions
Authors wishing to include figures, tables, or text passages that have already been published elsewhere are required to obtain permission from the copyright owner(s) for both the print and online format and to include evidence that such permission has been granted when submitting their papers. Any material received without such evidence will be assumed to originate from the authors.

Online Submission
Authors should submit their manuscripts online. Electronic submission substantially reduces the editorial processing and reviewing times and shortens overall publication times. Please follow the hyperlink “Submit online” on the right and upload all of your manuscript files following the instructions given on the screen.

Title Page
The title page should include:
- The name(s) of the author(s)
- A concise and informative title
- The affiliation(s) and address(es) of the author(s)
- The e-mail address, telephone and fax numbers of the corresponding author

Abstract
Please provide an abstract of 150 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references.

Keywords
Please provide 4 to 6 keywords which can be used for indexing purposes.

Abstracts of empirical articles must begin with a broad, orienting sentence that highlights the nature and importance of the area of inquiry, describe the problem under investigation, specify pertinent characteristics of participants (e.g., age, percent female, ethnic composition of the sample), report findings and conclusions, and use the third person perspective.

Subheadings
Use at least two subheadings if you provide any subheading under a higher-level subheading
Avoid using footnotes, unless explicitly requested otherwise.

Text
Text Formatting
Manuscripts should be submitted in Word.
- Use a normal, plain font (e.g., 10-point Times Roman) for text.
- Use italics for emphasis.
- Use the automatic page numbering function to number the pages.
• Do not use field functions.
• Use tab stops or other commands for indents, not the space bar.
• Use the table function, not spreadsheets, to make tables.
• Use the equation editor or MathType for equations.
• Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).

Manuscripts with mathematical content can also be submitted in LaTeX.
  • LaTeX macro package (zip, 182 kB)

Headings
Please use no more than three levels of displayed headings.

Abbreviations
Abbreviations should be defined at first mention and used consistently thereafter.

Footnotes
Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.
Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols. Always use footnotes instead of endnotes.

Acknowledgments
Acknowledgments of people, grants, funds, etc. should be placed in a separate section before the reference list. The names of funding organizations should be written in full.

**Empirical articles must have the following major sections:**
Introduction (although not labeled as such)
Hypotheses (remind readers of rationales and actually make testable predictions or explain why you cannot predict)
Method (include demographic information about participants, such as race, ethnicity, and sex; have a subheading for each key variable, followed by appropriate text describing the variable and its effectiveness)
Results
Discussion
References
Appendices (if appropriate)

**Manuscript Length**
Manuscripts should not exceed 25-30 pages (including text, references, tables and figures); the Editor considers exceptions if authors provide adequate justifications when
they submit their manuscripts. It is expected that the review process will result in an additional 5 to 10 pages of text.

**Terminology**

Please use the standard mathematical notation for formulae, symbols etc.:
- Italic for single letters that denote mathematical constants, variables, and unknown quantities
- Roman/upright for numerals, operators, and punctuation, and commonly defined functions or abbreviations, e.g., cos, det, e or exp, lim, log, max, min, sin, tan, d (for derivative)
- Bold for vectors, tensors, and matrices.

**Nonsexist Language**

Authors must use nonsexist language. Make correct use of the terms "gender" and "sex."
The term "gender" refers to culture and should be used when referring to men and women as social groups. The term "sex" refers to biology and should be used to emphasize biological distinctions.

**Tenses**

Carefully use tenses. The past tense refers to a past study. Specific results are written in the past tense, given that the study already has been completed. Use the present tense to refer to results (i.e., "the results indicate. . .") when your narrative refers to hypotheses that are being discussed in the present.

**Active Voice**

Use an active voice. Consult The Elements of Style (W. Strunk, Jr. & E.B. White) and Style: Writing with Clarity and Grace (J. M.Williams).

**References**

**Citation**

Cite references in the text by name and year in parentheses. Some examples:
- Negotiation research spans many disciplines (Thompson 1990).
- This result was later contradicted by Becker and Seligman (1996).
- This effect has been widely studied (Abbott 1991; Barakat et al. 1995; Kelso and Smith 1998; Medvec et al. 1999).

**Reference list**

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

Reference list entries should be alphabetized by the last names of the first author of each work.
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- Article by DOI

- Book

- Book chapter

- Online document

Journal names and book titles should be italicized.

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For the best quality final product, it is highly recommended that you submit all of your artwork – photographs, line drawings, etc. – in an electronic format. Your art will then be produced to the highest standards with the greatest accuracy to detail. The published work will directly reflect the quality of the artwork provided.

Electronic Figure Submission
- Supply all figures electronically.
- Indicate what graphics program was used to create the artwork.
- For vector graphics, the preferred format is EPS; for halftones, please use TIFF format. MS Office files are also acceptable.
- Vector graphics containing fonts must have the fonts embedded in the files.
- Name your figure files with "Fig" and the figure number, e.g., Fig1.eps.
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- Definition: Black and white graphic with no shading.
- Do not use faint lines and/or lettering and check that all lines and lettering within the figures are legible at final size.
- All lines should be at least 0.1 mm (0.3 pt) wide.
- Scanned line drawings and line drawings in bitmap format should have a minimum resolution of 1200 dpi.
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Halftone Art
• Definition: Photographs, drawings, or paintings with fine shading, etc.
• If any magnification is used in the photographs, indicate this by using scale bars within the figures themselves.
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Combination Art

Group I
- mGlu1α
- mGlu1β
- mGlu1d
- mGlu1E55
- mGlu5a
- mGlu5b

Group II
- mGlu3
- mGlu3A-4

Group III
- mGlu8a
- mGlu8b
- mGlu7a
- mGlu7b
- mGlu7c
- mGlu7d
- mGlu7e
- mGlu8a
- mGlu8b

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