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# Exploring the link between emotional awareness and social functioning during adolescence

H. Claire Rowsell  
*University of Wollongong*

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Exploring the link between emotional awareness  
and social functioning during adolescence

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A thesis submitted in partial fulfilment of the requirements for the degree of

Doctor of Philosophy (Clinical Psychology)

at the

University of Wollongong

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By

H. Claire Rowsell

School of Psychology

University of Wollongong

July 2015

## Thesis Certification

I, H. Claire Rowsell, declare that this thesis, submitted in partial fulfillment of the requirements for the award of Doctor of Philosophy (Clinical Psychology), in the School of Psychology, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

H. Claire Rowsell 6 July 2015

## **Abstract**

Emotional awareness has been found to be influential for health and wellbeing throughout the lifetime as well as during adolescence. Social functioning, such as social support, friendships, and satisfying relationships with others, is also critical for health and wellbeing during adolescence. Much study has identified the importance of emotional awareness and social functioning, but little has looked at the connection between these two constructs. The aim of this thesis was to clarify the association between emotional awareness and social functioning during adolescence, in particular, their association over time. This thesis is comprised of a systematic review of the current literature on emotional awareness and social functioning over adolescence and two empirical studies.

The systematic review identified ten studies meeting search criteria and represented 6,438 adolescent participants. These studies assessed emotional awareness in relation to six aspects of social functioning: social support, friendship, social adjustment, social problems and social competence. Despite some differences in results across these studies, a relatively reliable small to medium positive correlation between emotional awareness and social functioning during adolescence was found. This review highlighted the many gaps in the research including the small number of studies, mainly cross-sectional study designs used, and a lack of longitudinal and intervention research.

Study 1 examined the relationship between emotional awareness (Grades 8, 9, 10, 11, 12) and peer-nominated friendship in 468 adolescents in Grade 12. Results indicate that emotional awareness in early adolescence predicted friendship nominations in later adolescence for females but not for males. Females with greater emotional awareness in Grade 8 received more friendship nominations from female peers and fewer friendship

nominations from male peers in Grade 12. This suggests that emotional awareness may be particularly important for friendship for females, with their level of awareness in early adolescence being especially influential.

Study 2 assessed the longitudinal association between emotional awareness and social support over three years during adolescence ( $n = 903$ ) from Grade 9 to 12, with 314 participants completing all four waves of the study. Results suggest that there is a reciprocal relationship between emotional awareness and social support, such that they mutually influence one another's development over time.

Together the review and two empirical studies provide evidence for emotional awareness and certain aspects of social functioning being associated during adolescence. Despite the finding that emotional awareness and social support have a reciprocal influence model over time, there is a need for additional longitudinal study and intervention-based study designs to further explore the direction of the relationship between emotional awareness and other aspects of social functioning. A discussion of the clinical and educational implications of this research is included, with particular attention dedicated to school-based curriculums designed to improve socio-emotional wellbeing in adolescents.

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\*media coverage:

The Courier Mail

<http://www.couriermail.com.au/news/queensland/key-to-women-who-hate-women-secret-uncovered-in-australian-study/story-fnihsrf2-1226806196803>

Life Matters, ABC Radio National

<http://www.abc.net.au/radionational/programs/lifematters/teens-and-friendship/5217140>

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### **Manuscripts under Review**

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## Professional Presentations

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Rowsell, H. C., Ciarrochi, J., Deane, F., & Heaven, P. (2013). *Emotional awareness and social support: Exploring the links between emotional awareness and social support in adolescence*. Poster presented at the 11<sup>th</sup> Association for Contextual Behavioural Science World Conference, Sydney, NSW, Australia.

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- Journal of Adolescence (2013)
- Journal of Research on Adolescence (2014)
- Social Development (2014)

## **Definitions of Key Terms**

**Emotional Awareness:** The ability to identify, label and describe one's emotions (Ciarrochi, Heaven, & Supavadeeprasit, 2008; Ciarrochi, Kashdan, Leeson, Heaven & Jordan, 2011).

**Social Functioning:** The extent to which an individual is socially adjusted in terms of their current developmental phase. It includes: interpersonal relationships, social adjustment, and social support and social competency.

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## **Chapter 1**

### **Introduction and Aims**

## **Outline of Chapters**

This thesis has two main objectives. First, it will systematically examine the current literature on the connection between emotional awareness and social functioning during adolescence. It will analyse the relationship between emotional awareness and the development of two key aspects of social functioning: friendship and social support, within an adolescent sample.

Chapter 1 defines key constructs and provides the rationale for why the study of these constructs is critical, particularly during adolescence. This chapter also introduces the aims of the thesis.

Chapter 2 will define social functioning and discuss its importance within the context of adolescence. Development and changes in social functioning and interpersonal relationships during adolescence will be described. Background research on the health and wellbeing correlates of social functioning will be reviewed. Finally, a discussion of prior research on the gender differences within social relationship is provided. The intention of this chapter is to provide a holistic understanding of the broad concept of social functioning and why it is of relevant to study further.

Chapter 3 defines emotional awareness. This chapter presents the context of emotional awareness within the broader domain of emotion regulation and how it develops over time. Health and wellbeing correlates of emotional awareness are reviewed. Lastly, evidence of gender differences in emotional awareness is reviewed. The purpose of this chapter is to present a comprehensive picture of emotional awareness and why further study is required.

Chapter 4 reviews the current literature on the connection between emotional awareness and social functioning. It provides a theoretical explanation for why emotional awareness and social functioning may influence one another. Finally, the chapter ends with a brief critique of prior research and discusses its main limitations.

The four introductory chapters outlined above are presented for just that, as an introduction to the main constructs and aims of the thesis, the significance of these constructs, based on prior research, and for providing a foundation for the systematic review and empirical studies that follow.

Chapter 5 provides a systematic review of the literature on the association between emotional awareness and social functioning amongst adolescents. It provides impetus for the subsequent empirical studies.

Chapter 6 presents Study 1. This study identifies the association between emotional awareness and peer-nominated friendship within an Australian high school sample. It also tracks changes in emotional awareness over four years of high school, from Grade 8 to Grade 12. The predictive ability of initial emotional awareness and changes in emotional awareness on friendship later in adolescence is also analysed.

Chapter 7 presents Study 2, which examines the association between emotional awareness and social support longitudinally within a sample of Australian high school students. This study extends the research on emotional awareness and social functioning by providing a longitudinal account of how these constructs influence each other over three years of adolescence. The direction of this association is examined in order to determine if emotional awareness is an antecedent or consequence of social support, or whether the variables reciprocally influence one another.

Chapter 8 provides a general discussion of the results of the systematic review and two empirical studies. Limitations of the research are reviewed. Future directions for research and clinical practice are discussed, along with implications for prevention of detrimental socio-emotional, psychological and health outcomes through interventions and educational curriculum.

### **Importance of Social Functioning during Adolescence**

Adolescence is a developmental phase characterised by several significant transformative changes, such as puberty, transitioning into high school, preparing for the responsibilities associated with adulthood, and changes within social networks and social hierarchies (Leyden & Shale, 2012). During adolescence, socio-emotional difficulties are common as are mental health issues, such as, anxiety (Pine, Cohen, Gurley, Brook, & Yuju, 1998), depression (Cohen et al., 1993), eating disorders (Kjelsas, Bjornstrom, & Gotestam, 2004), and suicide (Lewinsohn, Rohde, & Seele, 1996).

Social functioning can be defined as the extent to which an individual is socially adjusted in terms of their current developmental phase and can include aspects such as social support, relationships with others, and social competency. Positive social functioning and relationships with others are critical for physical and psychological wellbeing throughout the lifetime (e.g., Clark & Ayers, 1992; Fordham & Stevenson-Hinde, 1999; Hartup, 1995; Helsen, Vollebergh, & Meeus, 2000; Uchino, Cacioppo & Kiecolt-Glaser, 1996). However, social relationships may be of particular importance during the formative years of adolescence (Barrera, 1986; Brown, 2004; Collins & Steinberg, 2008) and protect against psychosocial problems (Fordham & Stevenson-Hinde, 1999; Hartup, 1996; Helsen et al., 2000; Parker & Asher, 1993).

Prior research has found that friendship, an especially significant type of social relationship during adolescence, is beneficial for several reasons, such as increasing self-esteem (Fordham & Stevenson-Hinde, 1999), buffering against the risk of psychopathology (Bukowski, Hoza, & Boivin, 1994), and reducing loneliness and depression (Clark & Ayers, 1992; Jobe-Shields, Cohen, & Parra, 2011; Rubin, Bubowski, & Parker, 2006). Additionally, having at least one friend (Parker & Asher, 1993) and the size of one's social network (Hartup, 1996; Nangle, Erdley, Newman, Mason, & Carpenter, 2003) are protective against loneliness and social dissatisfaction.

Social relationships are also important for adolescents to successfully transition into adulthood. They are critical for adolescents to learn skills needed to form and maintain healthy and long-lasting relationships, which serve them throughout adulthood (Connolly, Furman, & Konarski, 2000; Hays, 1988). Friendships during adolescence help to develop social maturity (Youniss & Haynie, 1992). Through friendships, teenagers develop interpersonal skills, including, collaboration, perspective taking, empathy and altruism (Buhrmester & Furman, 1986; Hartup, 1992) that they carry through into their personal and professional relationships as adults.

Since positive social functioning is critical during this developmental period, it is important to understand the factors that may influence aspects of social functioning. One potentially important influence may be emotional awareness. Emotional awareness is a fundamental aspect of social and emotional competence (e.g., Ciarrochi et al., 2008; Kerr, Johnson, Gans, & Krumrine, 2004; Salovey, Mayer, Goldman, Turvey, & Palfai, 2002) and is defined as the ability to recognise, label and describe one's feelings (Ciarrochi et al., 2008). The complete lack of emotional awareness is termed alexithymia. Alexithymia

is a condition in which deficits in emotional recognition and understanding are clinically significant (Kerr et al., 2004; Salovey et al., 2002). Low emotional awareness has been theorized to underpin poor physical and psychological health (e.g., Taylor, Parker, Bagby, & Bourke, 1996), is associated with several clinical disorders (e.g., Bankier, Aigner, & Bach, 2001; Corcos et al., 2000; Cox, Swinson, Shulman, & Bourdeau, 1995) and plays an important role in the development of low levels of well-being (Ciarrochi et al., 2011).

### **Social Functioning and Emotional Awareness**

Past research has suggested that emotional awareness and social functioning may be related (e.g., Ciarrochi et al., 2008; Humphreys, Wood, & Parker, 2009; Lumley, Ovies, Stettner, Wehmer, & Lakey, 1996). Emotional awareness may be vital for the development and continuance of social relationships. For instance, poor emotional awareness is correlated with many interpersonal difficulties (e.g., Fitness, 2006; Lumley et al., 1996; Spitzer, Siebel-Jurges, Barnow, Grabe, & Freyberger, 2005). Research indicates that adults with difficulties in identifying and describing emotions had fewer acquaintances (Kauhanen, Kaplan, Julkunen, Wison, & Salonen, 1993), smaller social networks and fewer close relationships (Lumley et al., 1996; Posse, Hallstrom, & Backenroth-Ohsako, 2002), and were less likely to seek help from others when distressed (Carpenter & Addis, 2000). Poor emotional awareness is also correlated with less social sharing of emotions (Pennebaker, Zech, & Rime, 2001; Taylor, Bagby, & Parker, 1997) and difficulty regulating emotions in social situations (Spitzer et al., 2005). However, those with greater emotional awareness report more social support (Austin, Saklofske, & Egan, 2005; Ciarrochi, Scott, Deane, & Heaven, 2003a; Ciarrochi et al., 2008; Fukunishi,

& Rahe, 1995; Heaven, Ciarrochi, & Hurrell, 2010; Montes-Berges & Augusto, 2007), greater social competence and peer acceptance (Saarni, 1999). For those in romantic relationships, emotional awareness is associated with relationship quality (Foran & O’Leary, 2012), sexual satisfaction (Humphreys et al., 2009), and relational closeness (Hesse & Floyd, 2008).

Despite the research available on this association, this remains an under-developed area of study during adolescence and the links between many aspects of social functioning and emotional awareness have not been investigated adequately. For instance, few studies have examined this connection during adolescence. Additionally, the overwhelming majority of studies are cross sectional in design and therefore fail to consider the direction of the relationship between these constructs. Thus, there is a need for further research to clarify the strength and direction of the relationship between emotional awareness and social functioning, particularly during adolescence. This research may have important implications for improving socio-emotional skills and wellbeing and reducing risk of psychological distress and disorder for adolescents.

## **Aims**

This thesis aims to clarify the link between emotional awareness and social functioning during adolescence. First a systematic review of the current literature is conducted. Second, the association between emotional awareness and friendship during adolescence is explored in a correlational study over four years of adolescence. Finally, the direction of the relationship between emotional awareness and social support is assessed in a longitudinal study over three years of adolescence.

## **Chapter 2**

### **Social Functioning**

## **Introduction**

This chapter defines social functioning. It also looks at how social functioning develops and changes during adolescence. Finally, it examines research connecting social functioning to wellbeing and other outcomes. The aim of this chapter is to present a foundation for understanding this concept and why it is significant to study during adolescence.

Social functioning is a broad term that captures the extent to which a person is adjusted socially within the context of their current developmental stage. It can include many aspects of social wellbeing and relationships, such as, social support, relationships with family, friendships, and social competency. Establishing and maintaining positive social relationships is vital for health and wellbeing (Barrera, 1986; Fordham & Stevenson-Hinde, 1999; Hartup, 1992; Parker & Asher, 1993). While discussing several aspects of social functioning, this thesis focused primarily on two aspects: friendship and social support.

Throughout the lifetime, but particularly, during adolescence, friendships are one of the most important relationships (Hartup, 1992). Friendship can be defined as a mutual and voluntary relationship that offers intimacy and support, with the individuals in the friendship spending time with one another and exhibiting reciprocal mutual affection (Fehr, 1996; Hays, 1988). Friendships are a means of developing interpersonal skills, self-esteem, and self-identity, as well as protecting against detrimental consequences, such as internalizing problems (Buhrmester & Furman, 1986; Fordham & Stevenson-Hinde, 1999; Parker & Gottman, 1989). During adolescence, friendships are necessary

for social maturation (Youniss & Haynie, 1992) and aid in learning how to develop healthy, long-lasting relationships into adulthood (Connolly et al., 2000; Hays, 1988).

Social support refers to interpersonal coping resources in which an individual receives assistance from others. This often involves being supportive, understanding and protective of another individual (Hinson Langford, Bowsher, Maloney, & Lillis, 1997; Totterdell, Holman, Diamond, & Epitropaki, 1998). It has also been defined as both an individual's perception of supportive relationships and the existence of and quantity of interpersonal ties (Barrera, 1986). A social support network is the group of people who provide this assistance and security (Hinson Langford et al., 1997). Perceived social support, specifically, is an individual's perception of the helpfulness and efficacy of the support that they receive from their social support network (Lakey & Scoboria, 2005). Social support has been associated with positive health and wellbeing many times over (e.g., Cauce, Mason, Gonzales, Hiraga, & Liu, 1994; see Uchino et al., 1996 for a review).

### **Development of Social Functioning**

Social development occurs from an early age. From relationships with primary caregivers, infants and children learn the skills that enable them to relate to others (Bowlby, 1969, 1973). This early attachment to primary caregivers has lasting effects on later close relationships, because it creates a belief system about oneself and others (Bowlby, 1973). For instance, children learn expectations about whether others can be trusted and relied upon (Bowlby, 1969; Buckley & Saarni, 2006). Ideally, children learn the values, knowledge and skills to be effective in their society and culture through their relationships with others. Even though close relationships later in life can influence the

beliefs about self and other, the impact of these early relationships is considered critical for social development and is generally relatively stable (Bowlby, 1973).

As children get older, other relationships outside of the family, such as those with teachers and peers can further influence their social development. For instance, during middle childhood (around the age of 7-11 years), children become more involved in formal settings (e.g., school, sports) where they are introduced to new social roles and need to learn how to cooperate with others (Eccles, 1999; Erikson, 1968). From these new relationships, children develop their social awareness and social skills for relating to others and getting their needs met in socially appropriate ways. They learn about who they are and how they fit within their social world. If children are successful at developing their new social roles during this time, they can feel more socially competent. However, if they flounder during this time, a sense of social inferiority or incompetence can arise (Berger, 1988; Eccles, 1999). As age increases, these influences from outside the family become more and more important, with the influence of peers increasing substantially during adolescence (Eccles, 1999).

### **Relational Changes during Adolescence**

Several significant changes in relationships occur during adolescence. In early adolescence, young people individuate from family, become more independent, develop a more equal relationship with parents, and place increasing importance on peer relationships (Furman & Buhrmester, 1992; Helsen et al., 2000).

Relationships with peers are particularly important for adolescents (Youniss & Haynie, 1992). Adolescents' social development continues to be influenced by their relationship with parents but, peers become increasingly important and friends become

just as central as parents during adolescence (Eccles, 1999; Helsen et al., 2000).

Adolescents seek approval and acceptance by peers while at the same time they are trying to gain autonomy and independence from family (Caldwell & Peplau, 1982; Clark & Ayers, 1992). Adolescents start spending more time with peers and friendships become more intimate (Caldwell & Peplau, 1982; Clark & Ayers, 1992). During this time, friends serve as a baseline for social comparison and self-concept and are important agents for socialization (Clark & Ayers, 1992). They are a means of validating self-worth and assisting in the development of interpersonal confidence, self-esteem, and self-definition (Fordham & Stevenson-Hinde, 1999; Parker & Gottman, 1989). Friendship allows adolescents to satisfy their growing need for self-disclosure and intimacy while maintaining independence from family (Clark & Ayers, 1992). They also provide adolescents with the social context necessary to develop the interpersonal competencies of collaboration, perspective taking, empathy and altruism (Buhrmester & Furman, 1986; Hartup, 1992). Friendships help adolescents learn how to form and maintain satisfying and long-lasting relationships, which they will need for adult relationships (Connolly et al., 2000; Erikson, 1950; Hays, 1988).

Throughout adolescence, the relationship between child and parent develop into a more equal relationship (Sabatelli & Mazor, 1985). Perceived social support from parents either remains the same or decreases in adolescence, whereas support from peers increases during this time (Cauce et al., 1994; Furman and Buhrmester, 1992; Meeus, 1989). The main sources of social support change from childhood and throughout adolescence (Furman & Buhrmester, 1992). For example, in one study, children in fourth grade reported that their parents were their biggest supports, with same-sex friends rankly

fairly low. By seventh grade, parents and same-sex friends shared top spot for perceived social support, but in grade ten, friends held this spot alone (Furman & Buhrmester, 1992). However, another study indicates that despite a decline in perceived parental support and an increase in perceived support from friends, these supports become approximately equal during adolescence (Helsen et al., 2000). Relationships with parents are important throughout development, including adolescence, even if support from friends increase at this time (Helsen et al., 2000). Overall, relationships with parents remain an important source of support and peer friendships increasingly become an important source of support during adolescence (Helsen et al., 2000; Sabatelli & Mazor, 1985). In later adolescence, importance of friends decreases somewhat (Brown, Eicher, & Petrie, 1986) and this may be due to romantic relationships gaining importance (Helsen et al., 2000). Once in college, romantic relationships became equally supportive to relationships with family and friends for females, and most supportive for males (Furman & Buhrmester, 1992).

Support from parents correlated positively, but modestly, with support from friends (Helsen et al., 2000). However, support from parents appears to be most important for wellbeing and friends are likely not adequately able to compensate for lack of support from parents (Helsen et al., 2000). Finally, in addition to support from family and friends, many young people consider their teachers to be significant supports for them (Arnon, Shamai, & Ilatov, 2008).

There are several reasons why support from friends increases in importance during adolescence. For one, it may be due to the increased need for intimacy and validation from peers (Furman & Buhrmester, 1992). In adolescence, friends become a source

of intimacy, affection and validation, not just enjoyment and fun like in childhood (Leyden & Shale, 2012). The pubertal changes that occur during this stage increase the concern about physical appearance and sexuality, which may be discussed more easily with peers (Furman & Buhrmester, 1992). Emerging autonomy from family results in adolescents seeking out peers to fill the gap in the emotional support they need when becoming independent from parents (Blos, 1967). Also, during this time, interest in self-exploration and identity increase and finding peers to share these experience and common interests occur (Furman & Buhrmester, 1992; Gottman & Mettetal, 1986). Peer social networks help adolescents to develop their self-concept and identity (Leyden & Shale, 2012). Acceptance by peers is crucial and a central preoccupation of adolescents (Leyden & Shale, 2012) and thus a focus on these relationships over others occurs during this developmental phase.

### **Correlates of Social Functioning**

Social relationships are critical for good health and wellbeing, and protect against psychosocial problems (e.g., Clark & Ayers, 1992; Fordham & Stevenson-Hinde, 1999; Hartup, 1995; Helsen et al., 2000; Parker & Asher, 1993; Uchino et al., 1996). For instance, intimate relationships positively affect physical and mental health, such as lower blood pressure and stronger immune system (Kiecolt-Glaser & Newton, 2001) and greater life satisfaction (Nezlek, Richardson, Green, & Schatten- Jones, 2002).

Friendships protect against negative outcomes, such as loneliness, depression and other internalizing problems (Clark & Ayers, 1992; Fordham & Stevenson-Hinde, 1999). Quality of friendship, not only having friends, is important for wellbeing. For instance, individuals with friendships characterized by lower quality tend to have more socio-

emotional adjustment problems, including, low self-esteem, anxiety, depression, loneliness, and social dissatisfaction (Fordham & Stevenson-Hinde, 1999; Hartup, 1995; Parker & Asher, 1993). Also, friendship quality is predictive of quality in current and future romantic relationships (Connolly et al., 2000).

Social support has a positive impact on health and poor social support increases the risk of mental and physical health issues (Barrera, 1986). Social support is linked to many psychological wellbeing and physical health outcomes, such as; decreased depression (Buschmann & Hollinger, 1994; Coker et al., 2002), healthy coping and decreased anxiety (Steward, 1993), decreased suicide attempts (Coker et al., 2002), reduced loneliness (McAuley et al., 2000), reduced emotional difficulties (Helsen et al., 2000), increased self-esteem (Fordham & Stevenson-Hinde, 1999), and increased life satisfaction (Ducharme, 1994; Lambert, Lambert, Klipple, & Mewshaw, 1989; McAuley et al., 2000).

Positive relationships with parents is linked to social competence (Cauce, 1986), self-esteem (Blyth & Traeger, 1988), and general wellbeing (Greenberg, Siegel, & Leitch, 1983). Support from both family and peers is vital during adolescence, nonetheless, research has found parental support to be a better indicator of positive development than peer support (Barrera, Chassin, & Rogosch, 1993; Deković & Meeus, 1995; Greenberg et al., 1983; Nada Raja, McGee, & Stanton, 1992). The link between parental support and emotional wellbeing is stronger for girls than boys and weakens as adolescents get older (Helsen et al., 2000). There are mixed findings about the benefit of support from friends. Some studies suggest that support from peers and particularly, same-sex friends are beneficial for wellbeing (Hirsch & DuBois, 1992). However, others

find that peer social support predicts negative as well as positive behavioural outcomes (Wang & Eccles, 2012) and if adolescents don't get much support from parents, then those with greater support from friends reported more emotional problems (Helsen et al., 2000). This suggests that support from parents may be particularly important for wellbeing and increased support from friends may not compensate for lack of support from parents.

### **Gender Differences**

Even though social relationships are universally important, there are some significant differences in these relationships between boys and girls. Some studies have found no differences in social relationships in adolescence (Oliveri & Reiss, 1987; Shulman, 1993), while others have found several (e.g., Armsden & Greenberg, 1987; Furman & Buhrmester, 1992).

Despite friendships increasingly becoming more intimate for both genders during adolescence, there are some key differences between the friendships of girls and boys. For instance, females place more importance on intimacy than males (Crick, 1995). In same-sex friendships, females consistently report more intimacy and self-disclosure – sharing of secrets, problems, thoughts, feelings and giving/seeking advice than males (Clark & Ayers, 1992; Crockett, Losoff, & Petersen, 1984). Loyalty, intimacy and commitment are key features of female friendships, whereas male friendships tend to focus more on achievement, status, and activities (Berdt, 1981; Bigelow & La Gaipa, 1980; Buhrmester & Furman, 1987; Caldwell & Peplau, 1982). Girls also tend to be better able to develop supportive relationships with friends and receive more social support than boys (Armsden & Greenberg, 1987; Furman & Buhrmester, 1992).

Adolescent girls report greater quality and amount of social support than adolescent males (Ciarrochi & Heaven, 2008).

Girls and boys differ on the structure of their social networks. Boys tend to have more extensive social networks but these networks often contain more superficial relationships, whereas girls have more intensive friendships and hang out in smaller, more exclusive networks (Buhrmester & Furman, 1987; Berndt, 1982; Karweit & Hansell, 1983; Bryant, 1994; Vondra & Garbarino, 1988). However, this latter finding is not universal with other research suggesting that adolescent girls have larger social networks than boys (Coates, 1987). Girls generally engage in more unstructured activities, such as, talking and emotional sharing, whereas boys more often engage in structured activities, such as, games or sports (Caldwell & Peplau, 1982; Lever, 1978). Despite some of the differences, other research suggests that the genders do not differ on quantitatively aspects of friendship, such as, the number of friends and time spent with friends (Caldwell & Peplau, 1982).

Adolescents tend to be similar to their friends in terms of gender, race, school interests, aspirations, and achievement (Clark & Ayers, 1992; Cohen, 1997; Karweit & Hansell, 1983). Females select friends who are more similar to them on verbal achievement and several personality dimensions, whereas males are more similar to their male friends in status (Clark & Ayers, 1992). Girls also tend to be more similar to their friends in values, attitudes, personality, and behaviours than boys (Cohen, 1977; Clark & Ayers, 1992). Both genders spend more of their time with same-sex friends as opposed to opposite-sex friends (Caldwell & Peplau, 1982). However, relationships with the other

gender become increasingly important during adolescence (Buhrmester & Furman, 1987).

## **Conclusions**

Social functioning is important for many reasons, such as improved health and wellbeing. Adolescence is a time in which social relationships and wellbeing are particularly important and protective. Thus, it is imperative to study the influence of other constructs, such as emotional awareness, on social functioning to work to improve social and psychological wellbeing. A discussion of the connection between social functioning and emotional awareness is presented in Chapter 4, with the following chapter first providing an overview of emotional awareness.

## **Chapter 3**

### **Emotional Awareness**

## **Introduction**

This chapter defines emotional awareness and discusses the importance of it in relation to emotional competence and regulation. It will then describe how emotional awareness skills develop in early life. Research on the association between emotional awareness and health and wellbeing are reviewed. The development and correlates of emotional awareness are provided to paint the picture of what it is and why it is an important construct to study, particularly during adolescence. Finally, a discussion of a predominant measure of emotional awareness will follow.

Emotional awareness is the ability to identify and describe one's emotions (Ciarrochi et al., 2008). It is a primary skill of emotional competence (Buckley & Saarni, 2006; Saarni, 1999), emotional intelligence (Ciarrochi, Forgas, & Mayer, 2006; Mayer, Salovey, & Caruso, 2004; Salovey et al., 2002) and emotion regulation (Gratz & Roemer, 2004; Lumley, Gustavson, Partridge, & Labouvie-Vief, 2005).

Emotional awareness has been studied for several decades and has been labelled with a variety of different names including *alexithymia* (Heaven et al., 2010; Kerr et al., 2004), *emotional perception* (Ciarrochi, Chan, & Bajgar, 2001), *emotion identification skill* (Ciarrochi et al., 2008), and *mood labelling* (Swinkels & Giuliano, 1995). Although, the labels have been different, the construct itself remains the same. For the purpose of this dissertation, emotional awareness will be used as the label for this construct.

## **Alexithymia**

The inability to recognize and comprehend one's emotions is called alexithymia (Kerr et al., 2004; Salovey et al., 2002). Sifneos (1973) first introduced the concept of alexithymia to identify those who have difficulty identifying and describing one's

emotions. The literal translation of alexithymia is having a complete lack of words for feelings. Alexithymia can be conceptually understood as a lack of emotional awareness and recognition (Kerr et al., 2004) and the opposite of emotional intelligence (Dawda & Hart, 2000; Salovey et al., 2002). Not only do alexithymic individuals have difficulty accurately identifying, reflecting and regulating their emotions, but they also communicate their distress to others poorly which results in failure to elicit support and assistance from others (Taylor, 2000).

The features of alexithymia reflect deficits in cognitive processing of emotions and in the interpersonal regulation of emotion. Specifically, somatic sensations that are correlated with emotional arousal are not strongly tied to words or images for those high in alexithymia (Taylor & Bagby, 2004). For instance, Suslow and Junghanns (2002) found that alexithymia was negatively associated with emotion situation priming. Those high on alexithymia showed a delay in making lexical decisions about emotion words after being primed by an associated emotional situation as compared to an unrelated situation. This suggests that emotion-schemas are not well assimilated for highly alexithymic individuals.

### **Emotion Regulation**

Emotional awareness is an important part of emotion regulation (Salovey et al., 2002). It is a foundational skill necessary for the development of other emotion regulation skills (Ciarrochi et al., 2011; Gratz & Roemer, 2004; Lumley et al., 2005). It is necessary to comprehend one's emotions before one can effectively manage and communicate the emotion to others and behave in an appropriate manner (Leyden & Shale, 2012). Without the ability to recognize and describe one's emotions, individuals may become

overwhelmed by their emotions, making it difficult to act upon them in a meaningful way. They may feel confused and unable to cope and thus attempt to avoid their emotions further and develop avoidance behaviours, such as alcohol consumption or overeating (Kerr et al., 2004).

Development of emotion regulation skills is a slow process that begins in infancy and continues through adolescence. In adolescence, maturation of brain regions and associated cognitive abilities assist in the maturation of emotion regulation, thus, developing emotional self-regulation skills (Lewis & Stieben, 2004; McRae et al., 2012).

Regulation of emotions, thoughts, and behaviours is critical for social competence and cognitive processing (see Fox, 1994 for a review). Emotion regulation leads to positive outcomes for adolescents, such as, a healthier lifestyle, more satisfying relationships, less psychopathology and greater academic achievement (Larsen, 2011; Tangney, Baumeister, & Boone, 2004). Emotion regulation also influences social support processes, relationship quality, health and wellbeing in adulthood (Fabes & Eisenberg, 1997; Repetti, Taylor, & Seeman, 2002). Emotion regulation difficulties or dysregulation is associated with many clinical disorders, such as, substance abuse (Hayes, Wilson, Gifford, Follette, & Stroschl, 1996), chronic worry and generalized anxiety disorder (Salters-Pedneault, Roemer, Tull, Rucker, & Mennin, 2006), depression (Rude & McCarthy, 2003), panic disorder (Baker, Holloway, Thomas, Thomas, & Owens, 2004), posttraumatic stress disorder (Cloitre, Scarvalone, & Difede, 1997), self-harm and borderline personality disorder (Linehan, 1993).

### **Development of Emotional Awareness**

Emotional competence is a broad concept defined as the emotion regulation skills that are needed to successfully cope and adapt in our environment and social world. It develops over time as a result of ongoing exchanges between an individual and their environment (Buckley & Saarni, 2006). These skills include awareness of one's emotional state, emotional vocabulary and expressing one's emotions in terms that are common in one's subculture. These are learned and influenced by parents, peers, media, and other aspects of one's environment (Buckley & Saarni, 2006; Saarni, 2000). Individual factors, such as temperament and cognitive development also influence emotional functioning. Social factors, such as past social experiences, relationship history, and an individual's values and beliefs system influence emotional competence as well. Therefore, emotional experience is created by a combination of social and cognitive factors (Buckley & Saarni, 2006).

Children's early emotional life is predominantly developed within the context of an attachment relationship with their caregiver. Emotion regulation skills, such as emotion schemas and imagination are influenced by the attachment experiences that occur in early childhood (Cassidy, 1994). These skills are more likely to be developed in secure attachment relationships (Taylor & Bagby, 2004). In fact, alexithymia has been associated with insecure attachment, specifically both avoidant/dismissing style and preoccupied/fearful styles (Troisi, D'Argenio, Peracchio, & Petti, 2001). A cycle of reciprocal interactions occur when an infant seeks attention through behaviours such as, crying or smiling, and the caregiver reacts consistently and warmly to these cues. This cycle repeats many times throughout an infant's development. The infant will develop a secure attachment if this cycle continues and thus will view others as trustworthy and the

world as a safe place. Additionally, they will learn about their own and others' emotions and how to appropriately regulate them. However, sometimes the caregiver cannot adequately respond to the infant, which in turn breaks the reciprocal interaction cycle. The infant may then develop an insecure attachment to their caregiver and therefore see the world as a dangerous place, not trust that others will be there for them when they need it, and have difficulty understanding and regulating their emotions (Buckley & Saarni, 2006). This can occur due to a number of factors including if the caregiver is depressed, emotionally unskilled, abusive, or neglectful, or the child has a difficult temperament. Attachment relationships between child and caregiver establish the base for developing emotional skills and expectations in social relationships in the future (Buckley & Saarni, 2006).

Parental "philosophy" about emotions influences children's emotional development. For instance, parents' emotion-coaching meta-emotion philosophy may affect their children's emotional development. Specifically, children whose parents emotionally coach them are better able to self-soothe, regulate negative emotions and focus their attention (Gottman, Katz, & Hooven, 1996). There were five components to parental meta-emotion philosophy: (1) awareness of their own and their children's low intensity emotions; (2) view that child's negative emotions are an opportunity for education and intimacy; (3) validation of child's feelings; (4) assisting their child in the verbal expression of feelings; and (5) discussion and problem solving with child about situations that lead to negative emotions (Gottman et al., 1996).

In a longitudinal study, emotion-coached children were found to be more socially appropriate, had discerning behaviour in interpersonal situations, a heightened sense of

awareness of their own emotions, greater ability to self-regulate when distressed, and were better ability to focus on relevant information in difficult peer interactions when compared to children without emotion-coaching from their parents (Gottman et al., 1996). According to Gottman and colleagues (1996), discussing negative emotions while experiencing them may result in a greater sense of control and acceptance of negative emotions and greater control of physiological reactions. This suggests that children, whose parents avoid negative emotions, invalidate their emotions and do not facilitate understanding and expression of emotions may be disconnected from their emotions, unable to identify them accurately, and not know how to deal with their feelings appropriately (Ciarrochi et al., 2008; Gottman et al., 1996).

### **Aetiology of Poor Emotional Awareness**

In the above section, normal development of emotional awareness and regulation was described. In this section, potential causes of poor emotional awareness are outlined. Clinically low levels of emotional awareness can stem from psychosocial issues (e.g., dysfunctional relationships, insecure attachment or abuse; Berenbaum, 1996; Krystal, 1988; Troisi et al., 2001) or be due to a disorder with a neurological or physical basis (e.g., from a brain injury or biological development problem; Larsen, Brand, Bermonds, & Hijman, 2003; Taylor & Bagby, 2004).

#### **Psychosocial factors.**

Differences in the emotional awareness between individuals may be influenced by several psychosocial factors. For example, psychological trauma or abuse in early childhood impacts neuro-development and can lead to low emotional awareness (Krystal, 1988; Taylor & Bagby, 2004). Second, the failure of caregivers to accurately show their

affective states may influence the development of deficits in emotional awareness (Reckling & Buirski, 1996). Lastly, to a certain degree, an upbringing that teaches children that certain emotions are *bad* and to be avoided can lead to low emotional awareness (Gottman et al., 1996).

Krystal (1988) proposed that alexithymia might be a consequence of early life psychic trauma. Research has shown support for such a proposition. For instance, Berenbaum (1996) found that abuse in childhood was significantly associated with alexithymia in adulthood. However, this correlation has been met with inconsistency across studies and the results may be influenced by the age of the child when the abuse occurred, duration of abuse, and whether the child developed post traumatic stress disorder from the abuse (Taylor & Bagby, 2004).

Reckling and Buirski (1996) suggest that impairment in affect regulation and integration is a result of extreme failures in emotion regulation both at the time and after the abuse. A number of emotional and dissociative disturbances may result for children of abuse, including, alexithymia, psychic numbing, low self-esteem, increased pain affect, and increased aggression. Stolorow and Atwood (1992) indicate that the disturbance in affect regulation may be due to a two-stage failure of mutual regulation between caregiver and child when abuse occurs. First, the act of abuse breaks the standard caregiver-child relationship. Second, the failure to respond to the emotional distress caused by the abuse compounds this incongruity. Children who are victims of abuse tend to not have caregivers who accurately and sensitively express their emotions or assist in the regulation of the child's emotions. The lack of affect regulation after trauma results in affective disturbances, in particular, alexithymia (Reckling & Buiski, 1996).

Overall, these studies indicate that social factors, such as parenting philosophy, childhood abuse, and caregiver's lack of appropriate and sensitive response to the child's distress may influence the development of poor emotional awareness.

### **Neurobiological factors.**

There are also other causes of deficits in emotional awareness, particularly neurobiological factors. For instance, biogenic alexithymia is caused by abnormalities in the structure of the brain, including; brain injury, lack of oxygen to the brain during birth, or exposure to toxins. These abnormalities may be genetic or due to inadequate brain development during birth or childhood.

For over 30 years, researchers have speculated that alexithymia may be attributed to neurobiological dysfunction (Taylor & Bagby, 2004). Several studies have found evidence for this. Three main models have been proposed (Larsen et al., 2003): (1) alexithymia results from a deficit in interhemispheric communication due to corpus callosum dysfunction (e.g., Houtveen, Bermond, & Elton, 1997; Parker, Keightley, Smith, & Taylor, 1999), (2) alexithymia stems from dysfunction of the right cerebral hemisphere (e.g., Jessimer & Markham, 1997; Parker, Taylor, & Bagby, 1993), and (3) alexithymia is a consequence of dysfunction mechanisms in the frontal cortex (e.g., Davidson, Ekman, Saron, Senulis, & Friesen, 1990). The interested reader is encouraged to read the review of neurobiological studies on alexithymia by Larsen et al (2003).

### **Correlates of Emotional Awareness**

Poor emotional awareness is associated with a wide range of negative health and wellbeing correlates (e.g., Bankier et al., 2001; Jula, Salminen, & Saarijarvi, 1999; Parker, Taylor, & Bagby, 1998). It has also been inversely linked with education, income,

and occupational status (Kauhanen et al., 1993; Kokkonen et al., 2001). The following is a brief overview of the negative health and wellbeing correlates of low emotional awareness. These correlates are provided to highlight how connected emotional awareness is to many aspects of health and wellbeing.

### **Psychosomatic diseases.**

Studies have found that rates of alexithymia were higher in men and women suffering from hypertension than those in control groups (Jula et al., 1999; Todarello, Taylor, Parker, & Fanelli, 1995). Additionally, in a study on irritable bowel disease (IBD), 35.7% of patients with IBD were alexithymic, compared a rate of only 4.5% of alexithymia in the control group (Porcelli, Zaka, Leoci, Centonze, & Talyor, 1995).

### **Eating disorders.**

Several studies have found a link between low emotional awareness and eating disorders (Corcos et al., 2000; Mazzeo & Espelage, 2002; Taylor et al., 1996; Wheeler, Greiner, & Boulton, 2005; Zonneville-Bender et al., 2004). For instance, Taylor and colleagues (1996) found that females suffering from anorexia nervosa were less able to identify and communicate emotions than a healthy comparison group. A study comparing non-hospitalised women with eating disorders to healthy controls found similar results with rates of alexithymia being significantly higher in those suffering from the eating disorders (Corcos et al., 2000). Finally, alexithymia was found to partially mediate the association between childhood abuse and later disordered eating in college women (Mazzeo & Espelage, 2002).

### **Depression.**

Alexithymia, or low levels of emotional awareness, has been correlated with depression and low life satisfaction (e.g., Bankier et al., 2001; Honkalampi, Hintikka, Tanskanen, Lehtonen, & Viinamaki, 2000; Posse et al., 2002; Taylor & Bagby, 2004; Wheeler et al., 2005). Additionally, in females with eating disorders, alexithymia was significantly correlated with depression (Corcos et al., 2000).

### **Coping style.**

Alexithymia is negatively associated with healthy coping styles (e.g., task-oriented coping) and positively associated with more ineffective coping styles (e.g., emotion-oriented coping and avoidance-oriented coping) when faced with emotional distress (Parker et al., 1998). This finding indicates that there is a reduced capacity to reflect on stressful experiences and alter one's emotional states by way of cognitive strategies. These findings suggest that individuals with deficits in emotional awareness tend to develop somatic symptoms or use oral behaviours or avoidance to cope with distressing emotions. Alexithymia has also been observed in psychiatric outpatients who rarely employ adaptive coping styles (e.g., seeking support, paying attention to uncomfortable feelings) and have maladaptive styles of emotion regulation (e.g., binge eating, physical symptoms; Taylor, 2000).

### **Personality.**

Alexithymia is a personality trait that is unique from other personality traits but does have some similarities to other traits (Wise, Mann, & Shay, 1992). Wise et al (1992) determined that when controlling for depression, alexithymia was predicted by neuroticism, introversion, and low openness. Since these personality constructs only

provide partial predictive ability of alexithymia, this suggests that alexithymia is a unique personality construct that describes people who are unable to identify and report their emotions and are more socially introverted, less organized, and less motivated (Wise et al., 1992).

Clinically low levels of emotional awareness have also been associated with a number of other negative behaviours and detrimental wellbeing outcomes. For instance, it has been found to mediate the relationship between childhood maltreatment (specifically physical and emotional abuse, physical and emotional neglect, but not sexual abuse) and self-injury behaviours in college women (Paivio & McCulloch, 2004). It is also inversely associated with college adjustment (Kerr et al., 2004) and mediates the association between relational health and psychological distress in college women (Liang & West, 2011). Additionally, one study found that substance abusers report having deficits in emotion processing, but did not perform as if they did (Lindsay & Ciarrochi, 2009). Finally, low levels of emotional awareness have been found in those suffering from somatoform disorders (Bankier et al, 2001; Cox et al., 1994) and chronic pain (Cox et al., 1994).

### **Gender Differences**

Some research has found gender differences in emotional awareness, with males often scoring lower than females in clinical and nonclinical samples (e.g., Kokkonen et al., 2001). A meta-analysis of 42 studies (33 nonclinical and 9 clinical populations), using a variety of measures found that males consistently score higher on alexithymia than females (Levant, Hall, Williams, & Hasan, 2009). Levant and Kopecky (1995) found deficits were greatest in the men's ability to identify and express emotions that gave a

sense of vulnerability or attachment. Therefore, it may only be certain emotions that males had a harder time differentiating and describing. Interestingly, gender differences have not always been found (e.g., Ciarrochi et al., 2008).

Societal pressures and traditional masculinity ideology may be at the root of this gender difference in emotional awareness. For instance, Levant (1992) theorised that men who have difficulty expressing emotions may have been discouraged from and possibly punished if they expressed emotions when they were young. Therefore this may have resulted in them not developing the words for expressing emotions nor the awareness of them. Also, boys who were raised with traditional beliefs about masculinity are expected to become men who conform to stereotypical male roles (Levant, 1992; Levant et al., 2003). Restricting emotional expression, especially vulnerability, is a normative male role requirement (Levant, 1992). Levant (1992) suggests that it is these societal pressures rather than biological causes of low emotional awareness and restricted emotional expression in men. For instance, Levant (1998) found that in fact boys were more emotionally verbally expressive than girls at the age of two years, but had less facial expressivity at age six. This suggests that this change may be due to the socialisation of gender-appropriate behaviours, which may be underlying the gender differences in emotional expression. Since this change in emotional expression is evident at an early age and research generally indicates that males are less emotionally aware than females, it is important to investigate the possible difference in emotional awareness between the genders during the developmental phase of adolescence. This will be examined in the two empirical studies in Chapter 6 and Chapter 7 of this dissertation.

## **Measuring Emotional Awareness: The Toronto Alexithymia Scale**

Emotional awareness has been examined using a number of measures, such as the Levels of Emotional Awareness Scale (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990), the Bermond-Vorst Alexithymia Questionnaire (Bermond & Vorst, 1998) and the Toronto Alexithymia Scale (Bagby et al., 1994a; 1994b). The 20-item Toronto Alexithymia Scale (*TAS-20*; Bagby et al., 1994; Bagby, Taylor, & Parker, 1994) is an extensively used measure of emotional awareness (Parker, Eastabrook, Keefer, & Wood, 2010). It is a self-report measure that assesses three factors: (1) difficulty identifying feelings, (2) difficulty describing feelings, and (3) externally-oriented thinking. The first two factors measure an individual's meta-emotion ability that involves understanding, labelling and describing their emotions. The third factor evaluates an individual's thinking style (Lundh, Johnsson, Sundqvist, & Olsson, 2002).

In adult samples, the TAS-20 is the most widely used measure of emotional awareness and has been validated in many adult samples (Parker et al., 2010). It has been found to be reliable and factorially valid in many different countries and languages (Taylor et al., 2003). Past research also indicates that the TAS-20 has strong internal consistency (Bagby et al., 2004) and reliability (Taylor, Parker & Bagby, 2003).

The TAS-20 is one of the principal measures that has been used to assess emotional awareness during adolescence (see Parker et al., 2010). Since it is a self-report measure, it is a good option for investigating subjective appraisal of an individual's ability to understand his or her own emotions. Despite the TAS-20 being commonly used within adolescent samples and the most used measure of emotional awareness in adult samples, there are some limitations to its use with adolescents. For one, internal

consistency, particularly of the external-oriented thinking factor, has been found to be suboptimal in adolescent samples (e.g., Sakkinen, Kaltiala-Heino, Ranta, Haataja, & Joukamaa, 2007; Zimmerman et al., 2007).

Reliability of the measure in younger adolescents is an issue as well (Parker et al., 2010; Sakkinen et al., 2007). Also, the third factor, externally oriented thinking, has been found to be unreliable in adolescent samples (Rieffe, Oosterveld, & Terwogt, 2006). Even though the three-factor structure was the best fit in adolescents as well as adults, five of the items from factor three's (externally oriented thinking) subscale had nonsignificant factor loadings and didn't contribute meaningfully to the measure (Sakkinen et al., 2007).

Parker et al. (2010) indicate that the TAS-20 may have less than satisfactory psychometric characteristics within adolescent samples. They suggest that reading ability, language and cognitive skills may confound the results, especially in the younger years of adolescence (13-14 year olds). These may influence the adolescent's ability to accurately answer self-reported questions. Some of these issues are not unique to the TAS-20 and are problematic with many self-report measures (Parker et al., 2010).

Some studies have used a shorter version of the TAS-20, the TAS-12 to assess emotional awareness (e.g., Ciarrochi et al., 2002; 2003b; 2008; Heaven et al., 2010). The TAS-12 uses only the first and second factors: difficulty identifying and describing one's emotions. These two factors fall within the same psychometric space and are highly inter-correlated, whereas factor 3, externally oriented thinking, has been found to be only weakly correlated with factors 1 and 2 (Gohm & Clore, 2000). In past research, the TAS-

12 has been a valid and reliable measure of emotional awareness in adolescence. It has also been found to be coherent and internally consistent within adolescent samples (Ciarrochi et al., 2002; 2003b; 2008; Heaven et al., 2010). Finally, it is also distinguishable from related traits, including positive and negative affect, self-esteem and hope (Heaven et al., 2010). Despite these studies indicating that the TAS-12 may be a suitable measure during adolescence, further evaluation of the psychometric properties of it is necessary. Also, caution should be taken when interpreting results of studies examining the TAS-20 or TAS-12 in adolescent samples due to the potential confounding factors mentioned above.

## **Conclusions**

From the research provided above, it is evident that emotional awareness is highly connected to many health and wellbeing outcomes. It is also a critical, foundational skill of emotion regulation that allows for the development of more complex emotional skills. Therefore, emotional awareness is an important construct to understand in more depth. The following chapter continues the discussion of the significance of emotional awareness, in the context of social functioning. It presents an understanding of the interconnectedness of emotional awareness and social functioning throughout development as well as a summary of the social correlates of emotional awareness.

## **Chapter 4**

### **Emotional Awareness and Social Functioning**

## **Introduction**

This chapter presents the connection between emotional awareness and social functioning. It begins with a discussion of the link between these constructs in early life and then follows with a summary of the social correlates of emotional awareness. This provides a foundation on which a critical review of the adolescent literature (Chapter 5) and two subsequent empirical studies (Chapter 6 and Chapter 7) are based.

Research suggests that emotional awareness is critical for the development and maintenance of interpersonal relationships (e.g., Fitness, 2006; Spitzer et al., 2005). The connection between emotional awareness and social functioning begins when children are young (e.g., Garner & Estep, 2001; Gottman et al., 1996) and continues into adulthood (e.g., Lumley et al., 1996; Pennebaker et al., 2001; Taylor, Bagby, & Parker, 1997).

## **The Early Years**

As discussed in the previous chapter, emotional awareness, along with other emotion regulation skills, begins to be developed within an infant's attachment relationship with their primary caregiver (Cassidy, 1994; Taylor & Bagby, 2004). Through interactions with parents, children develop their basic emotion regulation skills and expectations of how others will respond to them (Buckley & Saarni, 2006). As children get older, relationships with others continue to influence emotional development. For instance, parents, teachers and peers can influence emotional awareness and regulation skills through a variety of ways, including: modelling, setting rules and boundaries, providing safety and security to explore emotions, providing acceptance of emotions (their own and others'), discussion of emotions and explicit teaching of

emotional skills, providing validation, support and warmth and acceptance of emotions (Leyden & Shale, 2012).

At the beginning of life, close relationships are highly influential in the development of emotional skills, including emotional awareness. In turn, these emotional skills quickly become influential for social functioning. For instance, children with parents who helped them learn skills such as awareness, self-soothing, and regulating emotions during their early lives are not only more emotionally aware but also behave more socially appropriately (Gottman et al., 1996).

From an early age emotional competency is important for social success. These emotional skills in early life provide children with the skills to successfully interact with others and navigate social situations. For example, research has found that emotional competency in pre-schoolers (ages 3-4) contributed to their current (Denham, Blair, Schmidt, & DeMulder, 2002) and later social competency (ages 5 to 6, Denham et al., 2003). Similarly, Garner and Estep (2001) found that emotional competence was related to peer-related social competence in pre-schoolers. The children's ability to explain the causes and consequences of emotions predicted positive social outcomes.

Children who have knowledge of and control over the expression of their emotions may have an easier time relating and interacting with others. There is research in support of this idea. Children who were skilful at understanding expressive and situational emotional signs were liked by peers more so than less skilful children (Denham, McKinley, Couchoud, & Holt, 1990). Sroufe and colleagues (1984; as cited in Garner & Estep, 2001) found that popular children appear to regulate their emotional expression with peers more easily than their less popular peers. Moreover, children who

are emotionally knowledgeable indicate that they have more positive interactions with their peers than their less emotionally knowledgeable peers (Garner, 1996).

Management of emotions is important for social competency and is linked to better relationships with peers and teachers (Graziano, Reavis, Keane, & Calkins, 2007). For instance, the level of positive emotion expressed (which shows emotional management skills) by pre-schoolers was positively related to social interactions (Garner & Estep, 2001). This is consistent with previous research that found the ability to express feelings (own and others') was a significant factor of positive peer interactions for young children (Youngblade & Dunn, 1995). Additionally, children who have difficulty managing their emotions tend to respond more inappropriately in intense and negative peer interactions (Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994).

The ability to identify and understand one's own emotions can help children to appreciate and understand others' emotions. This can help to build empathy and positive relationships with others. Additionally, understanding one's own emotions can aid children in the development of other emotion regulation skills to deal with their emotions in healthy and adaptive ways (Leyden & Shale, 2012). Awareness of emotions is the first essential step in emotion regulation: you need to understand what you are feeling before you can appropriately and effectively manage your emotions and subsequent behaviour. If children can understand and articulate their feelings, then they will be more able to manage and communicate these to others (Leyden & Shale, 2012).

### **Correlations between Emotional Awareness and Social Functioning**

The association between emotional awareness and many aspects of social functioning has been studied in the years beyond childhood, including adolescence and

adulthood. Emotional awareness has been correlated with healthy attachment, social support, marital status, social contact, nonverbal behaviour, interpersonal success and romantic relationship satisfaction (e.g., Ciarrochi et al., 2008; Humphreys et al., 2009; Kokkonen et al., 2001; Troisi et al., 2001). The following highlight some of the main findings. For a more thorough review of the literature focused on adolescent and adult research, please refer to Table 4.1. This section, along with Table 4.1, provides a summary of the social correlates of emotional awareness. However, the focus of this dissertation is on the social correlates of emotional awareness specifically during adolescence. Therefore, after gaining an understanding of the current literature from this chapter, the next chapter provides a systematic and critical review of the relevant adolescent research.

### **Attachment.**

Given the influence of early attachment relationships to the development of emotional awareness skills, it isn't surprising that several studies have found alexithymia being linked to more insecure attachment styles (e.g., Montebanocci, Codispoti, Baldaro, & Rossi, 2004; Mallinckrodt & Wei, 2005; Spitzer et al., 2005; Troisi et al., 2001). Specifically, it has been linked to insecure attachment in childhood and adulthood.

Alexithymia has been linked to retrospective insecure attachment (Troisi et al., 2001). Also, in an undergraduate sample ( $n = 301$ ), alexithymia was positively correlated with the need for approval from others ( $r = .41, p < .01$ ) and discomfort with closeness ( $r = .35, p < .01$ , Montebanocci et al, 2004). Finally, in another sample of undergraduates, emotional awareness was negatively related to anxious ( $r = -.29, p < .01$ ) and avoidant attachment ( $r = -.26, p < .01$ , Mallinckrodt & Wei, 2005).

### **Social support.**

Emotional awareness has been correlated with social support in many studies (e.g., Ciarrochi et al., 2008; Lumley et al., 1996; Mallinckrodt & Wei, 2005; Posse et al., 2002). For instance, deficits in identifying and communicating one's feelings were related to less perceived social support and smaller social networks across several samples and independent of general mood or positive and negative affect (Lumley et al., 1996). Furthermore, individuals with difficulty communicating their feelings specifically had fewer close relationships (smaller social support network) compared to those with less difficulty communicating their feelings. Difficulty describing one's feelings only hindered relationships that require interpersonal skills to develop and maintain, and had no impact on relationships that were predetermined or independent of one's personality, such as family size. Given this finding, Lumley et al (1996) suggest that adults with low emotional awareness may have smaller social support networks because of reduced social skills. Interestingly, difficulty identifying feelings was associated with perceived social support, but unrelated to network variables. Since perceived ability to identify feelings is quite subjective it may have influenced perceived social support (a subject measure) more so than social network (an objective measure; Lumley et al., 1996).

In a sample of adult females, alexithymic individuals were 3.5 times more likely to have low levels of social support and 2.6 times less likely to have someone to turn to for support when compared with non-alexithymic individuals. However, social support had a beneficial effect on alexithymic individuals for social disability and functioning (Posse et al., 2002).

In a one-year longitudinal study, Ciarrochi et al (2008) determined that emotional awareness led to an increase in social support in early adolescence. Specifically, emotional awareness was associated with increases in quality and quantity of social support. This finding provides support for the argument that emotional awareness influences social support rather than social support influencing emotional awareness. Overall, these findings suggest a consistent association between emotional awareness and social support.

### **Interpersonal interactions.**

Not only do individuals with low emotional awareness struggle with getting adequate social support, but they also struggle with interpersonal behaviour and interactions. Difficulty identifying and describing feelings has been associated with poor nonverbal expression and behaviours indicative of anxiety and tension (Troisi et al., 2001). These nonverbal deficits may be a key link to explain the interpersonal difficulties of alexithymic individuals.

Alexithymia is associated with interpersonal difficulties, with difficulty describing emotions having the strongest association with interpersonal difficulties (Spitzer et al., 2005). Interpersonal interactions of high-alexithymic individuals tended to be hostile and avoidant. Their interpersonal style can be characterized as cold and socially avoidant. Also, alexithymia has been associated with impairments in the capacity to regulate emotions within social interactions (Spitzer et al., 2005).

In samples of mental health outpatients and undergraduate students, alexithymia was found to be related to two interpersonal problems: low levels of affection and connection with others (cold/distant) and difficulty coping with social challenges and

asserting needs (non-assertive social functioning, Vanheule, Desmet, Rosseel, Verhaeghe, & Meganck, 2007). Furthermore, in a Swedish study, alexithymia was tied to intimacy avoidance (Weinryb et al., 1996). Finally, adults low in emotional awareness engage in less social sharing of emotions, especially during negative events (Pennebaker et al., 2001; Taylor et al., 1997).

### **Relationships with others.**

Low emotional awareness is associated with fewer social contacts and relationships. In a sample of middle-aged men, reduced ability to verbally express emotions was associated with low levels of social contact, few acquaintances and being unmarried (Kauhanen et al., 1993). Kokkonen et al (2001) concluded similar finding: alexithymia was more prevalent among unmarried participants and those with poor social circumstances. However, not all studies have found negative associations between poor emotional awareness and social contacts. In a Spanish adolescent sample, no association was found between perceiving one's own and others' emotions and peer-nominated friendship (Mestre, Rocio, Lopes, Salovey, & Gil-Olarte, 2006).

### **Romantic relationships.**

Emotional skills, including emotional awareness, are critical factors for determining the quality of romantic partnerships and marital adjustment (Meeks, Hendrick, & Hendrick, 1998; Wachs & Cordova, 2007). They influence self-disclosure, the ability to take another's perspective and relational competence, which are important for a successful relationship (Meeks et al., 1998). Therefore, it isn't surprising that emotional awareness has been tied to marital quality (Wachs & Cordova, 2007), marital

health (Gottman, Katz, & Hooven, 1997) and romantic relationship satisfaction (Meeks et al., 1998; Humphreys et al., 2009).

Understanding of one's own and others' emotions are important for the quality of romantic relationships. Alexithymia was found to have a moderately negative relationship with overall relationship satisfaction and sexual satisfaction in undergraduates' romantic relationships (Humphreys et al., 2009). The inability to clearly express emotions and expressing confusing or unclear emotions are correlated with marital distress (Gottman et al., 1997). Also, the ability to identify emotions and decode positive and negative emotions by both partners in a relationship is associated with marital happiness (Koerner & Fitzpatrick, 2002).

Emotional clarity, the ability to comprehend and reason about emotions, was an important factor in marital forgiveness and marital satisfaction. Specifically, individuals with greater emotional clarity reported less difficulty in forgiving their partners and greater marital happiness (Fitness, 2001). Awareness and clear emotional expression decreases the likelihood of misunderstanding in partnerships (Fitness, 2006).

### **Conclusions and Hypotheses**

From the literature presented above and in Table 4.1, it is apparent that emotional awareness is positively correlated with a broad range of aspects of social functioning over a wide range of ages. Despite the majority of the research indicating that emotional awareness has a significant positive relationship with social functioning, there are substantial gaps in the understanding of this relationship. For instance, the overwhelming

Table 4.1

*Study Details, Design and Findings of Studies Assessing the Connection Between Emotional Awareness and Social Functioning*

Author (year)	Study design	Sample	Characteristics of participants (sample, age, sex)	Type of social functioning	Emotional awareness measures	Social functioning measures	Findings
Berger et al. (2014)	Cross- sectional	Adolescents	n = 56 females 12-17 years American	Interpersonal problems: Interpersonal deficits and role disputes	Self-report: -Toronto Alexithymia Scale-20 (TAS-20)	Self-report: -Interview with interpersonal inventory and interpersonal goals	Girls with interpersonal deficits scored higher on the TAS-20 than girls with role disputes ( $t(54) = 2.41^*$ ) Trend towards girls with interpersonal deficits scoring higher on the DIF than girls with role disputes ( $t(54) = 1.94^{\wedge}$ ) No difference was found for DDF between youth with interpersonal deficits and role disputes
Berenbaum & James (1994)	Cross- sectional	Emerging adults	Study 1: n = 183 (52.5% males & 47.5% females) M = 19.0 SD = 1.0	Perceived retrospective family environment during childhood	Self-report: -TAS-20 -TAS-28	Self-report: -Expressiveness Subscale of the Family Environment Scale -Childhood Experiences Questionnaire	Study 1: Diminished family expressiveness predicted DIF ( $B = .30^{***}$ ) Diminished emotional safety predicted DIF ( $B = .16^*$ ) and DDF ( $B = .15^*$ )
	Retrospective		Study 2: n = 180 (males & 60.9% females, 6 didn't specify) M = 20.1 SD = 1.3 College students at the University of Illinois, USA	Perceived retrospective safety while growing up			Study 2: Family expressiveness of positive dominance (e.g., praise) negatively predicted DIF ( $B = -.59^{**}$ ) and DDF ( $B = -.64^{***}$ ) Family expressiveness of negative submissive (e.g., embarrassment) predicted DIF ( $B = .29^{***}$ )

Carpenter & Addis (2000)	Correlational	Adult	n = 172 (158 males, 116 females) M= 41 SD=10.96 22-76 years Staff from New England University, USA	Help seeking	Self-report: -TAS-20	Self-report: -Responses to Depression Analogue Questionnaire (RDAQ)	DIF was only related to seeking help from a doctor for females ( $r=.22^*$ ) DDF was related to being less likely to see help from informal and formal supports ( $r= -.18^* - -.40^{**}$ )
Ciarrochi, Deane, Wilson, & Rickwood (2002)	Cross-sectional	Adolescents	n = 137 (61 males & 75 females, 1 did not indicate) M = 16.9 16-18 years Australian	Social support quantity and quality  Help seeking	Self-report: -TAS-20 (reverse scored so higher = greater awareness)  Objective: -Levels of Emotional Awareness Scale	Self-report: -General Help Seeking Questionnaire (GHSQ) -6-item version of the Social Support Questionnaire (SSQ)	DDF was related to social support ( $r = .32^{**}$ )  LEAS and DIF of the TAS was not related to social support  DIF & DDF predicted help seeking from parents for emotional problems ( $B=.28^{***}$ , $B=.19^*$ ) and help-seeking for suicidal ideation from parents ( $B=.36^{***}$ , $B=.29^*$ ) and other relatives ( $B=.22^{***}$ , $B=.24^*$ ), but not from a friend, other family member, teachers, priest, youth group leader, or any formal source: mental health professional, phone helpline, or doctor  LEAS predicted help seeking from a friend ( $B=.22^*$ ), teacher ( $B=.31^{***}$ ), priest ( $B=.24^{***}$ ), youth group leader ( $B=.20^*$ ), and phone line ( $B=.26^{**}$ ) for emotional problems, but not from parents, other family members, mental health professionals or doctors

Ciarrochi, Heaven, & Supavadeepasit (2008)	Longitudinal	Adolescents	<p>Time 1 n = 803 (412 males &amp; 389 females, 2 did not indicate) M = 13.68 SD = 1.47</p> <p>Time 2 n = 786 (400 males &amp; 379 females, 7 did not indicate) M = 14.68 SD = 1.47 Australian high school students</p>	<p>Social support quality and quantity</p> <p>Social support quality or quantity did not predict TAS-12 one year later</p>	Self-report: -TAS-12 (reverse scored)	Self-report: -Social Support Questionnaire short 4-item version	<p>TAS-12 was related to social support quantity and quality in both grade 8 (r = .23**, for quantity; r = .23**, for quality) and grade 9 (r = .19**, for quantity; r = .24**, for quality)</p> <p>TAS-12 predicted social support quantity (B=.09*) and quality (B=.18***) over one year</p>
Ciarrochi, Scott, Deane, & Heaven (2003)	Cross-sectional	Emerging adults	<p>n = 331 (76males &amp; 225 females) M = 21.9, SD =6.36 University student sample</p>	<p>Social support quantity and quality</p> <p>Social skills</p>	<p>Self-report: -TAS-20 (reverse scored)</p> <p>Objective: -Level of Emotional Awareness Scale</p>	Self-report: -Social Problem Solving Inventory for Adolescents (SPSI-a) -4-item Social Support Questionnaire (quality & quantity)	<p>-DIF &amp; DDF were associated with social support and all other measures of psychological health</p> <p>-DDF predicted satisfaction (B = -.25****) with and amount of social support (B-.23****)</p> <p>-LEAS provided unique variance for amount of social support (B = .15****)</p>
Ciarrochi, Wilson, Deane, & Rickwood (2003)	Cross-sectional	Adolescents	<p>n = 217 (71 males &amp; 146 females) M = 14.38, SD = 1.18 Australian</p>	<p>Social support quantity and quality</p> <p>Help seeking</p>	Self-report: -TAS-12 (reverse scored)	Self-report: -General Help-Seeking Questionnaire -6-item version of the Social	<p>TAS-12 correlated with social support quality (r = .35**), but not with social support quantity</p> <p>TAS-12 predicted help seeking for emotional problems from</p>

					Support Questionnaire quality & quantity	<p>girl/boyfriends (B=.15*), friends (B=.19**), and in older adolescence, from parents (B= .22** for 15 years, B=.33** for 16 years), relatives (B=.30**), teachers (B=.25*) and doctors (B=.26*)</p> <p>In younger adolescents (age 13), TAS-12 predicted less help seeking from relatives (B= -.22*) and doctors (B=-.23*)</p> <p>TAS-12 predicted help seeking for suicidal ideations from girl/boyfriends (B=.17*), friends (B=.21**), parents (B=.15*), relatives (B=.16*), mental health professionals (B=.20**), doctors (B=.20*), teachers (B=.19*) and priests (B=.15*), and in older adolescence, from parents (B=.22**, for 15 years, B=.33**, for 16 years) and relatives (B=.22**, for 15 years, B=.32**, for 16 years)</p> <p>Not all correlations between all formal sources and help seeking were reported</p>	
Di Fabio & Kenny (2012)	Cross-sectional	Adolescents	n = 309 (89 males & 220 females) M = 17.41 SD = .65 16-20 years Italian	Social Support	Self-report: -Italian version of the Emotional Intelligence Scale - Appraisal and Expression of	Self-report: -Italian version of the Multidimensional Scale of Perceived Social Support (MSPSS)	<p>EIS-AEE &amp; MSPSS (r = .44**)</p> <p>MSCEIT-PE &amp; MSPSS (r = .20*)</p>

				Emotions dimension (EIS-AEE)			
				Objective: -Italian version of the Mayer Salovey Caruso Emotional Intelligence Test Perceiving emotions subtest (MSCEIT-PE)			
Extremera & Fernandez-Berrocal (2007)	Cross-sectional	Emerging adults & adults	n = 169 (33 males & 136 females) M = 22.84 SD = 4.24 19-57 years University students Spain	Effects of physical and emotional health on the daily social activities of the individual	Self-report: -Spanish modified version of the Trait Meta-Mood Scale subscale: Emotional Clarity	Self-report: -the social functioning component of the 12-item short form health survey	Emotional clarity did not correlate significantly with social functioning
FeldmanHall Dalglish, & Mobbs (2012)	Experimental	Emerging adults	n = 15 males M = 23.2 SD = 2.8	Altruism	Self-report: -TAS-20	Self-report: -13-item measure of distress on viewing consequences of their decision	TAS was associated with less altruistic actions & more self-serving ( $r=.65^{**}$ ) and less perceived distress to aversive outcomes for others ( $r = -.47^{*}$ )  TAS was associated with reduced activity in areas of brain associated

						Objective: -Pain vs gain task	with processing of socio-emotional cognitions
Foran & O'Leary (2012)	Cross- sectional, dyadic analysis, & seven-day daily diary surveys	Adults	n = 109 married (84.6%) or cohabitating couples (males & females) Males: M = 42.7 SD = 13.5 Females: M = 41.4 SD = 13.6	Relationship intimacy  Social support, satisfaction  Intimacy	Self-report: -TAS-20	Self-report: -Dyadic Adjustment Scale -Interpersonal Support Evaluation List -Personal Assessment of Intimacy in Relationships -Daily diary survey of relationship satisfaction, behaviours, and intimacy	TAS correlated with reduced social support ( $r = -.45^{***}$ , for males, $r = -.53^{***}$ , for females), intimacy ( $r = -.43^{***}$ , for males, $r = -.25^*$ , for females) and relationship satisfaction ( $r = -.28^{**}$ , for males, $r = -.32^{***}$ , for females)
Fukunishi, Berger, Wogan, & Kuboki (1999)	Cross- sectional	Adults	n = 56 (34 males & 22 females) M = 32.7 SD = 7.2 Expatriates living in Tokyo, Japan	Social support	Self-report: -TAS-20	Self-report: -Social Support Questionnaire of the Stress and Coping Inventory: Existence, Utilization, & Perception of Helpfulness	TAS negatively correlated with perception of helpfulness ( $r = -.47^*$ ) DIF negatively correlated with perception of helpfulness ( $r = -.43^{***}$ ) DDF not correlated with any subscale of social support

Fukunishi, Hirabayashi, Matsumoto, Yamanaka, & Fukutake (1999)	Cross-sectional  Use of controls	Adults	n = 81 (66 males & 15 females) HIV-positive patients in general hospitals in Tokyo, Japan  Controls: n = 77 (64 males & 13 females) HIV-negative volunteers  M = 34.9 SD = 10.5	Social support	Objective: -Japanese version of the modified Beth Israel Psychosomatic Questionnaire subscale: Affect Awareness	Self-report: -Japanese version of the Social Support scale within the Stress and Coping Inventory: Existence, Utilization, & Perception of Helpfulness of social support network	Affect awareness was correlated with poor utilization ( $r = -.47^*$ ) & perception (AA: $r = -.49^*$ ) of social support
Fukunishi, Kawamura, Ishikawa, & Ago (1997)	Cross-sectional  Retrospective	Emerging adults	Study 1: n = 232 (129 males & 103 females) M = 20.2 SD = 1.2  Study 2: n = 156 (72 males & 84 females) M = 18.9 SD = 0.6 Japanese college students	Perceived retrospective parental bonding (parental care and parental overprotection)	Self-report: -Japanese version of the TAS-20	Self-report: -Japanese version of the Parental Bonding Inventory (PBI)	Study 1: TAS-20 & PBI Maternal Care ( $r = -.35^{**}$ ) DDF & PBI Maternal Care ( $r = -.43^{**}$ ) DIF & PBI ( $p = ns$ )  Study 2: TAS-20 & PBI Maternal Care ( $r = -.396^{**}$ ) DDF & PBI Maternal Care ( $r = -.445^{**}$ ) DIF & PBI ( $p = ns$ )
Fukunishi, Maeda, Kubota, & Tomino (1997)	Cross-sectional  Use of controls	Adults	n = 63 (42 males, 21 females) M = 51.0 SD = 14.1	Social support	Self-report: -Japanese version of the TAS	Self-report: -Japanese version of the Stress and Coping	-TAS inversely related to utilization and perception of social support but not existence of a social support network (did not report specific correlations)

			Patients with end-stage renal failure Controls: Healthy adults Tokyo, Japan			Inventory, self-report: subscale: social support	
Fukunishi & Rahe (1995)	Cross-sectional	Adults	n = 179 (101 males, 78 females) M = 47.1 33-64 years Japan	Social support	Self-report: -Japanese version of the TAS-26	Self-report: -Japanese version of the Stress and Coping Inventory, self-report: subscale: social support	TAS-26 was correlated with social support ( $r = -.46^*$ )
Heaven, Ciarrochi, & Hurrell (2010)	Cross-sectional	Adolescents	n = 796 (324 males, 332 females, 140 did not indicate) Mode = 13 Australian	Social Support quality and quantity	Self-report: -TAS-12	Self-report: -Social Support Questionnaire short 4-item version	TAS-12 & Social support quantity ( $r = .26^{**}$ ) & quality ( $r = .23^{**}$ ), even after controlling for self-esteem & trait hope ( $r = -.10$ , $r = -.14^{**}$ respectively)
Hesse & Floyd (2008)	Cross-sectional	Emerging adults & adults	n = 349 (131 males, 214 females, 4 not indicate) M = 22.16 SD = 4.10 18-54 years Students	Affectionate experiences and communication  Relational closeness	Self-report: -TAS-20	Self-report: -Trait Affection Scale-Received -Trait Affection Scale-Revised -Inclusion of Others in the Self scale	TAS inversely related to affection experience ( $r = -.56^{**}$ ), affectionate communication ( $r = -.23^{**}$ ) & relational closeness ( $r = -.18^{**}$ )
Honkalampi et al. (2009)	Cross-sectional	Adolescents	n = 3936 (1801 males & 2135 females) 13-18 years	Social problems (unspecified)	Self-report: -Finnish version of the TAS-20	Self-report: -Youth Self-Report	Alexithymic boys reported more problems with parents (6.9% vs 2.4%*) and friends (8.0% vs 2.6%**) compared to others

# Finnish

Alexithymic girls reported more problems with parents (14.1% vs 3.2%\*\*\*), friends (8.1% vs 2.5%\*\*\*), and sibling (11.1% vs 2.9%\*\*\*) and less likely to have at least one close friend (96.4% vs 99.6%\*\*\*) compared to non-alexithymic adolescents  
TAS-20 was positively correlated with social problems ( $r=.37^{**}$ )

Humphreys, Wood, & Parker (2009)	Cross-sectional	Emerging adults	n = 158 (34 males & 124 females) M = 19.41 SD = 1.50 17-25 years Canadian university students	Relationship satisfaction  Sexual satisfaction	Self-report: -TAS-20	Self-report: -Relationship assessment (RAS) -Global measure of sexual satisfaction (GMSEX)	TAS correlated negatively with RAS ( $r=-.45^*$ ) and GMSEX ( $r=-.44^*$ )  DIF negatively correlated with RAS ( $r=-.34^*$ ) and GMSEX ( $r=-.29^*$ )  DDF negatively correlated with RAS ( $r=-.43^*$ ) and GMSEX ( $r=-.42^*$ )
Karukivi et al. (2011)	Cross-sectional	Emerging adults	n = 729 (26% males & 74% females) M = 19 17-21 years Finland	Social support  Parental attitudes	Self-report: -TAS-20	Self-report: Multidimensional Scale of Perceived Social Support subscales: family, friends & significant others -Parental Bonding Instrument (Care and	Non-alexithymics ( $X=71.84$ , $SE=.50$ ) reported greater social support than alexithymics ( $X=59.78$ , $SE=1.50$ ), $F(1,705)= 61.01^{***}$  Non-alexithymics reported greater paternal care ( $X=26.89$ , $SE=.31$ ) than alexithymics ( $X=23.64$ , $SE=.1.03$ ), $F(1.661)= 9.20^{**}$  Non-alexithymics reported greater maternal care ( $X=30.7$ , $SE=.23$ ) than

						overprotection subscales)	alexithymics ( $X=26.49$ , $SE=.77$ ), $F(1,701)=27.34^{***}$ Non-alexithymics reported less maternal overprotection ( $X=9.95$ , $SE=.24$ ) than alexithymics ( $X=14.14$ , $SE=.81$ ), $F(1,701)=24.64^{***}$  No differences were found between groups on paternal overprotection
Kauhanen, Kaplan, Julkunen, Wilson, & Salonen (1993)	Cross-sectional	Adults	$n = 2297$ males At baseline, four cohorts: 42, 48, 54, and 60 years	-Marital status -Social network -Amount of social connections	Self-report: -Finnish version of the TAS-26	Self-report: -Extended version of the social contacts scale of the North Karelia Study: social network & amount of social connections  Objective: -Marital status	TAS inversely related to marital status ( $r=-.13^*$ ) and number of social contact ( $r=-.17^*$ )  Men in the highest quartile of alexithymia were almost 4 times less likely to be married than those in the lowest quartile (odds ratio 1.00: 3.95 $^{***}$ )
Kojima, Senda, Nagaya, Tokudome, & Furukawa (2003)	Cross-sectional	Adults	$n = 120$ (87 males & 33 females) $M = 31.5$ $SD = 5.5$ 19-39 years Japan gas utility company employees	Social support in the work environment	Self-report: -Japanese version of the TAS-20	Self-report: -Japanese version of the Job Content Questionnaire: Social Support subscale	TAS negatively correlated with reduced social support ( $r=-.30^{***}$ )

Laible (2007)	Cross- sectional	Emerging adults	n = 117 (52 males, 65 females) M = 19.6 SD = 1.41	Prosocial behaviour  Aggression	Self-report: -TAS-20	Self-report: -Prosocial Tendencies Measure -Suppression of Aggression subscale of the Weinberger Adjustment Inventory	TAS was positively correlated with prosocial behaviour ( $r=.18^{**}$ ) and negatively with aggressive behaviour ( $r=-.19^{**}$ )
Lumley, Ovies, Stettner, Wehmer, & Lakey (1996)	Cross- sectional  Use of controls	Emerging adults & adults	Study 1: n = 662 (255 males, 407 females) M = 19.8 years 16-56 years Healthy college students  Study 2: n = 40 (2 males, 38 females) M = 39.6 years SD = 12.46 16-67 years Patients with Ehlers- Danlos syndrome  Study 3: n = 225 (72 males, 153 females) M = 39.6 years SD = 12.46 17-42 years	Social support  Social network  Social competence	Self-report: -TAS-20	Self-report: -Social support scale -Social Provisions Scale - Social network indices (6-items) - Social Competence Scale	Study 1: TAS ( $r=-.39^{***}$ ), DIF ( $r=-.32^{***}$ ) & DDF ( $r=-.43^{***}$ ) were inversely correlated with perceived social support  Study 2: TAS ( $r=-.67^{***}$ ), DIF ( $r=-.56^{***}$ ), & DDF ( $r=-.50^{***}$ ), were inversely correlated with perceived social support  Study 3: DDF was related to lacking steady partner ( $r=.17^{**}$ ), lacking a best friend ( $r=.16^{*}$ ), and having fewer close friends ( $r=.16^{*}$ ) TAS was related to lacking steady partner ( $r=.13^{*}$ ) and having fewer close friends ( $r=.13^{*}$ ) DIF was related to lacking group membership only ( $r=.16^{*}$ )

			Healthy college students				TAS ( $r = -.34^{***}$ ), DIF ( $r = -.20^{**}$ ), & DDF ( $r = -.34^{***}$ ), were negatively related to social skills competence All correlations between TAS, DIF, and DDF and social network indices were no longer significant after controlling for social skills
Meganck, Vanheule, Inslegers, & Desmer (2009)	Cross-sectional	Adult	n = 50 (19 males, 31 females) M = 41.56 SD = 11.41 Inpatient psychiatric patients in psychiatric hospitals in Belgium	Interpersonal style using words spoken during the CDI	Self-report: -Dutch translated TAS-20  Objective: -Toronto Structured Interview for Alexithymia (TSIA)	Objective: -Linguistic Inquiry and Word Count using the Clinical Diagnostic Inventory (CDI)	Complexity of communication words was negatively correlated with TAS ( $r = -.36^*$ ) and DIF ( $r = -.44^{**}$ ) but not DDF suggesting these individuals have less variation in their talk about others and have poor descriptions of interactions with others  Reference to others was correlated with TSIA ( $r = .25^{**}$ )
Mestre, Rocio, Lopes, Salovey, & Gil-Olarte (2006)	Cross-sectional	Adolescents	n = 127 (63 males, 64 females) M = 15.1 SD = 0.9 14-17 years Spanish	Social adaptation  Friendship	Objective: -Spanish version of the -MSCIET Perceiving emotions (PE) subscale	Objective: -Teacher ratings of social adaptation -Peer friendship nominations	PE was not significantly related to friendship nominations  Teacher ratings of social adaptation was not significantly correlated with emotional skills
Nicolo et al. (2011)	Cross-sectional	Adults & adolescents	n = 388 (183 males, 208 females) M = 34.5 SD = 10.54 16-62 years	Interpersonal difficulties:  Sensitivity ambivalence Aggression	Self-report: -TAS-20	Self-report: -Inventory of Interpersonal Problems subscales: interpersonal	Partial correlations indicate that DDF, but not DIF, was related to interpersonal ambivalence ( $r = .19^{***}$ ), need for approval ( $r = .29^{***}$ ) and lack of sociability ( $r = .35^{***}$ )

			Patients seeking treatment/consult at an Italian outpatient clinic	Need for approval  Lack of sociability		sensitivity, interpersonal ambivalence, aggression, need for social approval, & lack of sociability	
Posse, Hallstrom, & Backenroth-Ohsako (2002)	Cross-sectional	Adult	n = 864 females M = 42.4 Employees in childcare programme	Social support	Self-report: -TAS-20	Self-report: -6-item on social support	TAS ( $r=.07^*-.23^{***}$ ) and DIF ( $r=.09^{**}-.21^{***}$ ) were related to lacking social support on all items  DDF was related to poor social support on three items ( $r=.11^{***}-.23^{***}$ ), but not lack of roots  Low level of social support was 3.5x more common in alexithymic group versus non-alexithymic  Alexithymics were 2.6x more likely to have no one to turn to
Poulsen (1991)	Experimental	Adults	n = 46 females M = 50.7 27-68 years Patients with rheumatoid arthritis (RA) or primary Sjogren's syndrome (SS) Denmark	Group psychotherapy interventions	Self-report: -Danish version of the TAS-26	Objective: -Attended group psychotherapy participation or not (control)	Experimental groups had lower mean scores on alexithymia than control groups:  ExpRA < 50 years: M = 63.9, SD = 14.3 versus controlRA < 50 years: M = 65.3, SD = 13.9  ExpRA > 50 years: M = 61.7, SD = 13.3 versus controlRA > 50 years: M = 69.0, SD = 17.9

Seghers, McCleery, & Docherty (2011)	Cross-sectional	Emerging adults	<p>Experimental group: 23 patients (14 RA &amp; 9 SS) Attended group psychotherapy</p> <p>Control group: Didn't attend group psychotherapy n = 72 (32 males, 40 females) M = 21.6 SD = 6.38 18-53 years US undergraduate students</p>	<p>Social adjustment:</p> <p>Family, peers &amp; academic adjustment combined</p>	Self-report: -TAS-20	Self-report: -Social Adjustment Scale-Self Rated (SAS): 3 subscales: family, peer, & academic adjustment	<p>ExpSS: M = 60.8, SD = 10.3 versus controlSS: M = 73.4, SD = 13.7</p> <p>TAS was significantly correlated with SAS (<math>r = .448^{**}</math>) indicating poor social functioning</p>
Spitzer, Siebel-Jurges, Barrow, Grabes, & Freyberger, (2005)	Cross-sectional	Adults	<p>n = 149 (41 males, 108 females) M = 39.5 SD = 11.3 Inpatients in a psychodynamic psychotherapy program in Germany</p>	<p>Interpersonal problems: Domineering Vindictive Cold Socially avoidant Non-assertive Exploitable Overly nurturing Intrusive</p>	Self-report: -German version of the TAS-20	Self-report: -German version of the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C)	<p>TAS (<math>r = .29-.59^{***}</math>) and DIF (<math>r = .34-.52^{***}</math>) related to all subscales of interpersonal problems DDF related to all subscales (<math>r = .21-.66</math>, <math>p &lt; .05</math> to <math>.001</math>), except intrusiveness</p> <p>At follow-up: Correlations between DDF and vindictive, cold, socially avoidant, non-assertive, exploitable, and total score continued to be significant (<math>r = .23-.55</math>, <math>p &lt; .01-.001</math>) As did correlations between DIF and domineering (<math>r = .22^{*}</math>) and IIP (<math>r = .20^{*}</math>)</p>

Vanheule, Desmet, Meganck, & Bogaerts (2007)	Cross-sectional	Emerging adults	n = 404 (118 males, 286 females) M = 37.8 SD = 10.63 18-72 years Mental health outpatients from Belgium Controls: n = 157 (25 males, 133 females) M = 20.73 SD = 2.53 Students at university	Interpersonal problems: Domineering Vindictive/Self-centered Cold/distant Socially avoidant Non-assertive Exploitable Overly accommodating Intrusive/needy	Self-report: -Dutch version of the TAS-20	Self-report: -Dutch version of the 64-item Inventory of Interpersonal Problems (IIP-64)	IIP explained substantial variance in TAS, $R^2 = .46$ , $F(11, 543) = 42.83^{**}$  Cold/distant ( $B = .47^{**}$ ) and non-assertive ( $B = .29^{**}$ ) problems predicted TAS  None of the other interpersonal difficulties significantly predicted TAS
van Middendorp et al. (2005a)	Cross-sectional	Adults	n = 335 (109 males, 244 females) M = 57.8 SD = 13.3 19-87 years Outpatients with rheumatoid arthritis in the Netherlands	Social functioning: Mutual visits Perceived support Actual support	Self-report: -TAS-20 & Ambivalence over Emotional Expressiveness Questionnaire (AEEQ) combined into one factor: Ambiguity of Emotions	Self-report: -10-items from the Impact of Rheumatoid disease on General Health and Lifestyle on social functioning	Ambiguity was correlated with social functioning ( $B = -.23$ , no alpha level reported)

van Middendorp et al. (2005b)	Correlational	Adults	n = 335 (91 males, 244 females) Males: M = 60.4 SD = 11.0 Females: M = 56.8 SD = 14.0 19-87 years Adults with rheumatoid arthritis from the Netherlands	Social functioning: Mutual visits Perceived support Actual support	Self-report: -TAS-20 & AEEQ combined into one factor: Ambiguity of Emotions	Self-report: -10-items from the Impact of Rheumatoid disease on General Health and Lifestyle on social functioning	Emotional ambiguity and social functioning were negatively related (B = -.26, for females and B = -.27 for males, no alpha level reported)
van Rijn et al. (2011)	Cross-sectional  Use of control group	Adolescents	n = 34 (23 males & 11 females) M = 15.5 SD = 2.1 Ultra high risk (UHR) for psychosis group  Controls: n = 23 (13 males, 8 females, 2 did not indicate) M = 15.7 SD = 1.4 Finnish	Social competence	Self-report: -Bermond–Vorst Alexithymia Questionnaire (BVAQ)	Self-report: -Dutch Personality Questionnaire (DPQ)	For the UHR group, BVAQ-Identifying emotions was related to social competence ( $r = .41^*$ )  Correlation between BVAQ-Verbalizing emotions and social competence was not reported

Waldstein, Kauhanen, Neuman, & Katzel, 2002	Cross-sectional	Older adults	n = 102 (77 males, 25 females) 53-83 years Healthy, older adults	Perceived availability of social support	Self-report: -TAS-26	Self-report: -Interpersonal Support Evaluation List	TAS ( $r=-.21^*$ ), DIF ( $r=.38^{***}$ ), and DDF ( $r=-.29^{**}$ ) inversely correlated with social support  Alexithymics scored lower on social support than non-alexithymics ( $t(54)=2.66^{**}$ )
Zarei & Besharat, 2010	Cross-sectional	Emerging adults	n = 357 (147males & 210 females) M = 22.6 SD = 2.92 University of Tehran students Iran	Interpersonal problems:  Assertiveness Sociability Responsibility Submissiveness Intimacy Controlling	Self-report: -Farsi version of the TAS-20	Self-report: -Inventory of Interpersonal Problems	TAS correlated with interpersonal problems ( $r=.72^{***}$ ), problems with assertiveness ( $r=.45^{***}$ ), sociability difficulties ( $r=.40^{***}$ ), problems with intimacy ( $r=.37^{***}$ ) & responsibility difficulties ( $r=.46^{***}$ ) but not with problems with submissiveness or controlling

Note.  $^{\wedge}p = .06$ ,  $^*p < .05$ ,  $^{**}p < .01$ ,  $^{***}p < .001$ ,  $^{****}p < .0005$

TAS-20: 20-item version of the Toronto Alexithymia Scale

TAS-12: 12-item version of the Toronto Alexithymia Scale

DIF = difficulty identifying feelings subscale of the Toronto Alexithymia Scale

DDF = difficulty describing feelings subscale of the Toronto Alexithymia Scale

EOT = externally oriented thinking subscale of the Toronto Alexithymia Scale

EI = emotional intelligence

ExpRA = experimental group with rheumatoid arthritis

ControlRA = control group with rheumatoid arthritis

ExpSS = experimental group with Sjogren's syndrome

ControlSS = control group with Sjogren's syndrome

majority of studies were of a correlational and cross-sectional design, with only one longitudinal study and two experimental studies. Thus, causation or direction of association cannot be drawn. It is not clear whether emotional awareness is an antecedent or consequence of social functioning. Additionally, most of the studies used adult samples ( $n=29$ ), with only nine studies conducted on adolescent samples. The association between these constructs during adulthood seem quite consistent. However, due to considerably fewer studies conducted during adolescence, it is unclear whether these associations are consistent during this important developmental stage.

It is evident that more study is required to better understand the social correlates of emotional awareness, particularly the direction of these associations and during adolescence. The aim of this dissertation is to systematically review the adolescent research on the social correlates of emotional awareness and empirically study two specific social correlates: friendship and social support. Based on the literature reviewed in the previous two chapters and the current chapter, several hypotheses are made. For one, it is predicted that prior research will provide evidence for a positive association between emotional awareness and social functioning, specifically during adolescence. It is also anticipated that emotional awareness will be positively associated with friendship and social support during adolescence. Finally, it is expected that emotional awareness and social support will mutually influence each other over time, such that as one increases so will the other. Within these analyses, gender differences will also be examined. Based on current theory and research, it is expected that males will score lower on emotional awareness than females. However, the association between emotional awareness and social functioning is hypothesised to not differ by gender. To test these hypotheses, a systematic review of the social correlates of emotional awareness during adolescence is presented in

Chapter 5 and empirical studies assessing the relationship between emotional and friendship and social support are presented in Chapter 6 and Chapter 7, respectively.

## **Chapter 5**

### **Systematic Review:**

#### **A review of the relationship between emotional awareness and social functioning during adolescence**

#### **Manuscript submitted to the Journal of Adolescence in September 2014**

Rowse, H. C., Deane, F. P., & Ciarrochi, J. (submitted). A review of the relationship between emotional awareness and social functioning during adolescence. *Journal of Adolescence*.

*Note.* This chapter is based on the journal article noted above. However, a few minor changes have been made to include it in this dissertation. Also, this chapter includes a brief discussion of the article, 'the role of emotion identification skill in the formation of male and female friendships: a longitudinal study. Please refer to Chapter 6 for a more detailed account of this study.

## **Introduction**

Emotional awareness may be essential for positive social development and functioning throughout adolescence. Emotionally aware adolescents are better able to empathize and recognize others' emotions, both of which are necessary for positive social interactions (FeldmanHall, Dalgleish, & Mobbs, 2012). Since these adolescents have the ability to understand their own and others' emotions, and to regulate their emotions, they may have an easier time socializing, developing social relationship and seeking help when distressed. However, the association, and particularly the direction of the association, between emotional awareness and social functioning during adolescence is unclear.

It is well known that emotional awareness and social functioning are important for mental and physical wellbeing throughout the lifetime, and may be particularly vital during adolescence (e.g., Ciarrochi et al., 2011; Collins & Steinberg, 2008; Leyden & Shale, 2012; Uchino et al., 1996). Understanding the link between these constructs is important for researchers and clinicians so they can seek to improve health and wellbeing for young people. Thus, it is necessary for us to understand how these constructs impact each other in order to develop appropriate means to support adolescents. The primary objective of this review was to critically examine the research on the association between emotional awareness and social functioning during adolescence.

## **Emotional Awareness**

Emotional awareness is the ability to identify, label and describe one's emotions (Ciarrochi et al., 2008; Ciarrochi et al., 2011). It is a primary skill that is needed for subsequent emotion regulation skills (Lumley et al., 2005). When emotional awareness is extremely low, it is called alexithymia (Kerr et al., 2004; Salovey et al., 2002). Alexithymia is the inability to

recognize and understand one's own emotions (Kerr et al., 2004; Salovey et al., 2002) and is believed to underpin poor wellbeing (Ciarrochi et al., 2011), and poor mental and physical health (e.g., Cox et al., 1995). Low emotional awareness is associated with many clinical disorders, such as depression (Bankier et al., 2001), eating disorders (Corcos et al., 2000), social phobia and panic disorder (Cox et al., 1995); whereas high emotional awareness is associated with positive adjustment and decreased distress (Kerr et al., 2004; Salovey et al., 2002).

Emotional awareness is especially important during adolescence since this is a time when emotional skills are necessary to navigate the many changes during this period, including new relationships, puberty, and transition to high school (Leyden & Shale, 2012). Those who are more emotionally skilled may be more competent at dealing with social and emotional difficulties during this time.

### **Social Functioning**

Social functioning is the extent to which an individual is social adjusted in terms of their current developmental stage. It encompasses interpersonal relationships, social adjustment, and social support and it is important for health and wellbeing (e.g., Barrera, 1986; Fordham & Stevenson-Hinde, 1999; Hartup, 1992; Parker & Asher, 1993; Uchino et al., 1996). For example, social support and friendship are associated with psychological and physical health (Cauce et al., 1994; see Uchino et al., 1996 for a review), including, self-esteem (Fordham & Stevenson-Hinde, 1999), decreased depression (Buschmann & Hollinger, 1994), anxiety (Stewart, 1993), loneliness (Jobe-Shields, Cohen, & Parra, 2011; McAuley et al., 2000), and risk of psychopathology (Bukowski et al., 1994).

Relationships with others are necessary for psychological wellbeing, particularly during adolescence (Collins & Steinberg, 2008) because they protect against psychosocial problems

(e.g., Fordham & Stevenson-Hinde, 1999; Helsen et al., 2000). For instance, having at least one friend (Parker & Asher, 1993) and the greater the size of one's social network (Hartup, 1996; Nangle et al., 2003) can buffer against loneliness and social dissatisfaction while also assisting with healthy development. Social support and interpersonal relationships assist in the development of social skills (Buhrmester & Furman, 1986; Hartup, 1992), social maturation (Youniss & Haynie, 1992) and in learning how to form and maintain healthy, long-lasting relationships (Connolly et al., 2000).

### **Emotional Awareness and Social Functioning**

Emotions and social functioning are intertwined. During early childhood, babies learn about their emotions through interactions with their primary caregivers (Buckley & Saarni, 2006). These interactions help the child to understand their emotions, sooth themselves when emotionally distressed and help them seek appropriate emotional support (Buckley & Saarni, 2006). Even though this connection is evident in early childhood, less is known about it as children get older, particularly in adolescence. However, evidence from early childhood and from adults suggests that emotional awareness is likely to be important for the development and maintenance of interpersonal relationships during adolescence.

During childhood, those who have greater emotional awareness and regulation skills are viewed as more socially appropriate (Gottman et al., 1996), socially competent (Denham et al., 2002), and have better relationships with peers and teachers (Graziano et al., 2007). In adults, low emotional awareness is correlated with many interpersonal problems, such as, lower perceived social support network size and quality (Lumley et al., 1996), fewer close relationships (Lumley et al., 1996; Posse et al., 2002), being less likely to seek help from others (Carpenter & Addis, 2000), and lower romantic and sexual satisfaction (Humphreys et al., 2009). Difficulty

with emotional awareness is also related to less affectionate communication and relational closeness (Hesse & Floyd, 2008), less social sharing of emotions (Pennebaker et al., 2001) and difficulty regulating emotions while socializing (Spitzer et al., 2005).

Despite the importance of social functioning and emotional awareness, to date no formal synthesis of the literature on these topics has been conducted. Therefore, the purpose of this review is to assess the current research on the association between emotional awareness and social functioning during adolescence. This chapter discusses the implications that current research has on adolescent social-emotional wellbeing and suggests directions for future research.

## **Method**

### **Information Sources**

Articles on social functioning *and* emotional awareness published in peer-reviewed journals were identified using the following databases: PsychINFO, PubMed, Science Direct, EBSCO Psychology and Behavioral Sciences Collection, Wiley Online Library and Web of Science. Articles meeting criteria were reviewed. Reference sections were also scanned for additional articles meeting criteria. The search terms used were: (1) emotional awareness, alexithymia, emotional clarity, emotion identification skill; (2) social functioning, friendship, social support, peers, interpersonal relationships, social interactions; and (3) adolescence, adolescent. All databases were searched using a combination of the above terms. The titles and abstracts of the articles found were then screened using inclusion criteria to assess relevance.

### **Inclusion and Exclusion Criteria**

Articles were then assessed to see if they met inclusion and exclusion criteria. For inclusion, studies were required to: (1) examine the association between emotional awareness

and social functioning; (2) include adolescence (ages 12-18 years or a mean age within these boundaries); (3) be published in the English language; and (4) be peer reviewed studies published prior to March 2014. Exclusion criteria included those studies that examined emotional awareness and social functioning only as predictor variables of a third variable and did not also assess the correlation between these variables. Data was extracted from studies that met criteria. Studies meeting criteria were categorized according to their main focus of social functioning. Data from the studies are presented in Table 5.1.

### **Risk of Bias Within and Across Studies**

The majority of the studies were conducted within high schools, with two exceptions (i.e., Berger et al., 2014; van Rijn et al., 2011). Therefore, consent from school boards, high schools, parents and adolescent were required for the student to participate. This may bias the data since it does not include a complete sample of adolescents.

There was a publication bias because the review only included studies that had been published in peer-reviewed journals. Therefore, studies that were never published or are yet to be published are not included. Additionally, there may have been a selective reporting bias within the studies reviewed. However, there is no specific evidence that indicated that this is the case.

## **Results**

### **Study Selection**

The initial search yielded 176 articles, which was then narrowed down to 160 after excluding those that did not meet inclusion criteria based on the title and abstract. A further 121 studies were excluded after review of the articles because they did not assess the connection between emotional awareness and social functioning, but instead assessed both constructs only as control variables on third variables (e.g., depression). Of the remaining 39 studies, 17 were

excluded because of the use of adult samples and 12 because of the use of emerging adult samples. A total of ten peer-reviewed studies met full criteria for the current review.

### **Study Designs**

Of the ten studies, nine were cross-sectional and one was longitudinal, measuring self-reported emotional awareness and social support over a two wave, one-year period (Ciarrochi et al., 2008). No experimental or intervention studies were found.

### **Description of Studies**

Table 5.1 provides a descriptive summary of study characteristics and findings of all studies reviewed. There were six aspects of social functioning studied in conjunction with emotional awareness. The majority (five) of studies assessed social support, two assessed help seeking intentions (in addition to assessing social support), and two assessed friendships. Four studies assessed other aspects of social functioning: social adaptation (in addition to assessing friendship), social problems and social competence. The ten articles are summarized within these six categories of social functioning below.

#### **Social support.**

Five studies (four cross-sectional and one longitudinal) examined the relation between social support and emotional awareness in adolescence (Ciarrochi, Deane, Wilson, & Rickwood, 2002; Ciarrochi et al., 2008; Ciarrochi, Wilson, Deane, & Rickwood, 2003b; Di Fabio & Kenny, 2012; Heaven et al., 2010). These five studies suggest that there is a consistent correlation between emotional awareness and social support. The majority of correlations between these variables were positive and significant. Three of the five studies used self-reported emotional awareness measures only and all used self-report measures of social support.

Ciarrochi and colleagues (2002) conducted a cross-sectional study to assess the associations between emotional awareness (self-report and performance based), social support and help seeking. Results demonstrate that difficulty describing feelings was related to social support, but the difficulty identifying feelings and the performance-based measure of emotional awareness (LEAS) were not related.

Another cross-sectional study also assessed the associations between emotional awareness, social support and help-seeking intentions (Ciarrochi et al., 2003). Only self-report measures were used. Findings show that emotional awareness was only related to social support quality and not social support network size. Thus, adolescents who reported greater emotional awareness also reported greater satisfaction with the social support they received, but not more supportive people in their lives than those who reported being lower on emotional awareness.

The correlation between emotional awareness and social support was assessed in a cross-sectional study (Heaven et al., 2010). While controlling for self-esteem and trait hope, correlations indicate that the inability to identify and describe one's emotions was negatively related to social support network size and quality.

In another cross-sectional study, Di Fabio and Kenny (2012) evaluated the influence of emotional intelligence (EI) on social support. In the two measures of EI used, there was a sub-component that was similar to emotional awareness: 'appraisal and expression of emotions' (in the EIS) and 'perceiving emotions' (in the MSCEIT). This study found that adolescents who scored themselves highly on their ability to recognize emotions in themselves and others, and who also express their emotions reported that they received more social support than those lower on emotional appraisal and expression.

Table 5.1

*Study Details, Design and Findings of Adolescent Research on the Social Correlates of Emotional Awareness*

Author (year)	Study design	Characteristics of participants (age, sex, sample)	Type of social functioning	Emotional awareness measures	Social functioning measures	Main findings
Berger et al. (2014)	Cross-sectional	n = 56 females 12-17 years American	Interpersonal problems: Interpersonal deficits and role disputes	Self-report: -Toronto Alexithymia Scale-20 (TAS-20, DIF, DDF, EOT)	Self-report: -Interview with interpersonal inventory and interpersonal goals	Girls with interpersonal deficits scored higher on the TAS-20 than girls with role disputes ( $t(54) = 2.41^*$ ) Trend towards girls with interpersonal deficits scoring higher on the DIF than girls with role disputes ( $t(54) = 1.94^{\wedge}$ ) No difference was found for DDF between youth with interpersonal deficits and role disputes
Ciarrochi et al. (2002)	Cross-sectional	n = 137 (61 males & 75 females, 1 did not indicate) M = 16.9 16-18 years Australian	Social support quantity and quality  Help seeking	Objective: -Levels of Emotional Awareness Scale  Self-report: -TAS-20 DIF and DDF subscales (reverse scored so higher= greater awareness)	Self-report: -General Help Seeking Questionnaire (GHSQ) -6-item version of the Social Support Questionnaire (SSQ)	DDF was related to social support ( $r = .32^{**}$ ) LEAS and DIF of the TAS was not related to social support DIF & DDF predicted help seeking from parents for emotional problems ( $B=.28^{***}$ , $B=.19^*$ ) and help-seeking for suicidal ideation from parents ( $B=.36^{***}$ , $B=.29^*$ ) and other relatives ( $B=.22^{***}$ , $B=.24^*$ ), but not from a friend, other family member, teachers, priest, youth group leader, or any formal source: mental health professional, phone helpline, or doctor

LEAS predicted help seeking from a friend ( $B=.22^*$ ), teacher ( $B=.31^{***}$ ), priest ( $B=.24^{***}$ ), youth group leader ( $B=.20^*$ ), and phone line ( $B=.26^{**}$ ) for emotional problems, but not from parents, other family members, mental health professionals or doctors

Ciarrochi et al. (2008)	Longitudinal	<p>Time 1 n = 803 (412 males &amp; 389 females, 2 did not indicate) M = 13.68 SD = 1.47</p> <p>Time 2 n = 786 (400 males &amp; 379 females, 7 did not indicate) M = 14.68 SD = 1.47 Australian</p>	Social support quality and quantity	Self-report: -TAS-12 (reverse scored)	Self-report: -Social Support Questionnaire short 4-item version	<p>TAS-12 was related to social support quantity and quality in both grade 8 (<math>r = .23^{**}</math>, for quantity; <math>r = .23^{**}</math>, for quality) and grade 9 (<math>r = .19^{**}</math>, for quantity; <math>r = .24^{**}</math>, for quality)</p> <p>TAS-12 predicted social support quantity (<math>B=.09^*</math>) and quality (<math>B=.18^{***}</math>) over one year</p> <p>Social support quality or quantity did not predict TAS-12 one year later</p>
Ciarrochi et al. (2003)	Cross-sectional	<p>n = 217 (71 males &amp; 146 females) M = 14.38, SD = 1.18 Australian</p>	<p>Social support quantity and quality</p> <p>Help seeking</p>	Self-report: -TAS-12 (reverse scored)	Self-report: -General Help-Seeking Questionnaire -6-item version of the Social Support Questionnaire quality & quantity	<p>TAS-12 correlated with social support quality (<math>r = .35^{**}</math>), but not with social support quantity</p> <p>TAS-12 predicted help seeking for emotional problems from girl/boyfriends (<math>B=.15^*</math>), friends (<math>B=.19^{**}</math>), and in older adolescence, from parents (<math>B= .22^{**}</math> for 15 years, <math>B=.33^{**}</math> for 16 years), relatives</p>

( $B=.30^{**}$ ), teachers ( $B=.25^*$ ) and doctors ( $B=.26^*$ )  
 In younger adolescents (age 13), TAS-12 predicted less help seeking from relatives ( $B= -.22^*$ ) and doctors ( $B=-.23^*$ )  
 TAS-12 predicted help seeking for suicidal ideations from girl/boyfriends ( $B=.17^*$ ), friends ( $B=.21^{**}$ ), parents ( $B=.15^*$ ), relatives ( $B=.16^*$ ), mental health professionals ( $B=.20^{**}$ ), doctors ( $B=.20^*$ ), teachers ( $B=.19^*$ ) and priests ( $B=.15^*$ ), and in older adolescence, from parents ( $B=.22^{**}$ , for 15 years,  $B=.33^{**}$ , for 16 years) and relatives ( $B=.22^{**}$ , for 15 years,  $B=.32^{**}$ , for 16 years)  
 Not all correlations between all formal sources and help seeking were reported

Di Fabio & Kenny (2012)	Cross-sectional	n = 309 (89 males & 220 females) M = 17.41 SD = .65 16-20 years Italian	Social Support	Self-report: -Italian version of the Emotional Intelligence Scale - Appraisal and Expression of Emotions dimension (EIS-AEE)  Objective:	Self-report: -Italian version of the Multidimensional Scale of Perceived Social Support (MSPSS)	EIS-AEE & MSPSS ( $r = .44^{**}$ ) MSCEIT-PE & MSPSS ( $r = .20^*$ )
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				-Italian version of the Mayer Salovey Caruso Emotional Intelligence Test Perceiving emotions subtest (MSCEIT-PE)		
Heaven et al. (2010)	Cross-sectional	n = 796 (324 males, 332 females, 140 did not indicate) Mode = 13 Australian	Social Support quality and quantity	Self-report: -TAS-12	Self-report: -Social Support Questionnaire short 4-item version	TAS-12 & Social support quantity ( $r = -.26^{**}$ ) & quality ( $r = -.23^{**}$ ), even after controlling for self-esteem & trait hope ( $r = -.10$ , $r = -.14^{**}$ respectively)
Honkalampi et al. (2009)	Cross-sectional	n = 3936 (1801 males & 2135 females) 13-18 years Finnish	Social problems (unspecified)	Self-report: -Finnish version of the TAS-20	Self-report: -Youth Self- Report	Alexithymic boys reported more problems with parents (6.9% vs 2.4%*) and friends (8.0% vs 2.6%**) compared to others Alexithymic girls reported more problems with parents (14.1% vs 3.2%***), friends (8.1% vs 2.5%***), and sibling (11.1% vs 2.9%***) and less likely to have at least one close friend (96.4% vs 99.6%***) compared to non- alexithymic adolescents TAS-20 was positively correlated with social problems ( $r = .37^{**}$ )

Mestre et al. (2006)	Cross-sectional	n = 127 (63 males, 64 females) M = 15.1 SD = 0.9 14-17 years Spanish	Social adaptation  Friendship	Objective: -Spanish version of the -MSCIET Perceiving emotions (PE) subscale	Objective: -Teacher ratings of social adaptation -Peer friendship nominations	PE was not significantly related to friendship nominations Teacher ratings of social adaptation was not significantly correlated with emotional skills
Rowse et al. (2014)	Correlational	Time 1 n = 795 (406 males, 389 females) M = 13.4 SD = .53  Time 2 n = 468 (225 males, 243 females) M = 17.0 SD = .38 Australian	Friendship	Self-report: -TAS-12 (reverse scored)	Objective: -Peer friendship nominations	For females, TAS-12 in Grades 8 ( $r=.16^*$ ), 10 ( $r=.23^{**}$ ), 11 ( $r=.17^*$ ), & 12 ( $r=.23^{**}$ ) were correlated with more female friendship nominations For females, TAS-12 in Grades 8 ( $r=-.15^*$ ), 9 ( $r=-.19^*$ ), 10 ( $r=-.19^*$ ), & 11 ( $r=-.15^*$ ) were correlated with fewer male friendship nominations For males, there were no significant correlations between EIS and friendship nominations For females, Grade 8 EIS predicted more female friendship nominations ( $B=.54^*$ ) and fewer male friendship nominations in Grade 12 ( $B=-.59^*$ )
van Rijn et al. (2011)	Cross-sectional  Use of control group	n = 34 (23 males & 11 females) M = 15.5 SD = 2.1 Ultra high risk (UHR) for psychosis group	Social competence	Self-report: -Bermond-Vorst Alexithymia Questionnaire (BVAQ)	Self-report: -Dutch Personality Questionnaire (DPQ)	For the UHR group, BVAQ-Identifying emotions was related to social competence ( $r=.41^*$ ) Correlation between BVAQ-Verbalizing emotions and social competence was not reported

Controls:  
n = 23 (13  
males, 8  
females, 2 did  
not indicate)  
M = 15.7  
SD = 1.4  
Finnish

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*Note.*  $^{\wedge}p = .06$ ,  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$

DIF = difficulty identifying feelings

DDF = difficulty describing feelings

EOT = externally oriented thinking

EI = emotional intelligence

Ciarrochi et al. (2008) conducted a longitudinal study assessing whether emotional awareness predicted changes in social support over one year. Emotional awareness was related to social support quantity and quality at both time points. Using Structural Equation Modelling, results indicated that emotional awareness predicted increased quantity and quality of social support over time whereas social support did not lead to increased emotional awareness. The finding provides preliminary evidence for emotional awareness as a precursor to social support, rather than a consequence of social support.

### **Help seeking.**

Two cross-sectional studies assessed emotional awareness in relation to help seeking within adolescent samples (Ciarrochi et al., 2002; 2003). These two studies demonstrated that emotional awareness is positively correlated with intention to seek help for emotional difficulties. These studies found that emotional awareness was associated with the intention to seek help from a variety, but not from all sources of help.

As discussed in the previous section, Ciarrochi et al. (2002) investigated the link between emotional awareness and help seeking as well as social support. All measures of emotional awareness were significantly correlated with intentions to seek help. Adolescents low in emotional awareness were less likely to seek help from informal sources (e.g., family and friends) and had the highest intention to refuse help from everyone, but were no less likely to seek help from professionals (e.g., mental health workers) than adolescents high in emotional awareness. A series of multivariate analyses of covariance (MANCOVA), followed by univariate analyses, indicated that self-reported emotional awareness predicted help seeking from parents for emotional problems and help seeking from parents and other relatives for suicidal ideation, while controlling for hopelessness. Performance-based emotional awareness predicted the intention to seek help from several sources, including friends, teachers and priests for emotional problems. Adolescents who were better able to identify and describe their feelings also had greater intentions to seek help for suicidal ideation from parents and relatives, and had lower intentions to refuse help. Thus, those better able to understand

and manage their emotions may have better social supports and be more likely to seek help from others.

Ciarrochi et al. (2003) examined the associations between help seeking and emotional competence and emotional awareness, as well as social support as discussed above. Using a series of MANCOVAs and univariate analyses it was found that adolescents with low emotional awareness had lower help-seeking intentions from informal sources and some formal sources, and had higher intentions to seek help from no one when controlling for hopelessness and sex. The specific correlations between emotional awareness and help seeking from each source were not reported. Social support did not fully mediate this association, but did partially mediate the relationship between emotional competence and intention to seek help from boyfriends/girlfriends and friends, and to a lesser degree, family. Emotional awareness was related to lower intentions to seek help in younger adolescents (13 years) and greater intentions to seek help in older adolescents (16 years). For emotional problems, univariate analyses indicated that emotional awareness was associated with help seeking from informal (e.g., friends, family), but not formal sources (e.g., doctors, counsellors). For suicidal thoughts, emotional awareness was associated with help seeking from both formal and informal sources. These two studies indicate that emotionally aware teenagers tend to have greater intentions to seek help when psychologically distressed, particularly from those close to them, such as friends or family. They also suggest that these relationships are partially mediated by social support such that greater social support may facilitate help seeking behaviours in those that are emotionally aware.

### **Friendship.**

Two studies assessed emotional awareness and friendship during adolescence. One cross-sectional study looked at the correlation between EI, including a subscale of perceiving emotions, and peer nominated friendship from classmates (Mestre et al., 2006). The ability to understand and manage emotions correlated with friendship nominations for females, but not for males. However,

perceiving emotions (the closest measure to emotional awareness) was not related to friendship nominations.

A second study tracked emotional awareness annually from Grade 8-12 and peer friendship nominations were completed in Grade 12 (Rowell, Ciarrochi, Heaven, & Deane, 2014). The initial level of emotional awareness females had when they entered high school (Grade 8), but not the change in their emotional awareness throughout high school, predicted the composition of friendship nominations they received in Grade 12. Specifically, girls with high emotional awareness in Grade 8 received more friendship nominations from other females and fewer nominations from males when they were in Grade 12. No effect was found for males. These two studies indicate that emotional awareness and other emotional skills may be particularly important for female friendships during adolescence.

### **Social adaptation.**

Only one study examined EI, including, *perceiving emotions*, in relation to social adaptation (Mestre et al., 2006). Social adaptation was measured using one item that asked four high school teachers to rate the extent that each student was well accepted and socially recognized by peers at school. This cross-sectional study found no significant relationships between perceiving emotions, or any other aspect of EI, and teacher ratings of social adaptation. This sole study suggests that emotional awareness or other emotional skills may not relate to teacher ratings of social adaptation in adolescents. However, it is unclear whether teachers are the most accurate judge of social acceptance and adaptation by fellow classmates.

### **Social problems.**

Two cross-sectional studies assessed social problems and emotional awareness. One study indicated that alexithymic adolescents report more social and relationship difficulties than non-alexithymic adolescents (Honkalampi et al., 2009). An operational definition of ‘social problems’ was not given and the article only mentioned that it constituted “problems in social relationships” (Honkalampi et al., 2009, p. 267). More girls reported being alexithymic compared to boys.

Alexithymia was related to social difficulties. Alexithymic youth reported worse relationships with parents and peers than those who were not alexithymic. Alexithymic girls also had more problems with siblings than non-alexithymic girls.

A second study assessed the correlation between alexithymia and various interpersonal problems in adolescent girls (Berger et al., 2014). This was studied in the broader context of a randomized controlled clinical trial for the prevention of binge eating disorder and weight gain. The two interpersonal problems assessed were: interpersonal deficits (i.e., social isolation, pervasive ineffective relationships and social problems) and role disputes (i.e., problems handling interpersonal conflicts). Based on an interpersonal inventory and the interpersonal goals of the participants, their social problems were assigned to either an interpersonal deficit or role dispute category. Youth with interpersonal deficits had higher alexithymia scores than those who did not, and there was a trend toward greater difficulty identifying emotions when compared to youth with role disputes.

### **Social competence.**

One study found that self-reported emotional awareness was positively associated with self-reported social competence in adolescents at ultra high risk (UHR) for psychosis (van Rijn et al., 2011). Although it is difficult to draw strong conclusions from one study, it does suggest that emotional awareness, particularly, the ability to identify one's own emotions, is important for perceiving oneself as sufficient and competent in social situations. This cross-sectional study used self-reported measures of emotional awareness and social competency to compare UHR and non-clinical controls. For UHR adolescents, difficulties with emotional awareness (identifying emotions, but not verbalizing emotions) were related to social incompetence. The authors suggest that these findings may be explained by the fact that emotional awareness is necessary for emotion regulation within social interactions. Unfortunately, the association between emotional awareness and social competence was not reported for the control group.

## Main Findings

Overall, there was generally a positive relationship between emotional awareness and social functioning, particularly for social support. For self-reported emotional awareness, there were 16 significant positive correlations, four significant negative correlations, and 14 non-significant correlations between emotional awareness and social functioning constructs. There was one positive correlation ( $r = .20, p < .05$ ), no negative correlations, and three non-significant correlations between objective measures of emotional awareness (e.g., performance, observation, interview, or rating by teachers or peers) and components of social functioning. The overall mean for the correlations was  $r = .18$ , with a range of  $r = -.19$  to  $r = .44$ , with the mode and median both being,  $r = .23$ . Thus, the magnitude of effect was small to moderate across the majority of studies.

The majority of the non-significant findings ( $n=12$ ) were from one study (Rowse et al., 2014), with ten of these non-significant correlations indicating that emotional awareness was not correlated with friendship nominations for males throughout four years of adolescence. The remaining five non-significant correlations indicated emotional awareness was not correlating with friendship, social adaptation (Mestre et al., 2006) and social support (Ciarrochi et al., 2002; 2003).

For self-reported emotional awareness predicting social functioning variables there were 28 positive, three negative and 20 non-significant beta coefficients. When using objective measures of emotional awareness, there were six positive, no negative, and six non-significant beta coefficients. Due to the use of multivariate analyses and univariate analyses while controlling for confounding variables, beta coefficients cannot be directly compared in magnitude. However, the majority of the beta coefficients indicate that emotional awareness predicted social support, help seeking and friendship. The three negative beta coefficients suggested: (1) for girls, high emotional awareness in early adolescences predicted fewer male friendship nominations in later adolescence (Rowse et al., 2014), and (2) during early adolescence, those skilled at emotional awareness were less likely to seek help from relatives and doctors (Ciarrochi et al., 2003). Most of the non-significant beta coefficients ( $n = 23$ ) indicated that emotional awareness: (1) did not predict help seeking from all sources,

particularly from more formal sources, such as teachers, priests, or doctors (Ciarrochi et al., 2002), and (2) emotional awareness did not predict the intention to seek help in early adolescence (Ciarrochi et al., 2003). The remainder of the non-significant beta coefficients suggest that social support did not predict emotional awareness one year later (Ciarrochi et al., 2008) nor did perceiving emotions predict friendship nominations or teacher ratings of social adaptation (Mestre et al., 2006).

## **Discussion**

Emotional awareness has been found to be associated with a variety of aspects of social functioning in adult samples (e.g., Fitness, 2006; Humphrey et al., 2009; Lumley et al., 1996), but it is unclear whether similar associations are present during adolescence. This review of ten studies (n = 6,438) captured six aspects of social functioning: social support, help seeking, friendship, social adaptation, social problems and social competence.

The review provides evidence for an association between emotional awareness and several, but not all, aspects of social functioning. A small to moderate positive correlation was found between these constructs in the majority of the studies reviewed. Although, the causal direction of this relationship is much less clear, with only one longitudinal study allowing the temporal order of these variables to be assessed, overall the results from the review provide sufficient positive findings to justify further research into this association.

There was a relatively consistent positive relationship identified between emotional awareness and perceived social support (Ciarrochi et al., 2002; 2003; Di Fabio & Kenny, 2012; Heaven et al., 2010). The one longitudinal study found that emotional awareness led to increased social support one year later (Ciarrochi et al., 2008). Adolescents who are more aware of their emotions tend to also receive greater social support and this emotional awareness led to increased quantity and quality of social support in the future. In particular, it may be the ability to describe how one is feeling that is important for accessing satisfactory social support (Ciarrochi et al., 2002).

Two studies assessed the link between emotional awareness and help seeking intentions (Ciarrochi et al., 2002; 2003). Adolescents who are more skilled at identifying their emotions also

have higher intentions to seek help in response to psychological difficulties. Adolescents with greater emotional awareness reported stronger intentions to seek help from informal and close sources (e.g., parents, friends, teachers), but were no more likely to seek help from professionals, than their peers with lower emotional awareness. This suggests that adolescents who are skilled at understanding and verbalizing their emotions are more able and willing to talk to close others about their difficulties. Also, they may be better able to connect to and access their close social supports (e.g., family and friends) when they need help, making additional assistance from professionals less necessary.

Conflicting results were found between the two studies assessing friendship and emotional awareness. One found that performance-based emotional perception was not related to friendship nominations (Mestre et al., 2006). In contrast, the second study found that self-reported emotional awareness was associated with the composition of friendships for female adolescents, but not for males (Rowell et al., 2014). Specifically, females with greater self-reported emotional awareness received more friendship nominations from other females, but fewer from male peers. Overall, these two studies indicate that perhaps emotional awareness and other emotional skills may be particularly influential for adolescent females' friendships but not for males'.

A link was found between low emotional awareness and social problems (Honkalampi et al., 2009), with adolescents with interpersonal deficits having more difficulty with emotional awareness than those with difficulties in their social roles (Berger et al., 2014). One study found that identifying but not describing emotions was associated with social competency while controlling for intellectual functioning within an adolescent group with ultra high risk for psychosis (van Rijn et al., 2011). Finally, no association was found between EI, including aspects of emotional awareness, and social adaptation (Mestre et al., 2006).

Overall, the findings from the research reviewed indicate that there is a reasonably consistent link between emotional awareness and social functioning. Emotional awareness and aspects of social functioning may continue to be malleable and influence one another after childhood and into adolescence. Even though it is not completely clear what the direction of the relationship between

emotional awareness and social functioning is, the single longitudinal study suggests that emotional awareness leads to increased social support.

Emotionally aware adolescents may be more highly skilled at understanding others' emotions and empathizing (FeldmanHall et al., 2012). This ability to understand their own and others' emotions would likely allow these individuals to modify their behaviour and respond to others in socially appropriate ways. They may have better emotion regulation and social skills, making them more appealing as friends for peers and this may in turn facilitate development and maintenance of interpersonal relationships. Additionally, emotionally skilled individuals may develop intimacy with others more easily because of their heightened ability to disclose emotional information and empathize. Finally, emotionally aware adolescents may recognize when they are emotionally distressed and communicate their needs to their support networks more easily than those who are less skilled. Thus, emotional awareness would likely contribute to more optimal social functioning. However, the direction of influence between emotional awareness and social support is likely to be bi-directional. Positive social interaction may help adolescents to become more emotionally aware. As infants, interactions with caregivers help the child to understand and self-regulate their emotions (Buckley & Saarni, 2006) and this may continue into later developmental stages. Friends and supportive others may model emotional awareness skills, encourage discussion of emotions, and help the adolescent to clarify and express their emotions.

### **Limitations**

Despite the weight of evidence suggesting that there is a positive association between emotional awareness and social functioning during adolescence, some limitations were noted. There appears to be no consistent operational definition for emotional awareness. Different studies used different terminology even when using the exact same scale. The variation in terms makes it difficult to identify relevant research. Similarly, there were several different measures used to assess emotional awareness across the studies. On one hand, this makes it difficult to directly compare

results. However, this diversity in scales can also give us a broader understanding of emotional awareness and its connection to social functioning.

Studies were mainly correlational and cross sectional. Therefore we cannot determine whether emotional awareness is a precursor or a consequence of social functioning. Only one study had a longitudinal design, but it was only over a one-year time frame. To understand the direction of the relationship between these constructs more longitudinal research is needed.

Many of the studies used self-report measures. These measures are useful, but are not objective. The use of objective measures, such as performance measures of emotional awareness, ratings from teachers, parents and peers on emotional awareness, social adaptation, friendship, and likeability may assist in greater understanding.

The majority of the studies (seven of the ten), used the 20-item Toronto Alexithymia Scale (TAS-20) or TAS-20 subscales as one of their measures of emotional awareness. The TAS-20 is the most widely used measure of emotional awareness within adult studies (Parker et al., 2010), but concerns about its use within adolescence have been raised (Parker et al., 2010; Sakkinen et al., 2007). In contrast, some studies have suggested that the TAS-12 (factors 1 and 2 only) is a valid and reliable measure to use with adolescents (Ciarrochi et al., 2002; 2003b; 2008; Heaven et al., 2010). Therefore, the results of this review are presented with these cautions in mind. Future research should endeavour to create a scale that assesses emotional awareness and also addresses the concerns about reading and language levels that may be beyond the cognitive ability of adolescents.

### **Implications for Future Research**

The various terms used for emotional awareness across the studies limit comparability of the findings. To facilitate future reviews, a uniform and consistent operational definition of emotional awareness along with the use of validated measures of this construct will make future studies more easily interpretable and comparable.

This review indicates that there is a connection between emotional awareness and aspects of social functioning during adolescence. What is not known is the direction or reciprocity of this

association. Interventions and longitudinal studies are necessary to clarify directionality. For instance, an intervention teaching adolescents emotional awareness skills and observing the effects of this on changes in various aspects of social functioning could be implemented. Likewise, teaching adolescents social functioning skills and assessing change in emotional awareness skills will provide evidence of its impact on emotional awareness.

### **Implications for Practice**

Although more research is needed to inform clinical and educational interventions to improve socio-emotional functioning some tentative implications for practice can be forwarded. The lone longitudinal study indicated that emotional awareness was antecedent to changes in social support so there may be merit in targeting emotional awareness skills in order to facilitate social functioning skills such as, accessing appropriate social support and improving social skills.

There are already programs that have been developed with the aim of improving socio-emotional skills in children. Emotional awareness has been targeted as part of these larger social and emotional programs (e.g., Brackett, Rivers, Reyes, & Salovey, 2012). For instance, the RULER Feeling Words Curriculum, which emphasises identifying and describing emotions, educates school leaders, educators, families and children on emotional awareness and other socio-emotional skills. However, to date, no studies have examined these socio-emotional interventions for adolescents. Adapted educational programs aimed at increasing adolescents' emotional and social skills could be put in place to promote emotional regulation, social competence, academic achievement and wellbeing (Brackett et al., 2012).

### **Conclusion**

The findings from this review suggest that there is a relatively consistent association between emotional awareness and aspects of social functioning during adolescence. Since these constructs tend to be related and interventions to boost socio-emotional skills have successfully improved social, academic and psychological wellbeing in children (Brackett et al., 2012), implementing interventions to bolster these socio-emotional skills in adolescents may prove beneficial. However,

the majority of research linking emotional awareness and social functioning during adolescence is cross-sectional and there is still a need to isolate the social domains that are most influenced by emotional awareness skills. Consequently, further research would likely be fruitful to help guide interventions.

## **Chapter 6**

### **Study 1:**

**The role of emotion identification skill in the formation of male and female friendships:**

**A longitudinal study**

#### **Manuscript published in the Journal of Adolescence in February 2014**

Rowell, H. C., Ciarrochi, J., Deane, F. P., & Heaven, P. C. L. (2014). The role of emotion identification skill in the formation of male and female friendships: A longitudinal study. *The Journal of Adolescence*, 37(2), 103-111. doi: 10.1016/j.adolescence.2013.11.005

*Note.* This chapter is based on the journal article noted above (see Appendix G). However, a few minor changes have been made to include it in this dissertation. Also, the terminology emotion identification skill was used instead of emotional awareness is used in this chapter and manuscript. The ethics and recruiting participants and data collection sections are included in this chapter whereas they are not included in the published manuscript

## Introduction

Emotion identification skill (EIS) is the ability to identify and describe one's emotions and plays an important role in wellbeing (Ciarrochi et al., 2008; 2011; Taylor & Bagby, 2004). It has also been studied in conjunction with a variety of mental and physical conditions and low emotional awareness is linked with many clinical disorders (e.g., depression, Bankier et al., 2001; eating disorders, Corcos et al., 2000; social phobia, Cox et al., 1995).

Despite the significance of this construct, there is limited research on the effect it may have on social relationships, which, especially during adolescence, are critical for development and psychological adjustment (Brown, 2004; Collins & Steinberg, 2008). The present study sought to examine the association between EIS and friendships in adolescence.

The ability to establish positive social relationships (e.g., friendships) is essential for health and wellbeing (Barrera, 1986; Fordham & Stevenson-Hinde, 1999; Hartup, 1992; Parker & Asher, 1993; Uchino et al., 1996). In adolescence, friendships are some of the most important relationships (Hartup, 1992). Social network size (e.g., Hartup, 1996; Nangle et al., 2003) and having at least one friend (e.g., Parker & Asker, 1993) are important for development, adjustment, and buffering against loneliness and social dissatisfaction. Being liked by peers is an antecedent to friendship development (Bukowski, Pizzamiglio, Newcomb, & Hoza, 1996). Those who are popular and accepted by peers are more likely to form friendships and report higher quality friendships (Bukowski et al., 1996; Parker & Asher, 1993).

There are many benefits of friendships, such as increased self-esteem (Fordham & Stevenson-Hinde, 1999), buffering against the risk of psychopathology (Bukowski et al., 1994), reduced loneliness (Jobe-Shields, Cohen, & Parra, 2011), depression and other forms of maladjustment (Clark & Ayers, 1992; Rubin et al., 2006).

Friendships are fundamental for social maturation during adolescence (Youniss & Haynie, 1992). This is a time when people start spending more time with peers and friendships become more intimate (Caldwell & Peplau, 1982; Clark & Ayers, 1992). Friendships allow adolescents to satisfy

their need for intimacy and self-disclosure (Clark & Ayers, 1992) while providing a social context for the development of interpersonal skills, such as collaboration, perspective taking, empathy and altruism (Buhrmester & Furman, 1986; Hartup, 1992).

Social relationships are of heightened importance during adolescence because it is critical for learning how to form and maintain satisfying and long-lasting relationships (Connolly et al., 2000; Hays, 1988). Since social relationships at this time may be particularly important in protecting against psychosocial problems (Clark & Ayers, 1992; Fordham & Stevenson-Hinde, 1999; Hartup, 1992; Helsen et al., 2000; Parker & Asher, 1993), it is important to understand skills (e.g., emotional awareness) related to friendships during this developmental stage.

### **Emotion Identification Skill**

EIS is a critical initial component of emotional competence (Buckley & Saarni, 2006; Saarni, 1999), emotional intelligence (EI, Ciarrochi et al., 2006; Mayer et al., 2004; Salovey et al., 2002) and meta-emotion (Gottman et al., 1996; Gottman et al., 1997), since it is difficult to act appropriately or control one's behaviour when unclear about what emotions you are experiencing (Dawda & Hart, 2000). Alexithymia is a condition in which there is an inability to recognize and understand one's own emotional state (Kerr et al., 2004; Salovey et al., 2002) and is inversely related to EI, particularly, the intrapersonal intelligence component (Dawda & Hart, 2000; Parker, Taylor, & Bagby, 2001).

Not only does awareness play an influential role in wellbeing (e.g., Cox et al., 1995; Kerr et al., 2004; Taylor et al., 1996), awareness and sharing of emotions are cornerstones for the development and maintenance of social relationships (e.g., Fitness, 2006; Spitzer et al., 2005). Understanding, labelling and regulating emotions are associated with positive social relationships (e.g., Eisenberg, Fabes, Guthrie, & Reiser, 2000; Lopes et al., 2004). Low EIS may lead to fewer relationships because having difficulty empathizing and distinguishing others' emotions, which are key aspects of successful social behaviour, are also associated with alexithymia (FeldmanHall et al., 2012). Deficits in the ability to identify and describe emotions have been associated with interpersonal problems in

adulthood, but very little research has explored this relationship in adolescence. Adults high in alexithymia engage in less social sharing of emotions, particularly when facing negative events, compared to those who are more aware of their own emotions (Pennebaker et al., 2001; Taylor, Bagby, & Parker, 1997). Alexithymia is also linked with having difficulty regulating emotions within social interactions (Spitzer et al., 2005), less social contact and fewer acquaintances (Kauhanen et al., 1993), less perceived social support (Posse et al., 2002), smaller social networks and fewer close relationships (Lumley et al., 1996).

EIS is correlated with social support network size and quality for adolescents and adults (Ciarrochi et al., 2003; 2008; Fukunishi, & Rahe, 1995; Lumley et al., 1996; Posse et al., 2002). For adults, difficulty describing one's emotions is associated with reduced intimacy and romantic relationship quality (Foran & O'Leary, 2012; Humphreys et al., 2009), lower peer acceptance (Saarni, 1999), lacking a steady partner or best friend, and having fewer close friends (Lumley et al., 1996). In adolescence, low EIS is associated with fewer and lower quality social supports (Heaven et al., 2010) and predicts decreased perceived quality and quantity of social support over a one-year period from Grade 8 to Grade 9 (Ciarrochi et al., 2008).

EIS is correlated with positive social interactions and functioning (e.g., Di Fabio & Kenny, 2012; Mestre et al., 2006), such as, quality of social interactions with friends and with members of the opposite sex, perceived self-presentational success in social interaction (Lopes et al., 2004) and reduced loneliness (Zysberg, 2012). Individuals who perceive that they are better able to identify their emotions and express these to others report greater availability of social support (Austin et al., 2005; Di Fabio & Kenny, 2012; Montes-Berges & Augusto, 2007).

Research on meta-emotional theory has found that awareness and openness to emotions and encouragement of emotional expression is beneficial for behavioural adjustment (Gottman et al., 1997), and peer acceptance and social competence (Denham et al., 2002; Saarni, 1999). At present, little research has focused specifically on emotional self-awareness and friendship.

Given that awareness may be necessary for the development of social support and friendships (Lumley et al., 1996; Spitzer et al., 2005), it is somewhat surprising that there is little research on the effects of awareness on social functioning in adolescence, and especially research that focuses on objective measures of friendship.

### **The Present Study**

To date, no studies have assessed the relationships between emotional awareness and a peer-based measure of friendships amongst adolescents. This study examined the link between the way people identify and understand their emotions -EIS -and peer nominated friendship over four years during adolescence.

It was hypothesised that adolescents high in awareness would have more friendship nominations from fellow classmates compared to those with lower scores. Additionally, this study assessed whether initial scores on awareness or change in awareness over adolescence are predictive of the number of friendships in later adolescence.

## **Method**

### **Ethics**

For this study as well as the study included in Chapter 7, data came from the Wollongong Youth Study (WYS). From 2003 until 2011, the WYS has been collecting data via school-based questionnaires. The Human Research Ethics Committee of the University of Wollongong has approved this data collection (HE05/162).

### **Recruiting Participants and Data Collection**

In the WYS, participants were students attending five high schools in the Catholic Diocese of New South Wales, Australia, specifically in the Wollongong and South-Western Sydney area. Students commenced participation in 2003 when they were in Grade 7 and approximately the age of 12 years ( $M = 12.28$  years,  $SD = 0.49$ ; Ciarrochi & Heaven, 2009).

Students completed questionnaires individually, in class, under the supervision of research assistants and teachers. Questionnaires were completed annually during the middle of the high school

year. Parents were given the choice of having their children withdraw from the study, with approximately 2-3% doing so in any given year (Ciarrochi & Heaven, 2009). The number of participants varied over the six-year data collection: 770 (Grade 7), 799 (Grade 8), 782 (Grade 9), 774 (Grade 10), 556 (Grade 11) and 476 (Grade 12).

## **Participants**

There was a diverse range of key socioeconomic and cultural indicators collected on this sample of high school students (see Heaven & Ciarrochi, 2008, for a more detailed account of the sample demographics).

Participants were surveyed in Grade 8 and then every 12 months for four years. In Grade 8 there were 795 (406 males; 389 females) students that participated. Their mean age was 13.41 years ( $SD = .53$ ). There was loss of participants due to students changing schools or leaving high school throughout the four years of the study. At the fifth wave of data collection, Grade 12, 468 (225 males; 243 females) students participated with a mean age of 17.02 years ( $SD = .38$ ).

Participants' parental occupations and marital status were assessed in Grade 8. Participants' fathers' occupations were distributed as follows: professionals, technicians or managers (40.7%); labourers, transport, or production (23.2%), trades (15.4%); sales/clerical (9.8%); community services (8.9%); and pensioner or homemakers (2.0%). For mothers', 37.3% worked in sales or clerical jobs, 31.8% were professionals, technicians or managers, 20.4% were pensioners or homemakers, 5.9% worked in community services, 4.7% in other work roles (e.g., labourers, trades). The majority of participants' parents were married (87.2%), with the remaining divorced or separated (9.4%), living together (1.9%), or widowed (1.5%).

## **Measures**

### **Emotion identification skill.**

The *Toronto Alexithymia Scale (TAS)* (Bagby et al., 1994a; 1994b) was used to measure self-reported ability to understand one's own emotions. This is a 20-item self-report measure consisting of three subscales: (1) difficulty identifying feelings, (2) difficulty describing feelings, and (3)

externally-oriented thinking. The first two factors are self-report measures of one's meta-emotional abilities (one's ability to think about their emotions) whereas the third factor assesses one's thinking style (Lundh, Johnsson, Sundqvist, & Olsson, 2002). For the purposes of the current study, given that we were only interested in identifying and describing emotions and the third subscale has not been found to be reliable in past research on adolescents (Rieffe, Oosterveld, & Terwogt, 2006), only the first two subscales were used making it a 12-item measure. Additionally, difficulty identifying and describing emotions are highly inter-correlated and fall within the same psychometric space; externally oriented thinking is only weakly correlated with the other two factors and does not fall into the same space (Gohm & Clore, 2000). This 12-item version of the TAS has been used in past research, is a reliable and valid measure of EIS in adolescence and has been found to be coherent and internally consistent (e.g., Ciarrochi et al., 2002; 2003b; 2008; Heaven et al., 2010). It is also distinguishable from related traits including self-esteem, hope, and positive and negative affect (Heaven et al., 2010). An example item is, "I am often confused about what emotion I am feeling." Items were rated on a 5-point Likert scale (*strongly disagree (1) to strongly agree (5)*). Strong internal consistency was demonstrated in the current study (Grade 8  $\alpha = .82$ , Grade 9  $\alpha = .84$ , Grade 10  $\alpha = .84$ , Grade 11  $\alpha = .83$ , Grade 12  $\alpha = .83$ ) in line with previous research on adult samples ( $\alpha = 0.81$ ;  $r = 0.77$ ;  $p < 0.01$ ; Bagby et al., 1994). Scores were reversed such that higher scores indicate greater awareness. Pearson  $r$  correlations were calculated between the total scores of the TAS-12 for all five waves to assess test-retest reliability of EIS over the years. The intercorrelations between the scale over the five waves were all significant, ranging from .51-.72 ( $p < .001$ ).

### **Friendship nominations.**

A socio-metric measure was used to assess friendships. Students were given the following instruction, "Consider everybody at your school in Grade 12. Please list up to five of your closest female and male friends". This item is similar to items from Pulkkinen's peer-rating measures (Pulkkinen, Kaprio, & Rose, 1999). Two scores were calculated for each participant based on the number of nominations they received from males and females.

## **Procedure**

Consent to administer questionnaires was obtained from schools, parents and students. It was reviewed and approved by the university human research ethics committee and the local Schools Authority. Participation was voluntary and students were informed that the information provided would only be viewed by the researchers. Administration of the questionnaires took place during the normal hours of the school day and was approximately 60 minutes in duration. In Grades 8 through 12, students completed a questionnaire assessing EIS and in Grade 12, students completed a measure of friendship nomination.

## **Statistical Methods**

### **Gender differences.**

Preliminary statistical analyses using IBM SPSS Statistics 21.0 were conducted to determine means, standard deviations and intercorrelations between study variables. Data was split by gender to assess the association between EIS and friendship nominations by gender. Friendship nominations from female and male peers were also separate to assess differences in how the genders report friendships. T tests were conducted to assess sex differences in EIS and friendship nominations.

### **Bivariate associations.**

Correlations between EIS over the five waves and friendship nominations from males and females (Table 6.1) were tested for statistical significance.

### **Latent growth curve analyses.**

We used *latent growth curve analyses* (LGM) to model the inter- and intra-individual change in EIS from Grade 8 to Grade 12. LGM allowed us to model the effect of initial status of EIS and change in awareness over time as a predictor of friendship nominations. LGM also allowed us to explicitly model measurement error and thereby separate the growth analyses from the errors of measurement. Thus, we obtained estimates of true initial status and true rate of change (Bub, McCartney, & Willet, 2007; Duncan, Duncan, Strycker, Li, & Alpert, 1999).

We utilized Amos Version 20 and Full Information Maximum Likelihood to estimate the models (Arbuckle, 2010). In light of clear sex differences (see Table 6.1) we generated growth curves for males and females separately. Also, since there appeared to be no simple linear trend in the EIS data (Table 6.1), we estimated both linear and quadratic growth effects. We first fitted unconditional growth models, in order to reveal the inter- and intra-individual differences in EIS changes. We then fitted a model that utilized initial status and linear growth as a predictor of friendship nominations in Grade 12. The LGM intercept was set to values of 1 for each awareness variable. The linear and quadratic slopes were set to weights of 0, .25, .50, .75, and 1, and 0, .0625, .25, .5625, and 1, respectively. These weights made measures “centred” on Grade 8 (initial status).

## **Results**

The number of friendship nominations from males and females were correlated for both males and females, such that as the number of male friendships increased so did the number of female friendships (for females,  $r = .16, p < .05$ , males,  $r = .23, p < .01$ ). T tests revealed no significant sex differences in awareness or friendship nominations from females at any time point. However, differences were found between friendship nominations by males for males ( $M = 2.67, SD = .231$ ) and females ( $M = 2.13, SD = 2.17$ ),  $t(375) = 2.34, p < .05$ , indicating that males gave more friendship nominations to males than females.

A repeat measures analysis was conducted to assess differences in EIS over time. No significant differences were found between EIS over the five waves for either gender.

## **Covariates**

Analysis of variance (ANOVA) was used to examine comparisons between demographic variables and key study variables. Results indicated that there were no differences in EIS or friendship nominations were dependent on fathers’ occupation, mothers’ occupation, or parental marital status over the five waves of the study; all  $ps > .05$ . Therefore, these were not confounding variables in the relation between EIS and friendship nominations.

## Correlations

Table 6.1 presents the correlations between EIS and friendship nominations. For females, EIS was associated with friendship nominations. Specifically, females who reported higher awareness in Grades 8, 10, 11 and 12 received more friendship nominations from other females in Grade 12. In contrast, females who reported high awareness in Grades 8-11 received fewer friendship nominations from males in Grade 12. No relation was found between EIS and friendship nominations for males.

## Latent Growth Curve Analyses

The initial status model provided a good fit to the data for both boys ( $\chi^2 = 18.79$ ,  $DF = 10$ ,  $NFI = .96$ ,  $RMSEA = .042$ ) and girls ( $\chi^2 = 20.6$ ,  $DF = 10$ ,  $NFI = .97$ ,  $RMSEA = .047$ ). There was no significant effect of linear or quadratic slopes for females ( $ps > .05$ ), but significant linear ( $B = -.32$ ,  $SE = .145$ ,  $p = .03$ ) and quadratic ( $B = .31$ ,  $SE = .14$ ,  $p = .03$ ) effects for males. There was a non-significant correlation between intercept and slope amongst boys ( $B = .237$ ,  $SE = .138$ ,  $p = .087$ ). For girls, there was a significant positive correlation between intercept and slope ( $B = .283$ ,  $SE = .139$ ,  $p = .041$ ), indicating that lower initial status in awareness was associated with an increase in EIS for girls. Finally, we found that there was significant variability in initial status (I) and linear (L) and quadratic (Q) growth within both boys ( $\sigma^2_I = .38$ ,  $SE = .045$ ;  $\sigma^2_L = 2.29$ ,  $SE = .71$ ,  $\sigma^2_Q = 1.71$ ,  $SE = .66$ ) and girls ( $\sigma^2_I = .50$ ,  $SE = .052$ ;  $\sigma^2_L = 2.23$ ,  $SE = .64$ ;  $\sigma^2_Q = 1.38$ ,  $SE = .57$ ). Thus, there was considerable variation in initial EIS and change in awareness over time for both boys and girls.

Our final models evaluated the ability of initial status and the slopes (of awareness) to predict Grade 12 friendship nominations. Consistent with our previous correlational analyses, we found no significant effect of EIS on friendship nominations amongst males,  $ps > .05$ . Amongst females, initial status of awareness (Grade 8) significantly predicted fewer male friendship nominations ( $B = -.589$ ,  $SE = .248$ ,  $p = .017$ ) and more female friendship nominations ( $B = .541$ ,  $SE = .23$ ,  $p = .02$ ) in Grade 12. The coefficients indicate that females who scored two units higher in EIS in Grade 8 tended to have one more female and one less male friendship nomination in Grade 12 than those who scored two units lower on EIS. There was no effect of the EIS slope on friendship nominations.

Table 6.1

*Means, Standard Deviations, and Correlations between EIS in Grade (G) 8-12 and Friendship Nominations in Grade 12 for Males (above diagonal) and Females (below diagonal)*

Variable	1	2	3	4	5	6	7	<i>M</i>	<i>SD</i>	<i>N</i>
1 EIS G8	---	.53***	.37***	.47***	.42***	.07	.11	3.68	.79	406
2 EIS G9	.59***	---	.54***	.54***	.50***	-.07	.03	3.69	.82	399
3 EIS G10	.48***	.67***	---	.64***	.51***	-.08	.07	3.77	.81	390
4 EIS G11	.48***	.59***	.68***	---	.63***	-.03	.06	3.78	.78	268
5 EIS G12	.50***	.61***	.63***	.65***	---	-.04	-.05	3.64	.81	225
6 Nomination by Males	-.15*	-.19*	-.19*	-.15*	-.08	---	.23**	2.31	2.31	176
7 Nomination by Females	.16*	-.08	.23**	.17*	.23**	.16*	---	3.02	3.02	176
<i>M</i>	3.72	3.63	3.66	3.76	3.70	2.13	2.87	---	---	---
<i>SD</i>	.84	.86	.86	.78	.82	2.17	2.03	---	---	---
<i>N</i>	389	379	387	296	243	201	201	---	---	---

*Note.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

EIS = emotion identification skill

Nominations by Males = friendship nominations by males

Nominations by Females = friendship nominations by females

## Discussion

The present study sought to investigate the association between EIS and friendships in adolescence. The study utilized a longitudinal design to examine this relationship over four years using a subjective measure of awareness and a peer-based measure of friendship. The findings indicated that awareness is of particular significance for the friendships of adolescent females –but not males.

EIS was stable over the four years of the study but it is unclear why it remained stable. Possible explanations of this stability may be that the EIS that individuals develop as children may influence the EIS they have in later developmental periods, such as adolescents. Perhaps children with high EIS in childhood continue to maintain high EIS in adolescence, whereas those with poor EIS skills in childhood may have difficulty improving on these poor skills in adolescence. As well, those high in EIS may have had positive role models, support and education about their emotions and thus may continue to seek out ways of understanding their emotions, while those lower in EIS may not have been given these early opportunities and thus, not be interested in their emotions or recognize the benefits of understanding them in later years. The study of the development of EIS skills throughout childhood and the association it has with friendship nominations would improve our understanding of EIS and its implications. However, caution should be taken when interpreting these results since these are preliminary findings. Replication is necessary to determine if these findings are consistent and meaningful.

Emotionally aware females received more friendship nominations from females in Grade 12, relative to their less aware counterparts. However, heightened awareness did not provide universal increase in friendships. That is, females who reported being more emotionally aware received fewer friendship nominations from males. These findings were consistent across the four years of the study. Awareness therefore appears to be correlated with the composition of female friendship, rather than the absolute number of friends. In contrast to females, males showed no link between awareness and friendship nominations. The finding that emotional awareness is associated with friendship

nominations for adolescent females, but not males, is somewhat consistent with previous research (Mestre et al., 2006). Mestre and colleagues (2006) found that understanding and managing emotions was correlated with peer friendship nominations for females but not males. However, they did not find that perceiving or using emotions (somewhat similar to EIS) was correlated for either gender. These findings suggest that emotional skills may be particularly influential for females' social networks. Specifically, initial EIS (Grade 8), rather than change in EIS over four years, was associated with friendship nominations for females in Grade 12.

Being emotionally aware may be beneficial for female-only friendships for a number of reasons. Female friendships tend to have higher emotional content, self-disclosure, and intimacy (Bryant, 1994; Caldwell & Peplau, 1982; Clark & Ayers, 1992) and females tend to be more emotionally expressive than males (Kring & Gordon, 1998). Adolescent females also tend to report more social support (Ciarrochi & Heaven, 2008; Furman & Buhrmester, 1992) and higher quality social support when compared to males their age (Ciarrochi & Heaven, 2008). Male and female same-sex friendships differ in the way they spend their time together, with females emphasizing talking and emotional sharing, whereas males emphasize engagement in active and structured activities (e.g., team sports, games, Caldwell & Peplau, 1982; Crick, 1995; Lever, 1978). However, the genders do not typically differ in quantitative aspects of friendship (e.g., number of friends, amount of time spent with friends) and tend to spend most of their time with same-sex friends (Caldwell & Peplau, 1982). Thus, emotions are more central in female-only friendships and those who are more aware of their emotions may be better suited to engage in self-disclosure and emotional sharing.

Less emotionally aware females may have received more friendship nominations from males and fewer from females for a number of reasons. Relationships with males tend to be more superficial (less intimate) than relationships with females (Bryant, 1994; Clark & Ayers, 1992; Crockett et al., 1984). Since, people who are less emotionally aware tend to form more superficial relationships

(Vanheule, Desmet, Meganck, & Bogaerts, 2007), it may be easier for less aware females to befriend males rather than females.

Boys tend to engage in more structured activities (Caldwell & Peplau, 1982; Lever, 1978), which typically centre around games and rules. Thus, less aware girls may find these activities more comfortable and easier to engage in than the more typical unstructured activities of females, such as, talking about emotions and personal issues. Alternatively, less aware girls may merely have a preference for more structured activities. Self-disclosure and emotional sharing are also reported less in friendships among males (Clark & Ayers, 1992; Crockett et al., 1984). Therefore, engaging with males may be easier and less intense for emotionally unaware girls when compared to engaging with more emotionally focused females. Future research is needed to investigate how more and less aware adolescents spend their free time, engage in social activities, and have emotionally focused interactions.

We found significant variation in the growth of awareness over time. However, LGM revealed that change in awareness from Grade 8 to 12 was not linked to friendship composition. Instead, the critical factor appeared to be initial awareness in Grade 8. That is, girls starting out low in awareness in Grade 8 tended to have fewer female friendships and more male friendships. Lower initial awareness was associated with significant improvements in awareness over time, but these improvements had no positive influence on friendship nominations (from either males or females) in Grade 12. These results suggest that the emotional awareness females have around the time they enter high school has long-term implications for friendship nominations.

It is interesting to speculate why initial EIS, rather than the development of awareness, was predictive of friendship networks. First, adolescents may maintain the same friendships from the beginning of high school until the end. Change in awareness would not have an impact on quantity of friendships if friendships were stable. However, it looks like instability rather than stability is typical of friendships at this time (Jiang & Cillessen, 2005). In early adolescence, friendship is fairly stable over one school year (50% to 70% of friends remain friends throughout the year; Berndt & Hoyle,

1985; Bowker & Bukowski, 1997 as cited in Bowker, 2004). However, even within one year, it is clear that there is considerable change in friendships. In a meta-analysis it was found that stability of socio-metric ratings were moderate (.50), but it goes down about .01 to .04 for every 1-month increase in the test-retest period (Jiang & Cillessen, 2005). Since the present study was across four years (48 months), there was likely to be moderate to substantial change in friendship networks.

A second reason that initial awareness may be important is that girls who have more male friends at the beginning of high school may have difficulty making friends with girls. These “male-friendly” girls may be viewed as being odd, different or as a threat by other girls. Such perceptions may be difficult to change, despite changes in EIS, making it difficult for these girls to gain female friends.

### **Limitations and Future Directions**

We did not assess friendship nominations until Grade 12 and therefore cannot determine the extent that EIS led to changes in friendship networks. It may be that EIS helps people to build friendship networks (Ciarrochi et al., 2008). However, it is also possible that people with fewer friends will develop lower EIS. In childhood, social relationships, particularly those with caregivers, provide opportunity to develop emotional awareness and other emotion regulation skills (Buckley & Saarni, 2006). Thus, it is possible that friendships or other social supports may influence the development of EIS within adolescence.

Future research is needed to assess the link between EIS and friendship nominations where both are assessed at multiple time points. Additionally, peer nominations of friendship were constrained to school peers only –specifically those in the same grade. Therefore, friendships external to school were not accounted for. Quality in addition to quantity of friendships should be assessed in conjunction with EIS to understand the impact it may have within friendships.

A second limitation is the measure used for EIS. Although this measure has been used extensively in past literature (e.g., Ciarrochi et al., 2002; 2003b; 2008; Heaven et al., 2010), there may be more suitable instruments for measuring emotional awareness (e.g., *Levels of Emotional Awareness Scale*, Lane et al., 1990). It would be useful to replicate this study using different

instruments to assess the reliability of the findings. It would be useful to measure emotional awareness with performance measures (e.g., LEAS) as well as subjective measures since self-reported emotional awareness may have some drawbacks to it. For instance, people truly low in awareness and people who have little belief (i.e., self-efficacy) in their ability to understand their emotions may both score low on emotional awareness for these different reasons.

Since only the first two factors of the TAS-20 were of interest in this study because of the focus specifically on identifying and describing emotions, this makes it somewhat difficult to directly compare the results with previous research. However, previous studies have used these 12-items of the TAS-20 (Ciarrochi et al., 2002; 2003b; 2008; Heaven et al., 2010) or only one factor of the TAS-20 (Williams, Ciarrochi, & Deane, 2010). Replication of this study with different measures of emotional awareness would increase understanding on how its association with friendship.

There are potential psychometric issues with using subscales from the TAS-20 within such a young population, particularly during grade 8. Parker et al. (2010) has found that there are some potential confounding variables when using the TAS-20 to assess emotional awareness during younger adolescence. Grade 8 students may have struggled to fully grasp the 12 items on the scale due to their level of reading, language and cognitive skills. Therefore, it is with caution that we present these results. Additionally, this highlights the importance of assessing emotional awareness during adolescence through multiple assessment tools and ensuring that measures are age-appropriate for participants.

Further study should investigate whether the findings from the present study are consistent across different developmental stages and over different types of social relationships (e.g., romantic relationships, marriage partners, work colleagues) and different aspects of social functioning (e.g., social support, peer-nominated likability, social adjustment).

In summary, EIS levels early in high school appear to have considerable effects on the composition of female social networks. Future research is needed to examine the link between EIS and social behaviour that may facilitate same and opposite-sex friendship formation.

## Chapter 7

### Study 2:

#### Emotion Identification Skill and Social Support during Adolescence:

#### A Three-Year Longitudinal Study

**Manuscript accepted to be published in the Journal of Research on Adolescence in August 2014**

Rowell, H. C., Ciarrochi, J., Deane, F. P., & Heaven, P. C. L. (in press). Emotion identification skill and social support: A three year longitudinal study. *Journal of Research on Adolescence*. doi: 10.1111/jora.12175

*Note.* This chapter is based on the journal article noted above (see Appendix H). However, a few minor changes have been made to include it in this dissertation.

The terminology emotion identification skill was used instead of emotional awareness in this chapter and manuscript.

Table 7.1 is included in this chapter whereas it was not in the manuscript.

## **Introduction**

Social relationships are critical for psychological adjustment and wellbeing, particularly during adolescence (Collins & Steinberg, 2008; Fordham & Stevenson-Hinde, 1999; Uchino et al., 1996). Thus, it is important to understand the factors that influence social relationships during this important developmental period. The present study investigated the longitudinal links between social support and emotion identification skill (EIS), a key aspect of emotional competence (e.g., Ciarrochi, et al., 2008; Kerr et al., 2004; Salovey et al., 2002).

EIS is defined as the ability to identify, label and describe one's emotions (Ciarrochi et al., 2008). Low EIS has been hypothesized to underpin poor mental and physical health (e.g., Corcos et al., 2000; Taylor et al., 1996) and plays an important role in the development of poor wellbeing (Ciarrochi et al., 2010). Recent research suggests that having low EIS may influence the composition of friendship networks, with girls low in EIS tending to have more male oriented networks (Rowse et al., 2014). However, little longitudinal research has examined the role of EIS in the development of positive social support during adolescence. This study assessed EIS and social support four times across three years, and assessed the extent that EIS was a precursor to the development of social support, a consequence of that support, or both (reciprocal influence).

## **Social Support in Adolescence**

Social support is broadly defined as the assistance and protection that one receives from others and a social network is the group of people who provide this help and protection (Hinson Langford et al., 1997). Perceived social support is an individual's subjective appraisal that their social network will be helpful and effective when needed (Lakey & Scoboria, 2005).

Perceptions of support in adolescence may be particularly important because although adults may believe that they are being supportive; an adolescent may not think so and may not, consequently, seek further support. The adolescent is the only one who is privy to their unique perception of the support they receive (Furman & Buhrmester, 1992). For example, offers of help are often seen as intrusive amongst adolescents who are seeking independence and autonomy.

Social support is associated with key health and wellbeing factors (see Uchino et al., 1996 for a review), such as decreased depression (Buschmann & Hollinger, 1994), increased self-esteem (Fordham & Stevenson-Hinde, 1999), and reduced emotional problems (Helsen et al., 2000).

Interpersonal relationships are of heightened importance during adolescence because they play a critical role with respect to learning how to form and maintain satisfying, long-lasting relationships (Connolly et al., 2000) and may be particularly important in protecting against psychosocial problems (Fordham & Stevenson-Hinde, 1999; Helsen et al., 2000). Support from both family and peers are vital during adolescence. Nonetheless, research has found parental support to be a better indicator of positive development than peer support (Greenberg et al., 1983; Nada Raja et al., 1992).

### **Emotion Identification Skill**

EIS is an essential component of emotional competence (Buckley & Saarni, 2006; Ciarrochi et al., 2002, Saarni, 1999), emotional intelligence (Mayer et al., 2004; Salovey et al., 2002) and meta-emotion (Gottman et al., 1996). Each of these areas of study has slightly varying definitions of EIS. For the purpose of this study, we conceptualized EIS as the ability to identify and describe one's emotions (Ciarrochi et al., 2008). For brevity and consistency with past research (e.g., Ciarrochi et al., 2008; Rowsell et al., 2014) the term EIS was used to conceptualize both factors of identifying *and* describing feelings. This conceptualization is derived from the construct of alexithymia (Sifneos, 1973; Bagby, Parker, & Taylor, 1994), which is most commonly assessed using the Toronto Alexithymia Scale (*TAS*, Bagby et al., 1994). This measure characterizes alexithymia as a deficit in the ability to identify and describe one's emotions and externally oriented thinking. The TAS also has extensive research supporting its reliability and validity (Taylor, Parker & Bagby, 2003). Given our interest in investigating subjective appraisal of adolescents' ability to understand their own emotions the TAS was selected for use in the study. During early childhood, EIS is predominantly developed within the context of an attachment relationship with a caregiver. Reciprocal interactions between infant and caregiver help the infant to understand their emotions, seek support and sooth themselves

(Buckley & Saarni, 2006). This relationship establishes the child's base for developing emotional skills, accessing appropriate support and forming expectations for future social relationships. It is evident that in early life, social relationships influence EIS. However, it is unclear whether social support and relationships continue to influence the development of emotional awareness into adolescence.

EIS is associated with positive adjustment and decreased distress (e.g., Kerr et al., 2004; Salovey et al., 2002). Alexithymia is associated with many clinical disorders, such as, eating disorders (Taylor et al., 1996), depression (Posse et al., 2002), social phobia and panic disorder (Cox et al., 1995).

EIS may be particularly important during adolescence because emotional skills are used at this time to navigate transitions to high school, puberty, new relationships, and possible changes in social status (Leyden & Shale, 2012). Those who are more emotionally aware may be more able to deal with emotional difficulties and seek support in socially appropriate ways.

### **Emotion Identification Skill and Social Support**

EIS may be crucial for the development and maintenance of interpersonal relationships. Difficulty with identifying and articulating emotions is associated with a number of interpersonal problems in adulthood (e.g., Lumley et al., 1996; Spitzer et al., 2005), but few studies have looked at this in adolescence, particularly over time. Previous research indicates that there is an association between EIS and perceived social support (Ciarrochi et al., 2003b; 2008; Lumley et al., 1996), but there is little longitudinal research clarifying the temporal ordering of these variables.

The majority of past research is cross-sectional with few studies assessing EIS and social support in adolescence over time. These studies provide somewhat inconsistent results. For instance, in one study, self-reported ability to describe one's emotions has been related to social support, but self-reported identification of one's emotions and a performance based emotional awareness was not (Ciarrochi et al., 2002). Also, low EIS has been correlated with fewer supportive others and lower quality social support in adolescence (Heaven et al., 2010) and predicted decreased perceived quality

and quantity of social support from Grade 8 to 9 (Ciarrochi et al., 2008). However, another study found that only quality and not social network size was related to EIS (Ciarrochi et al., 2003). These preliminary links between EIS and social support in adolescence suggest that EIS may be important for social support. Therefore, the present study investigates the longitudinal relationships between these constructs over a three year period.

### **The Current Study**

Little, if any, research has examined the direction of influence between EIS and social support among adolescents or assessed the stability of these constructs over this time. The current study investigates the link between EIS and social support in adolescence over a three year period from Grade 9 to Grade 12. Cross-lagged structural equation modelling is used to assess the extent to which EIS is an antecedent to residual changes in social support or a consequence of changes in social support. Gender differences are also investigated, given that past research has found that adolescent girls tend to report higher quantity (Armsden & Greenberg, 1987; Ciarrochi & Heaven, 2008; Furman & Buhrmester, 1992) and quality of social support than boys (Ciarrochi & Heaven, 2008) and EIS predicted friendship nominations for females but not males (Rowse et al., 2014).

## **Method**

### **Participants**

Participants were students attending five high schools in a Catholic Diocese of New South Wales, Australia, specifically in the city of Wollongong (population approximately 250,000) and the metropolitan area of South-Western Sydney. Students completed questionnaires annually for three years, from Grade 9 ( $M = 14.41$ ,  $SD = 0.53$ ) to Grade 12 ( $M = 17.02$ ,  $SD = 0.38$ ). The total sample of participants was 903 (464 males; 439 females) with 314 (151 males; 163 females) completing all four waves, 556 (267 males; 289 females) completing three, and 786 (393 males; 393 females) completing at least two waves. The mean number of waves completed was 2.83 ( $SD = 1.05$ ).

The distribution of fathers' occupations of the participants at the commencement of the study approximated that of the national distribution with slightly more fathers' being professionals and

semi-professionals. Therefore, participants can be considered middle class. At Time 1 (Grade 9), the occupations of the participants' fathers were distributed as follows: professionals, technicians or managers (34.8%); labourers, transport, or production (23.2%), trades (21.3%); sales or clerical (10.3%); community services (8.3%); and homemakers (2.1%). For mothers' occupations, 32.9% worked in sales or clerical jobs, 30.6% were professionals, technicians or managers, 21.8% were homemakers, 9.3% worked in community services, 5.5% in other work roles (e.g., labourers, trades). The majority of participants' parents were married (81.4%), with 13.6% divorced or separated, 2.8% living together, and 1.9% widowed.

At Time 2 (Grade 10), 86.5% of participants indicated that they were Catholic and these rates dropped to 82.6% and 82.1% in Grade 11 and Grade 12, respectively. Additionally, 19.77% of participants were exposed to a language other than English at home, compared to the national average of 15.8% (Australian Bureau of Statistics, 2006). Due to school absences, school activities, changing schools or leaving schools for technical training or the workforce, particularly after Grade 10, attrition occurred.

## **Measures**

### **Emotion identification skill.**

EIS was assessed using the two factors of the *Toronto Alexithymia Scale (TAS-20)* (Bagby et al., 1994a; 1994b). This 20-item self-report measure consists of three factors: (1) difficulty identifying feelings, (2) difficulty describing feelings, and (3) externally-oriented thinking. Factors 1 and 2 measure meta-emotional abilities and are highly inter-correlated (Gohm & Clore, 2000). Past research suggests that externally oriented thinking is not reliable in adolescents (Rieffe et al., 2006), has a weak correlation with the first two factors and does not fit into the same psychometric space (Gohm & Clore, 2000). With the present study's focus on EIS rather than thinking style, only the first two subscales were used. This 12-item version of the TAS has been found to be reliable and valid for assessing EIS in adolescence (e.g., Ciarrochi et al., 2002) and distinguished from related traits such as, positive and negative affect (e.g., Heaven et al., 2010). An example item is "I am often confused

about what emotion I am feeling”. Items were rated on a five-point Likert scale (*strongly disagree (1) to strongly agree (5)*). The TAS-20 is reliable and factorially valid in several languages and countries (Taylor et al., 2003). The range of possible scores was 4 with a minimum of 1 and maximum of 5. The mean Cronbach’s alpha for the 12 items over the four waves was  $\alpha = .89$  ( $SD = 0.002$ ) in line with previous research on adult samples (Cronbach’s alpha = 0.81;  $r = 0.77$ ;  $p < 0.01$ ; Bagby et al., 1994). Scores were reversed such that higher scores indicated higher EIS.

Items were parcelled in order to be used in latent variable analyses. Three parcels were created; each consisting of four randomly selected items. Item parcels can be advantageous because they are more reliable, normally distributed, and require the estimation of fewer parameters than when using single items (Coffman & MacCallum, 2005; Kishton & Widaman, 1994).

### **Social support.**

The four-item revised version of the *Social Support Questionnaire (SSQ)* (Sarason, Levine, Basham, & Sarason, 1983) was used to measure two facets of perceived social support: social support network size and quality of social support. Participants listed the people who they could rely on for support and rated how satisfied they were with the support they received overall using a 6-point Likert scale (*very dissatisfied (1) to very satisfied (6)*). An example item is: “Who do you feel really appreciates you as a person?” This measure has good internal reliability ( $\alpha > .85$ ; Ciarrochi & Heaven, 2008), test-retest reliability and predictive and concurrent validity (Sarason et al., 1983), and has been validated in previous research with adolescents (Ciarrochi et al., 2003). In the present study the mean Cronbach’s alpha for the four social support network size items and four quality of social support items over the four time waves were  $\alpha = .90$  ( $SD = 0.01$ ) and  $\alpha = .85$  ( $SD = 0.03$ ), respectively.

## **Results**

### **Preliminary Analyses**

Participants who completed all four waves of the study were compared to those who missed at least one wave on EIS, social support network size and social support quality scores (see Table 7.1).

Missing values analyses revealed only one significant difference. Only EIS in Grade 12 differed significantly between completers ( $M_{12} = 3.74$ ,  $SD = 0.80$ ) and non-completers ( $M_{12} = 3.55$ ,  $SD = 0.83$ ),  $p = .02$ ,  $\eta^2 = .01$ . The effect size for all comparisons was small ( $\eta^2 \leq .01$ ). In all analyses, full-information-maximum-likelihood estimation (FIML), rather than traditional approaches, was used to deal with missing data. FIML uses all available information for parameter estimates, which reduces estimation biases (Enders & Bandalos, 2001).

The stability of EIS, social support network size and quality over the four waves was examined using one-way repeated measures ANOVA. For EIS, there were no significant differences between scores from Grade 9 to Grade 12 (see right side, Table 7.2).

There was a general trend for social support network size and quality to increase with age (Table 7.2). For network size, results show that there were differences in scores across time,  $F(3, 984) = 3.20$ ,  $p = .024$ , partial  $\eta^2 = .010$ . Pairwise comparisons revealed that in Grade 9, network size ( $M = 5.98$ ,  $SD = 2.22$ ) was significantly lower than in Grade 11 ( $M = 6.32$ ,  $SD = 2.17$ ).

There were differences across years for social support quality,  $F(3, 927) = 6.72$ ,  $p < .001$ , partial  $\eta^2 = .021$ . Pairwise comparisons revealed that in Grade 9, quality ( $M = 5.31$ ,  $SD = 0.66$ ) was significantly lower than in Grade 11 ( $M = 5.45$ ,  $SD = 0.62$ ) and Grade 12 ( $M = 5.42$ ,  $SD = 0.69$ ). Additionally, in Grade 10, quality scores ( $M = 5.34$ ,  $SD = 0.66$ ) were significantly lower than those in Grade 11 (see Table 7.2).

Bivariate correlations were conducted to examine the relationship between EIS, network size and quality of social support across the school years (Table 7.2). All correlations between EIS, social support network size and quality were significant. Correlations between EIS and network size ( $r$  ranged between .08 - .29) and quality ( $r$  ranged between .19 - .34) were small in magnitude.

### **Structural Equation Modeling**

Mplus 6 was used for structural equation modeling (SEM), specifically autoregressive cross-lag (ACL) modeling, to represent the association between EIS and social support (network size and quality, separately) over the four waves of this study. Maximum Likelihood parameter (MLR)

Table 7.1

*Comparisons of Variables for Completers and Non-completers*

Emotion Identification Skill							Social support network size						Social support quality					
Completers		Non completers					Completers		Non completers				Completers		Non completers			
Grade	Mean	SD	Mean	SD	<i>p</i>	$\eta^2$	Mean	SD	Mean	SD	<i>p</i>	$\eta^2$	Mean	SD	Mean	SD	<i>p</i>	$\eta^2$
9	3.23	.80	3.64	.83	.15	.00	6.01	2.25	5.76	2.24	.14	.00	5.29	.69	5.36	.69	.18	.00
10	3.23	.81	3.71	.84	.65	.00	6.26	2.18	6.20	2.42	.72	.00	5.32	.68	5.39	.74	.40	.00
11	3.80	.77	3.73	.73	.22	.00	6.36	2.08	6.39	2.27	.88	.00	5.44	.62	5.44	.72	.95	.00
12	3.74	.80	3.55	.83	.02	.01	6.17	2.24	6.09	2.34	.75	.00	5.40	.71	5.40	.81	.86	.00

Table 7.2

*Means, Standard Deviations, and Correlations between Variables by Grade*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	M	SD	N
1 EIS G9	1	.61**	.57**	.56**	.16**	.18**	.23**	.17**	.26**	.27**	.21**	.19**	3.66	.84	778
2 EIS G10		1	.66**	.57**	.08*	.15**	.22**	.22**	.21**	.29**	.26**	.25**	3.70	.84	777
3 EIS G11			1	.64**	.18**	.23**	.28**	.20**	.21**	.35**	.29**	.23**	3.76	.78	565
4 EIS G12				1	.12*	.22**	.29**	.24**	.20**	.30**	.31**	.34**	3.67	.82	468
5 Network Size G9					1	.52**	.47**	.39**	.36**	.30**	.19**	.17**	5.86	2.25	761
6 Network Size G10						1	.65**	.49**	.27**	.43**	.27**	.22**	6.22	2.33	833
7 Network Size G11							1	.63***	.27**	.34**	.33**	.21**	6.37	2.17	561
8 Network Size G12								1	.22**	.34**	.21**	.38**	6.15	2.27	463
9 Quality G9									1	.52**	.37**	.43**	5.33	.68	769
10 Quality G10										1	.48**	.52**	5.35	.72	768
11 Quality G11											1	.50**	5.44	.67	561
12 Quality G12												1	5.40	.74	462

Note. \* $p < .05$ , \*\* $p < .001$

EIS = emotion identification skill

Network size = social support network size

Quality = social support quality

G = grade

estimates were used with standard errors and a chi-squared test statistic that are robust to non-normality. SEM ACL modeling allows assessment of temporal ordering of constructs and stability of observed effects. This enables examination of the extent to which EIS predicts the degree and direction of change in social support and vice versa.

Model fit was deemed satisfactory if: a) the solution was well defined, b) the parameter estimates were in line with their theoretical basis, and c) the fit indices were adequate, with emphasis on fit indices that are suitable for larger sample sizes (Marsh, Balla, & McDonald, 1988; McDonald & Marsh, 1990). Three fit indices criteria were used in addition to chi-square due to its sensitivity to sample size: Tucker-Lewis Index (TLI) and Comparative Fix Index (CFI)  $> .95$  and RMSEA  $< .08$  (Cheung & Rensvold, 2002; see Hu & Bentler, 1999 for a review).

Prior to testing the relationship of EIS and social support over time, longitudinal invariance testing of the measures was completed. The baseline model (Model 1) held only the model structure to be consistent across time. If the fit of the baseline model is acceptable, then increasingly restrictive models can be assessed. This was done to identify the simplest model to best explain the longitudinal relationships between EIS and social support over the four waves. The causal ordering of EIS and social support was of interest, particularly, the extent to which EIS acted as an antecedent to reduced social support network size and quality.

The baseline model (Model 1) allowed the factor loadings, autoregressions and crosslags to vary across time, and estimated autoregressions across all lags. Model 2 (i.e., factor loading invariance) was the same as Model 1 with the exception that factor loadings were constrained across time. Model 3 (i.e., factor loading and autoregression invariance) was the same as Model 2 with the exception that autoregressions were also constrained across time. Finally, Model 4 (i.e., factor loading and path invariance), then was identical to Model 3 except that the crosslags were constrained to be consistent across time as well. Alternative models were compared to the well-fitting baseline Model 1 in order to assess invariance. Criteria by Cheung and Rensvold (2002) and Chen

(2007) suggest that evidence for invariance between models occurs if  $\Delta CFI$  is  $\leq .01$  (this same criterion as used for TLI) and  $\Delta RMSEA$  is  $\leq .015$ .

As can be seen in Table 7.3, all models meet the criteria for invariance because there is little change in model fit from Model 1. This finding indicates that the factor structure of social support and EIS are consistent over time (measurement invariance), as are the autocorrelations and cross-lag paths. Estimates of cross-lags are therefore based on data gathered across all four years of the study. Examination of the cross-lags in Model 4 indicates that EIS had a significant and positive effect on residual change in social support network size ( $\beta = .096, p < .001$ ) and quality ( $\beta = .103, p < .001$ ). In addition, social support network size ( $\beta = .055, p = .01$ ) and social support quality ( $\beta = .115, p < .001$ ) had a significant and positive effect on residual change in EIS. These findings provide evidence for a reciprocal influence between EIS and both aspects of social support over high school.

Demographic variables, specifically, parental marital status and fathers' and mothers' occupations were added to Model 4 to assess whether this changed the model fit or cross-lags. No significant changes were made from this addition to the model.

Finally, multigroup analyses were conducted to assess whether these effects were consistent within gender. Two models were compared: one that allowed the effects of gender to differ and the other in which gender effects were fixed to be the same. If there was a significant drop in log-likelihood and change in fit indices, then this would suggest that the relationship between EIS and social support differs between the genders. There was no significant change in the fit indices between the models (social support network size:  $\chi^2(661) = 933.44, p < .001$ , CFI = .971, TLI = .967, RMSEA = .03; social support quality:  $\chi^2(661) = 918.99, p < .001$ , CFI = .966, TLI = .962, RMSEA = .029; see Table 7.3 for comparison). Thus, the reciprocal effects of EIS and social support network size and quality are consistent within males and females.

Table 7.3

*Assessment of the Consistency of Cross-lag Effects Across Time for Emotion Identification Skill and Social Support Network Size and Quality*

Model	$\chi^2$	df	CFI	TLI	RMSEA
Model 1: Factor loadings not constrained to be invariant over time					
Network size	494.85*	294	.977	.970	.027
Quality	464.12*	294	.974	.967	.025
Model 2: Factor loadings constrained to be invariant over time					
Network size	515.07*	309	.976	.971	.027
Quality	465.074*	309	.976	.971	.024
Model 3: Factor loadings and autoregressions to be invariant over time					
Network size	519.01*	313	.976	.971	.027
Quality	463.05*	313	.977	.972	.023
Model 4: Factor loadings and paths invariant over time					
Network size	528.01*	317	.975	.971	.027
Quality	468.859*	317	.977	.973	.023

*Note.* \* $p < .001$

Network size = social support network size

Quality = social support quality

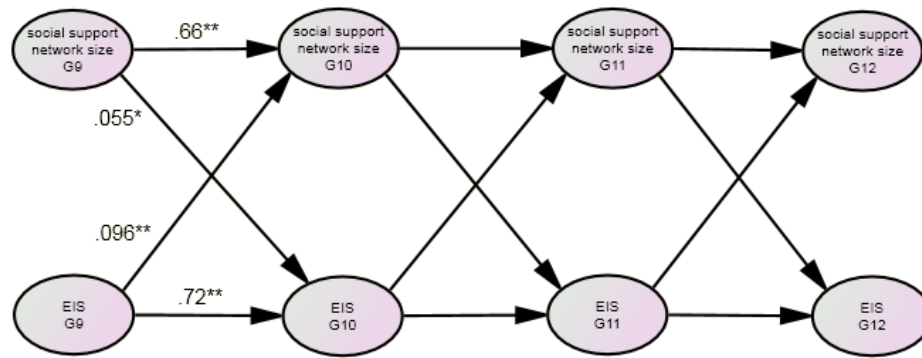


Figure 7.1. Factor loadings and paths invariant over time for emotion identification skill and social support network size

Note. \* $p \leq .01$ , \*\* $p < .001$

EIS = emotion identification skill

Cross-lags and autoregressions were set to be equal over the years in Model 4

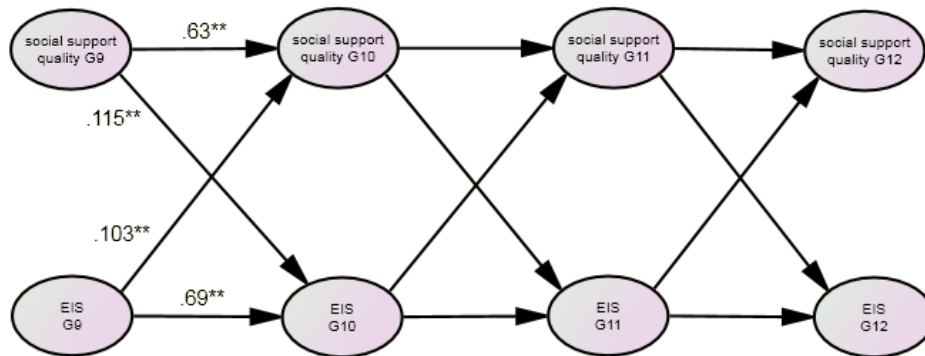


Figure 7.2. Factor loadings and paths invariant over time for emotion identification skill and social support quality

Note. \*\* $p < .001$

EIS = emotion identification skill

Cross-lags and autoregressions were set to be equal over the years in Model 4

## **Discussion**

A three-year, four-wave longitudinal study was conducted to assess the longitudinal association between the development of EIS and social support network size and quality during adolescence. The findings provide evidence for a reciprocal relationship between these constructs. Greater awareness of one's emotions reliably predicted increasing levels of social support network size and quality. Additionally, having a larger social network and better quality social support reliably predicted increasing levels of EIS. These influences were consistent across three years during adolescence (Grade 9-12) and gender.

The finding that EIS is associated with perceived social support network size and quality is consistent with previous research (Ciarrochi et al., 2008; Heaven et al., 2010; Kauhanen et al., 1993; Lumley et al., 1996). Previous research indicates that EIS is associated with greater social wellbeing. For instance, adults who are low in EIS have smaller social networks and fewer close relationships (Lumley et al., 1996; Posse et al., 2002) and fewer social acquaintances and less social contact (Kauhanen et al., 1993). For those in relationships, difficulty identifying and describing one's emotions is related to lower intimacy and romantic relationship quality (Foran & O'Leary, 2012). Low EIS is also associated with decreased social sharing of emotions (Pennebaker et al., 2001) and difficulty regulating emotions when socializing (Spitzer et al., 2005). People who report higher EIS have greater peer acceptance and social competence (Saarni, 1999) and report greater availability of social support (Di Fabio & Kenny, 2012).

There are a number of possible explanations for why EIS predicts greater social support. Aware adolescents may be better able to recognise when they are emotionally

distressed and seek appropriate support. Those high in EIS may have a greater capacity to self-regulate when emotionally distressed and hence, have less dependence on external support and more satisfaction with the support they receive. In contrast, those who do not understand their emotions may have more difficulty recognising when they are struggling emotionally and therefore, may not recognise the need to seek support or self-soothe. Not being able to understand their emotions and needs may lead to receiving less than optimal support.

Those high in EIS may have better social skills facilitating the ability to engage social supports (increase network size) and get the most out of that support (improve quality, Lumley et al., 1996). They may have the ability to develop and maintain healthy and intimate relationships, leading to closer connections with others and in turn, superior overall support. Finally, being aware of one's own emotions is associated with and may be a prerequisite for recognizing emotions in others and developing empathy (Moriguchi et al., 2007). Adolescents with these skills may be more appealing to others because of the reciprocity of the social exchange. Consequently, they may develop connections with others more easily, leading to a larger and more sustained social network.

Findings indicated that perceived social support network size and quality predicted increased EIS in adolescence. Prior research has found that social relationships during early childhood influence EIS (Buckley & Saarni, 2006). This study suggests that this influence may continue in later developmental stages, including adolescence. Social support may continue to influence the degree of EIS in numerous ways. For instance, supportive others may model emotion regulation skills. Moreover, adolescents may learn about their own emotions by listening to others' self-disclosure and label their emotions.

Interactions with supportive others may encourage expression of the adolescent's emotions, thus, leading to greater feedback and understanding of their internal experiences. These support people may assist in clarifying and articulating the adolescents' emotions. Finally, the support network may show acceptance of their own and the adolescent's emotions, which could open the adolescent up to be more aware and curious of their own internal experiences.

The findings are consistent with a reciprocal influence model. Future intervention research is needed to determine the extent that EIS is likely to be a cause of social support and vice versa. Specifically, intervention research can seek to improve EIS and examine the impact of that improvement on the development of social support.

Despite some past research indicating differences in the association between EIS and friendship between the genders (Rowse et al., 2014), no differences were found between the genders for the association between EIS and social support. This highlights the importance of EIS for attaining adequate social support and the importance of social support for developing EIS for both genders.

## **Implications**

This study highlighted the importance of EIS for positive social functioning. It also found that social support is significant for developing EIS. Because EIS and social support are integral for wellbeing and health (e.g., Kerr et al., 2004; Uchino et al., 1996), it is important to consider methods for increasing both in order to improve wellbeing. Thus, targeting EIS would be helpful to increase emotional understanding and assist in accessing adequate social support. Interventions that target parents' ability to provide their adolescent children with social support and those that directly facilitate teenagers'

ability to access social support may lead to greater EIS. For example, school-based educational programs aimed at increasing adolescents' emotional and social skills could promote emotional regulation, social competence, and wellbeing (Brackett et al., 2012).

### **Limitations and Future Directions**

This study assessed one component of emotion regulation and one component of social functioning. For a greater understanding of the link between these constructs, future studies could assess the relationship between social support and other components of emotion regulation, and EIS and other aspects of social functioning (e.g., likability, social inclusion or victimization).

We assessed social support quality overall rather than quality from distinct sources (e.g., friends, family). Therefore, we were not able to assess the association between support quality from separate sources and EIS. Future research could examine the influence of the quality of these sources separately.

Since we were interested in adolescents' ability to identify and describe their emotions, we used only two of the three subscales of the TAS-20. This limits the ability to compare our findings to past research that has used the full scale or other measures of EIS. However, some previous studies have also used the TAS-12 making comparison with those findings possible (e.g., Ciarrochi et al., 2002; 2008; Heaven et al., 2010).

A limitation of this study is its reliance on self-report data. Future research would benefit from use of objective or performance-based measures, such as the *Levels of Emotional Awareness Scale* (Lane et al., 1990).

Even though this study tracked EIS and social support over three years, it still used a correlational design. Therefore, causality cannot be determined. The results

indicated that EIS and social support rise and fall together over time but there may be explanations other than causal relationships between these variable, which could explain this covariation. For instance, these constructs may shift simultaneously or be influenced by a third variable.

The influence of gender, demographic variables and changes over time on the longitudinal relationship between EIS and social support was controlled in analyses, but we did not examine the influence of other possible confounding factors, such as anxiety (Cox et al., 1995), depression (Buschmann & Hollinger, 1994) or social skills (e.g., Lumley et al., 2005). This limitation is somewhat mitigated by past research which has found that the relationship between EIS and several aspects of social functioning are distinct and independent of some personality and wellbeing variables, such as hopelessness (with help seeking, Ciarrochi et al., 2002; 2003), positive affect, negative affect, self-esteem, and trait hope (with social support, Ciarrochi et al., 2008; Heaven et al., 2010; Lumley et al., 2005), and intellectual functioning (with social competence, van Rijn et al., 2011). Therefore, future research should assess the influence of possible confounding variables on this longitudinal relationship. Finally, generalizability of results to individuals of different ages, in other countries or of other socioeconomic status remains to be determined.

Despite the limitations, the strength of the study was the multi-wave, multi-year longitudinal design with a large sample, which allows for a more in depth understanding of the longitudinal nature of this association. The use of structural equation modeling allowed measurement error to be partialled out and the assessment of the directional effect between EIS and social support.

Overall, consistent findings for a reciprocal relationship between EIS and social support network size and quality was found across time and gender. These findings warrant further investigation of this relationship with a focus on assessing for consistency over other adolescent samples, developmental stages, cultures and countries.

## **Chapter 8**

### **Summary and Conclusions**

## Summary

A summary of the systematic review, and two empirical chapters will be presented here. The research and clinical implications of the findings from these chapters will also be discussed. The aim of this thesis was to determine the relationship between emotional awareness and several aspects of social functioning during the developmental period of adolescence. This was completed by undertaking a systematic review of the current literature and conducting two empirical studies.

The systematic review (Chapter 5) comprehensively examined prior research and found that during adolescence, there is a relatively reliable small to moderate positive association between emotional awareness and various aspects of social functioning. Based on the results and the limited number of studies meeting review criteria ( $n=10$ ), further study was warranted. Therefore, two empirical studies were conducted to increase our understanding of the connection between emotional awareness and social functioning during adolescence.

The aim of study 1 (Chapter 6) was to empirically examine the association between emotional awareness and friendship during adolescence. Seven hundred and ninety five (406 males; 389 females) Australian Grade 8 high school students participated in the first wave of the study, with 468 (225 males; 243 females) completing the final wave four years later in Grade 12. For females, emotional awareness in Grade 8 predicted peer-nominated friendships in Grade 12. Females with greater emotional awareness in Grade 8 received *more* friendship nominations from female peers and *fewer* friendship nominations from male peers once in Grade 12. No association was found for males. Study 1 provided preliminary support for the relationship between emotional awareness

and friendship during adolescence. However, these associations were correlational, therefore causation cannot be assumed. Further longitudinal research was needed to determine the direction of this association.

The purpose of study 2 (Chapter 7) was to empirically assess the longitudinal relationship between emotional awareness and a key component of social functioning: social support network size and quality. Specifically, the direction of this relationship was examined within 903 (464 males; 439 females) high school students from Australia from Grade 9 to Grade 12, with 314 (151 males; 163 females) students completing all four waves. The data was consistent with a reciprocal influence model, such that emotional awareness and social support influence the development of one another over time, while controlling for gender and several demographic variables.

### **Limitations and Directions for Future Research**

The review and empirical work presented in this thesis further our understanding of the relationship between emotional awareness and social functioning during adolescence considerably. However, there are some limitations of these studies that should be addressed in future research.

Study 1 provided new data on the connection between emotional awareness and friendship. This study was correlational and therefore causation cannot be inferred. Now that we know that emotional awareness and friendship for female adolescents are correlated, further research is warranted to assess the direction of this association over time.

Study 2 provided new understanding about the link between emotional awareness and social support. Since the longitudinal design of this study was used, two of the three

criteria for causation were met: (1) it found a significant correlation between the variables and (2) the purported cause (e.g., emotional awareness) temporarily preceded the purported effect (e.g., social support). To attempt to satisfy the third criteria, ruling out potential third variables that might explain this link, we controlled for gender and demographic variables. However, other factors that were not directly assessed in this study, such as self-esteem, positive and negative affect, or presence of a psychological disorder, may be influencing these changes in emotional awareness and social support during adolescence. Nonetheless, prior research has found that the association between emotional awareness and social functioning is independent of psychological and personality variables, including hopelessness (Ciarrochi et al., 2002; 2003), positive affect, negative affect, self-esteem, and trait hope (Ciarrochi et al., 2008; Heaven et al., 2010; Lumley et al., 2005), and intellectual functioning (van Rijn et al., 2011). Although, social skills has been found to mediate the association between emotional awareness and size of social support network (Lumley et al., 2005) and several other psychological variables have not been assessed in conjunction with this relationship. Thus, in future research the possible influence of these variables should be addressed.

To expand our knowledge of the direction of the association between emotional awareness and components of social functioning, intervention studies and more longitudinal studies are required. Following on from Study 2, tracking the association between emotional awareness and aspects of social functioning (other than social support) over several years could also be undertaken. This would broaden our knowledge of the longitudinal relationship between these variables. These approaches should be complemented by intervention and experimental studies. For instance, interventions

could target improving adolescents' emotional awareness skills and assess the possible changes in social relationships and functioning that result. Alternatively, social skills and skills for developing and maintaining relationships with others could be taught and the changes in emotional awareness could be monitored. These studies would provide more understanding about whether emotional awareness is a cause or consequence of social functioning factors.

Even though more lengthy and experimental studies are needed, more cross-sectional and correlational studies on the association between emotional awareness and many aspects of social functioning are also required. The findings from Study 1 and Study 2 provide important information about the connection between emotional awareness and two aspects of social functioning (e.g., friendship and social support). However, based on the findings in the systematic review (Chapter 5), there are many aspects of social functioning that have not been adequately assessed in relation to emotional awareness. Clearly, there is still much research to do to understand whether emotional awareness is even related to some aspects of social functioning during adolescence. Further study could investigate whether emotional awareness and other aspects of social functioning (i.e., peer-nominated likability, peer-nominated social competency, parent-adolescent relationship quality, social isolation, bullying) are linked.

Another limitation that was noted throughout the literature review and empirical research was the use of self-report measures. Self-report measures of emotional awareness and social functioning were used in many of the studies assessed in the systematic review. In Study 1 and Study 2 self-report measures were used for emotional awareness and in Study 2, a self-report measure of social support was used. However, in

Study 1, an objective measure of friendship, specifically, peer-nominated friendships were used.

Self-report measures have some drawbacks. For instance, it is possible that adolescents with low self-efficacy in their ability to comprehend their emotions may score much lower on the *TAS-12* despite possibly actually having a decent grasp on their emotional understanding. They may doubt their own abilities and view others as being superior at these skills and thus, scoring themselves lower than their actual ability. There are other potential confounding factors including reading, language and cognitive ability, mainly in early adolescence that may influence the findings of the studies examined in the review in Chapter 5 and also the result of the studies discussed in length in Chapters 6 and 7 (Parker et al., 2010).

Another problem with self-reported measures is that they can be sensitive to state-related changes and may not indicate more general, stable emotional awareness or social functioning. However, by assessing these measures repetitively over time, a more stable picture of an individual may develop. Also, possible confounding variables, such as psychological distress, self-esteem, or social skills, may be influencing the individual's report of their emotional skills and social support. In future research, controlling for these factors would provide a clearer understanding of the influence of emotional awareness and social support over and above them. The use of objective measures (in addition to the peer-nominated friendship measure used in Study 1) to assess emotional awareness and social functioning would also assist in understanding this association in greater depth. Objective measures, such as, peer ratings of likeability and teacher ratings of social adaptation could be assessed in relation to emotional awareness. Also, assessing self-

report and objective measures of emotional awareness (e.g., performance, observation) concurrently could provide additional information about the differences in the link between emotional awareness and social functioning depending on the method of assessment.

The *TAS-20* has some psychometric concerns for use within adolescent samples, particularly for younger adolescents (e.g., Parker et al., 2010; Sakkinen et al., 2007). However, other studies indicate that it is a reliable and valid scale to use within this developmental period (Ciarrochi et al., 2002; 2003b; 2008; Heaven et al., 2010). Therefore, the findings of the review and two studies should be taken with caution and further study assessing the connection between emotional awareness and social functioning using alternative measures is warranted.

A final limitation was the use of only two of the three factors of the *TAS-20* scale in Study 1 and Study 2. Only identification and describing of emotions were of interest for these studies and represent emotional awareness well. However, not using the complete *TAS-20* makes it somewhat difficult to compare findings to other research that use the full scale. Nonetheless, the *TAS-12* has been used in past research (e.g., (Ciarrochi et al., 2002; 2003; 2008; Heaven et al., 2010) and many studies that used the full *TAS-20* also report the results of the subscales separately and their unique association with social functioning. Future research could attempt to replicate the findings from the present studies with other subjective, as well as objective, measures of emotional awareness to determine the reliability of the findings.

There are potential psychometric issues with using subscales from the *TAS-20* within such a young population, particularly during grade 8. Parker et al. (2010) has found that there are some potential confounding variables when using the *TAS-20* to

assess emotional awareness during younger adolescence. Grade 8 students may have struggled to fully grasp the 12 items on the scale due to their level of reading, language and cognitive skills. Therefore, it is with caution that we present these results.

Additionally, this highlights the importance of assessing emotional awareness during adolescence through multiple assessment tools and ensuring that measures are age-appropriate for participants.

### **Implications for Clinical Practice and Education**

Further research is necessary to inform clinical practice and interventions to improve socio-emotional skills and wellbeing. However, from past research and the findings within this thesis, some initial practical implications can be drawn. Specifically, these findings highlight the prospective utility of implementing socio-emotional skills training within educational curriculum.

Interventions or school-based educational programs to facilitate the development of emotional and social skills would likely lead to improved socio-emotional wellbeing and psychological health for adolescents. Similar programs have been implemented successfully within child populations. RULER Feeling Words Curriculum is one such program that emphasises emotion identification and understanding for children and has had positive effects on socio-emotional wellbeing (Brackett et al., 2012). The program initially focuses on educating staff and students on emotional intelligence and then weaves emotional awareness into regular classroom activities. From this program, children have improved emotion regulation skills, social competency, academic achievement and overall wellbeing to name a few (Brackett et al., 2012; Elbertson, Brackett, & Weissberg, 2010).

Curriculum that focused on improving emotional awareness *and* social functioning would be ideal since a reciprocal relationship was found in the present thesis (see Chapter 7). However, this dual focus may be challenging and costly. Programs that focus primarily on emotional awareness and emotion regulation skills may be easier to facilitate, rather than focusing on both emotional and social components. Emotion-focused programs may also be easier to facilitate in larger groups, be less costly and less complex to organize and run. These programs could be incorporated into school curriculum and run by a teacher in the classroom setting. Ideally, by improving emotional awareness skills, these improvements could lead to better regulation of one's own emotions and the ability to recognize, empathize with and manage others' emotions. The efficacious RULER Feeling Words Curriculum (Brackett et al., 2012) could be used as a template for developing a similar program for adolescents.

In addition, social functioning programs may be successful if parents, friends, and other important figures in the adolescents' lives are involved. However, this would likely take considerably more planning and resources to carry out and have greater gains if undertaken on a smaller scale targeting specific, vulnerable students.

An alternative to the broad employment of school-wide curriculum, interventions for vulnerable adolescents could be developed. Adolescents could be assessed and depending on their primary deficit (e.g., low emotional awareness or poor social support), a tailored program to target this deficit could be undertaken. For instance, adolescents at risk of negative social outcomes (i.e., socially rejected, bullied) could be identified and take part in the intervention to improve their socio-emotional skills with the aim of improving their social and psychological health.

Likely either option of intervention would be beneficial. However, the efficacy of all options would need to be tested thoroughly before being implemented on a large scale. Finally, assessing the long-term results of the child-based programs, such as RULER, could provide additional information. Perhaps these skills are best learnt during childhood and those who learn these during adolescents instead may not benefit from them as much.

## **Conclusions**

This thesis has reviewed past research on the link between emotional awareness and social functioning during adolescence. Two empirical studies were conducted in an attempt to address some of the gaps found in the literature. The results of these studies provided additional evidence for the link between emotional awareness and social functioning, specifically, friendship and social support. Results also suggest that not only are emotional awareness and social support correlated during adolescence, but these factors may actually influence each other over time. Despite the increased understanding of the association between these factors that this thesis provides, much work remains. For instance, the direction of the association between emotional awareness and various aspects of social functioning (e.g., friendship, likability, social competence) need to be investigated further. However, what we do know is that these constructs are relatively reliably related. Additionally they are both important for health and wellbeing and protect against psychological problems (e.g., Durlak, Weissberg, Taylor, Dymnicki, & Schellinger, 2011; Kerr et al., 2004; Uchino et al., 1996). Therefore, interventions could potentially target the improvement of both factors to in turn lead to improved health, wellbeing and adjustment into adulthood for teenagers. For instance, school-based

educational programs focused on improving socio-emotional skills could be incorporated into regular curriculum. Since programs of this sort have been successful in improving emotion regulation, social competence and wellbeing in children (Brackett et al., 2012; Elbertson et al., 2010), they may be beneficial to implement within adolescent populations as well.

The findings from this thesis suggest that there is a connection between emotional awareness and several aspects of social functioning during adolescence, with the possibility that these factors influence each other over time. Specifically, emotional awareness was associated with the composition of friendships for females. As well, emotional awareness was found to be an antecedent for improved social support and social support to be an antecedent for the development of emotional awareness. These studies indicate that perhaps there is an important connection between these variables and that there is an upward spiral, such that improving emotional awareness will increase social support, which in turn will lead to further increases in emotional awareness. Overall, these findings provide adequate evidence to warrant further investigation of this association and to begin to develop and trial socio-emotional interventions for adolescents.

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## Appendix A: Participant Information Sheet for Wollongong Youth Study

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University of Wollongong



### YOUTH EXPERIENCES

Dear Student,

This is a continuation of the surveys we have been conducting since 2003 when you were in Year 7. This survey will take about 50-70 minutes to complete.

We would like to invite you to share your views with us about a range of issues that affect young people: attitudes to school and family, lifestyle, your expectations about the future, and your attitudes to fellow students. Students will also be asked to nominate other students who show specific positive (e.g. kind and friendly) behaviours. The information you provide **will be used for research purposes only and not normally given to the school**. Please **do not** write your name or address on the survey. Your questionnaire has a code that allows us to match this year's survey with ones you did earlier. We also plan to match your questionnaire answers with your school grades later this year. We track students by code and not by name.

**All information provided will be treated in the strictest confidence.** You can withdraw from this survey at any time, and this **will not** be reported to the school. Simply answer each question on the survey without discussing your answer with anyone else.

If you have any concerns or complaints regarding the way the research is or has been conducted, you can contact the Ethics Officer, Human Research Ethics Committee, University of Wollongong on (02) 4221 4457 or your Year coordinator.

Thank you for your help.

Professor Patrick Heaven

Associate Professor Wilma Vialle

Dr Joseph Ciarrochi

## Appendix B: Ethics Application Approval for Wollongong Youth Study

University of Wollongong



### INITIAL APPLICATION APPROVAL

In reply please quote: HE05/162

Further Enquiries Phone: 4221 4457

**COPY**

3 August 2005

A/Professor P Heaven  
Department of Psychology  
University of Wollongong

Dear A/Professor Heaven,

I am pleased to advise that the Human Research Ethics application referred to below has been **approved** subject to the following condition.

- i) Please forward a copy of the approval from the Catholic Education Office to the HREC before commencing research.

Ethics Number: HE05/162  
Project Title: On feeling good and succeeding, Part 3: Identifying the antecedents of emotional well-being and school success amongst adolescents  
Name of Researchers: A/Professor Patrick Heaven, A/Professor Wilma Vialle, Dr Joseph Ciarrochi, Ms Fiona Davies, Ms Sunila Supavadeeprasit  
Approval Date: 3 August 2005  
Expiry Date: 2 August 2006

This certificate relates to the research protocol submitted in your original application as modified in your letters of 28 July 2005 and 3 August 2005. As a condition of approval, the Human Research Ethics Committee requires that researchers immediately report:

- proposed changes to the protocol including changes to investigators involved
- serious or unexpected adverse effects on participants
- unforeseen events that might affect continued ethical acceptability of the project.

You are also required to complete monitoring reports annually and at the end of your project. These reports are sent out approximately 6 weeks prior to the date your ethics approval expires. The reports must be completed, signed by the appropriate Head of School, and returned to the Research Services Office prior to the expiry date.

Yours Sincerely,

Dr Garry Hoban  
Chairperson  
Human Research Ethics Committee

## Appendix C: Consent Form for Wollongong Youth Study

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University of Wollongong

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Dear Student,

Because we intend to survey you again in the future, we need to match your questionnaires from each year. Remember that your individual answers are intended for research purposes only.

By providing your name below you agree to participate in this study on attitudes to school and family, your expectations about the future, and your attitudes to fellow students. Students will also be asked to nominate other students who show specific positive (e.g. kind and friendly) behaviours. You also agree for us to match this information to Year 11 information provided last year.

To help us, please print your **name** here: \_\_\_\_\_

Signed: \_\_\_\_\_

Now detach this page from the rest of the questionnaire. Your teacher will collect it.

**DO NOT** WRITE YOUR NAME ON THE REST OF THE QUESTIONNAIRE.

## Appendix D: Emotion Awareness

### *12-item version of the Toronto Alexithymia Scale (TAS-12, Bagby et al., 1994)*

*For each statement below, please indicate **how much you agree** with each phrase. If you strongly agree, circle 5. If you strongly disagree, circle 1. Choose a number that best describes you. Remember, there are no right or wrong answers.*

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I am often confused about what emotion I am feeling	1	2	3	4	5
2. It is difficult for me to find the right words for my feelings	1	2	3	4	5
3. I have physical sensations that even doctors don't understand	1	2	3	4	5
4. I am able to describe my feelings easily	1	2	3	4	5
5. When I am upset, I don't know if I am sad, frightened or angry	1	2	3	4	5
6. I am often puzzled by sensations in my body	1	2	3	4	5
7. I have feelings that I can't quite identify	1	2	3	4	5
8. I find it hard to describe how I feel about people	1	2	3	4	5
9. People tell me to describe my feelings more	1	2	3	4	5
10. I often don't know why I am angry	1	2	3	4	5

11. It is difficult for me to reveal my innermost feelings, even to close friends	1	2	3	4	5
12. I don't know what is going on inside me	1	2	3	4	5

**Appendix E: Peer-Nominated Friendship**

*The next questionnaire concerns your fellow classmates. You will be asked to write the name of different classmates to the questions below.*

*Nobody will know who you nominated. Your answers will not be shown to your fellow classmates, teachers, or parents. Do not discuss your nominations with others.*

Now, consider **everybody at your school in year 12**. Please list up to five of your closest female and male friends.

Male

Female

## Appendix F: Social Support

### *4-item version of the Social Support Questionnaire (SSQ; Sarason et al., 1983)*

The following questions ask about people in your environment who provide you with help or support. Each question has two parts.

For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give the person's **initials** and their relationship to you (e.g. brother, sister, close friend, mother, etc.). Do not list more than one person next to each of the numbers for each question. For some questions you may be able to list more people than for other questions.

For the second part, circle how satisfied you are with the overall support you have.

If you have no support for a question, circle the words "no one", but still rate your level of satisfaction. Do not list more than nine persons per question. Try and answer each section.

### LOOK AT THE EXAMPLE BELOW:

(Do not fill in the question in this box – this is an example only)

#### Who can you trust with information that could get you into trouble?

(This student lists three people: school counsellor; a friend; a brother, mother)

No one	1) T.N. (counsellor)	4) mother	7) _____
	2) L.M. (friend)	5) _____	8) _____
	3) J.J (brother)	6) _____	9) _____

#### How satisfied are you with this support?

(This student is fairly satisfied, so circles 5)

6 – very	5 – fairly	4 – a little	3 – a little	2 – fairly	1 – very
satisfied	satisfied	satisfied	dissatisfied	dissatisfied	dissatisfied

*Now please answer the following questions as best as you can:*

Question 1

**a. Who do you feel really appreciates you as a person?**

No one      1) \_\_\_\_\_ 4) \_\_\_\_\_ 7) \_\_\_\_\_  
2) \_\_\_\_\_ 5) \_\_\_\_\_ 8) \_\_\_\_\_  
3) \_\_\_\_\_ 6) \_\_\_\_\_ 9) \_\_\_\_\_

**b. How satisfied are you with this support?**

<b>6</b> – very satisfied	<b>5</b> – fairly satisfied	<b>4</b> – a little satisfied	<b>3</b> – a little dissatisfied	<b>2</b> – fairly dissatisfied	<b>1</b> – very dissatisfied
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Question 2

**a. Who can you count on to help you out in a crisis situation, even though they would have to go out of their way to do so?**

No one      1) \_\_\_\_\_ 4) \_\_\_\_\_ 7) \_\_\_\_\_  
2) \_\_\_\_\_ 5) \_\_\_\_\_ 8) \_\_\_\_\_  
3) \_\_\_\_\_ 6) \_\_\_\_\_ 9) \_\_\_\_\_

**b. How satisfied are you with this support?**

<b>6</b> – very satisfied	<b>5</b> – fairly satisfied	<b>4</b> – a little satisfied	<b>3</b> – a little dissatisfied	<b>2</b> – fairly dissatisfied	<b>1</b> – very dissatisfied
------------------------------	--------------------------------	----------------------------------	-------------------------------------	-----------------------------------	---------------------------------

### Question 3

#### **a. Whose lives do you feel you are an important part of?**

No one      1) \_\_\_\_\_ 4) \_\_\_\_\_ 7) \_\_\_\_\_  
2) \_\_\_\_\_ 5) \_\_\_\_\_ 8) \_\_\_\_\_  
3) \_\_\_\_\_ 6) \_\_\_\_\_ 9) \_\_\_\_\_

#### **b. How satisfied are you with this support?**

<b>6</b> – very satisfied	<b>5</b> – fairly satisfied	<b>4</b> – a little satisfied	<b>3</b> – a little dissatisfied	<b>2</b> – fairly dissatisfied	<b>1</b> – very dissatisfied
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### Question 4

#### **a. Who can you really count on when you need help?**

No one      1) \_\_\_\_\_ 4) \_\_\_\_\_ 7) \_\_\_\_\_  
2) \_\_\_\_\_ 5) \_\_\_\_\_ 8) \_\_\_\_\_  
3) \_\_\_\_\_ 6) \_\_\_\_\_ 9) \_\_\_\_\_

#### **b. How satisfied are you with this support?**

<b>6</b> – very satisfied	<b>5</b> – fairly satisfied	<b>4</b> – a little satisfied	<b>3</b> – a little dissatisfied	<b>2</b> – fairly dissatisfied	<b>1</b> – very dissatisfied
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**Appendix G: Published Manuscript: The Role of Emotion Identification Skill in the  
Formation of Male and Female Friendships: A Longitudinal Study**

Rowse, H. C., Ciarrochi, J., Deane, F. P., & Heaven, P. C. L. (2014). The role of emotion identification skill in the formation of male and female friendships: A longitudinal study. *The Journal of Adolescence*, 37(2), 103-111. doi: 10.1016/j.adolescence.2013.11.005



## The role of emotion identification skill in the formation of male and female friendships: A longitudinal study



H. Claire Rowsell <sup>a,\*</sup>, Joseph Ciarrochi <sup>b</sup>, Patrick C.L. Heaven <sup>c</sup>, Frank P. Deane <sup>d</sup>

<sup>a</sup> School of Psychology, University of Wollongong, Northfields Avenue, Wollongong, NSW 2522, Australia

<sup>b</sup> School of Social Sciences and Psychology, University of Western Sydney, Penrith 2751, Australia

<sup>c</sup> Australian Catholic University, Level 4, 21 Berry Street, North Sydney, NSW 2060, Australia

<sup>d</sup> School of Psychology, Illawarra Institute for Mental Health, University of Wollongong, Northfields Avenue, Wollongong, NSW 2522, Australia

### A B S T R A C T

#### Keywords:

Emotion identification skill  
Emotional awareness  
Friendship  
Adolescence

The present study explored the relationship between emotion identification skill (EIS) and friendships in adolescence. Students from five Australian high schools completed questionnaires annually from Grade 8 to Grade 12 including subjective measures of EIS and a peer-based objective measure of social functioning (e.g., friendship nominations). The total sample of participants was 795 (406 males; 389 females) with 468 (225 males; 243 females) completing questionnaires in Grade 12. EIS in early adolescence was predictive of friendships for females in late adolescence. Specifically, girls starting out with low EIS in Grade 8 tended to have fewer female friendships and more male friendships in Grade 12. There were no effects for males. Lower initial EIS was associated with significant improvements in awareness over time, but these improvements had no effect on friendships in Grade 12. The EIS that girls enter high school with may influence their friendship composition into late adolescence.

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## Correlations









**Appendix H: Published manuscript: Emotion Identification Skill and  
Social Support: A Three Year Longitudinal Study**

Rowse, H. C., Ciarrochi, J., Deane, F. P., & Heaven, P. C. L. (in press). Emotion identification skill and social support: A three year longitudinal study. *Journal of Research on Adolescence*. doi: 10.1111/jora.12175

## Emotion Identification Skill and Social Support During Adolescence: A Three-Year Longitudinal Study

H. Claire Rowsell  
*University of Wollongong*

Joseph Ciarrochi  
*Australian Catholic University*

Frank P. Deane  
*University of Wollongong*

Patrick C. L. Heaven  
*Australian Catholic University*

Emotion identification skill (EIS) has been correlated with social support, but little research has examined the extent that EIS is a developmental precursor to supportive relationships. The present study investigated the longitudinal relationships between EIS and social support in adolescence. Participants were 903 (464 males; 439 females) Australian high school students, with 314 participating in all four waves. Students completed questionnaires annually from Grade 9 to Grade 12, including self-report measures of (1) EIS, (2) social support network size, and (3) quality of social support. Cross-lagged structural equation modeling supported a reciprocal influence model, with social support and EIS mutually influencing each other's development. We discuss the implications of this finding for the positive development of EIS and social support.

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