

**Alexithymia, attachment and psychological wellbeing
in young adults leaving care**

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ABSTRACT

The relatively poor outcomes of young people who have grown up in Local Authority care are well documented. However, little is known about the psychological constructs that may contribute to, or underpin, these poor psychological and social outcomes. This study explored whether a group of care-leavers differed from a group of similar aged individuals who grew up with their birth families with respect to alexithymia, attachment security and psychological distress. A secondary aim of the study was to add to the growing understanding of how these psychological constructs relate to one another.

A group of care-leavers (n=43) were recruited to take part in the study through care-leaver social care teams. The comparison group (n=43) consisted of young adult students who attended a further education college in the same geographical area. The groups were matched for gender and educational achievement. All participants were asked to complete four self-report questionnaires: a demographics questionnaire, an alexithymia assessment, a measure of attachment related anxiety and avoidance and a measure of psychological distress.

Contrary to the hypotheses, statistical analyses of the results demonstrated that the groups were not significantly different with respect to psychological distress and attachment. However, the care-leaver group reported significantly higher scores on the alexithymia measure, in particular reporting more difficulties describing feelings. Significant positive correlations were found between attachment, alexithymia and psychological distress. One component of alexithymia, difficulties identify feelings, was a significant predictor of psychological distress in a regression analysis. Alexithymia, and in particular the difficulties identifying feelings subscale, were significant mediators of the relationship between attachment insecurity and psychological distress. The implications of these findings are discussed in relation to possibilities for therapeutic work with care-leavers and more generally with all young adults experiencing psychological difficulties.

CONTENTS

| | |
|---|----------|
| CHAPTER ONE – INTRODUCTION | 1 |
| 1.1 Study overview | 1 |
| 1.1.1 Study aim and structure of thesis | 1 |
| 1.1.2 Definition of key terms | 1 |
| 1.1.2.1 Care-leaver | 1 |
| 1.1.2.2 Alexithymia | 2 |
| 1.1.2.3 Attachment | 2 |
| 1.1.2.4 Psychological wellbeing | 3 |
| 1.2 Overview of chapter one | 3 |
| 1.3 Care-leavers | 3 |
| 1.3.1. Reasons children are taken into care | 3 |
| 1.3.2 Numbers of children in care or leaving care in England and Wales | 4 |
| 1.3.3 Difficulties experienced by young people in/leaving care | 4 |
| 1.3.3.1 Education | 5 |
| 1.3.3.2 Crime | 5 |
| 1.3.3.3 Substance misuse | 5 |
| 1.3.3.4 Mental health | 5 |
| 1.3.3.5 Summary | 7 |
| 1.3.4 Review of policies and services provided | 7 |
| 1.3.5 Research rationale | 8 |
| 1.4 Alexithymia | 9 |
| 1.4.1 Why are emotional skills important? | 9 |
| 1.4.2 Introducing alexithymia | 9 |
| 1.4.3 Measurement of alexithymia | 10 |
| 1.4.3.1 Assessment measures | 10 |
| 1.4.3.2 Dimensional and categorical conceptualisations | 11 |
| 1.4.3.3 Alexithymia as a personality trait | 11 |
| 1.4.4 Alexithymia and demographic variables | 12 |
| 1.4.4.1 Prevalence | 12 |
| 1.4.4.2 Alexithymia and gender | 12 |
| 1.4.4.3 Alexithymia and age | 14 |
| 1.4.4.4 Alexithymia and socioeconomic status | 15 |
| 1.4.4.5 Alexithymia and relationship status | 16 |
| 1.4.4.6 Summary | 16 |
| 1.4.5 Critical review of the alexithymia and psychological wellbeing literature | 17 |
| 1.4.5.1 Alexithymia and global measures of wellbeing | 17 |
| 1.4.5.2 Alexithymia and specific mental health difficulties | 17 |
| 1.4.5.3 Alexithymia and behaviour | 18 |
| 1.4.5.4 Alexithymia and interpersonal interactions | 18 |
| 1.4.5.5 Alexithymia and psychological therapy outcomes | 19 |
| 1.4.5.6 Summary | 19 |
| 1.4.6 Theoretical understanding of the development of alexithymia | 20 |
| 1.4.6.1 Gene vs. environment | 20 |
| 1.4.6.2 Neurological models | 20 |
| 1.4.6.3 Alexithymia and early experiences | 21 |
| 1.4.7 Alexithymia and emotion regulation in young people in care | 23 |

| | |
|---|-----------|
| 1.5 Attachment | 24 |
| 1.5.1 Introduction to the concept of attachment | 24 |
| 1.5.2 Critical review of the attachment literature | 25 |
| 1.5.2.1 Development of attachment style in children | 25 |
| 1.5.2.2 Adult attachment style | 26 |
| 1.5.2.2.1 General adult attachment style | 26 |
| 1.5.2.2.2 Adult romantic attachment style | 28 |
| 1.5.3 Measuring attachment | 29 |
| 1.5.3.1 Continuity of attachment | 29 |
| 1.5.3.2 Interview vs. self-report measures of attachment | 30 |
| 1.5.3.3 Dimensional or categorical conceptualisation of attachment | 31 |
| 1.5.4 Attachment and wellbeing | 33 |
| 1.5.4.1 Attachment and mental health | 33 |
| 1.5.4.2 Attachment and behavioural outcomes | 34 |
| 1.5.4.3 Attachment and interpersonal outcomes | 34 |
| 1.5.4.4 Summary | 34 |
| 1.5.5 Attachment in care | 35 |
| 1.5.5.1 Attachment of children in care | 35 |
| 1.5.5.2 Attachment styles of care-leavers | 36 |
| 1.5.5.3 Attachment as an explanation for the difficulties experienced by care-leavers | 36 |
| 1.6 Attachment and alexithymia | 37 |
| 1.6.1 Emotion regulation and attachment relationships in childhood | 37 |
| 1.6.2 Alexithymia and adult attachment | 38 |
| 1.7 Systematic review | 40 |
| 1.7.1 Review methodology | 40 |
| 1.7.2 Study methodology | 41 |
| 1.7.2.1 Samples | 41 |
| 1.7.2.2 Measures | 43 |
| 1.7.2.3 Methodology | 45 |
| 1.7.2.4 Quality of written reports | 46 |
| 1.7.3 Study findings | 47 |
| 1.7.3.1 Between group analyses | 47 |
| 1.7.3.2 Correlational analyses | 47 |
| 1.7.3.4 Multiple regressions | 48 |
| 1.7.3.5 Mediation analyses | 50 |
| 1.8 Alexithymia, attachment and wellbeing in care | 51 |
| 1.9 Study plan | 51 |
| 1.10 Hypotheses | 52 |
| CHAPTER TWO – METHODOLOGY | 67 |
| 2.1 Aims of research | 67 |
| 2.2 Design | 67 |
| 2.2.1 Methodology | 67 |
| 2.2.2 Service user involvement | 67 |
| 2.3 Participants | 68 |
| 2.3.1 Sample size calculations | 68 |
| 2.3.2 Inclusion criteria | 68 |
| 2.3.3 Exclusion criteria | 69 |

| | |
|--|-----------|
| 2.4 Procedure | 69 |
| 2.4.1 Recruitment | 69 |
| 2.4.2 Consent | 70 |
| 2.4.3 Payment | 70 |
| 2.4.4 Data collection/storage | 71 |
| 2.5 Measures | 71 |
| 2.5.1 Demographics questionnaire | 71 |
| 2.5.2 Alexithymia measure | 72 |
| 2.5.3 Attachment measure | 74 |
| 2.5.4 Psychological distress measure | 75 |
| 2.5.5 Additional care-leaver questions | 75 |
| 2.6 Ethical considerations | 76 |
| 2.6.1 Ethical approval | 76 |
| 2.6.2 Participant wellbeing | 76 |
| 2.6.3 Researcher wellbeing | 77 |
| 2.6.4 Funding | 77 |
| 2.7 Plan for statistical analysis | 77 |
| 2.7.1 Missing data | 77 |
| 2.7.2 Statistical analysis | 78 |
| CHAPTER THREE – RESULTS | 79 |
| 3.1 Introduction | 79 |
| 3.2 Type one error risk reduction | 79 |
| 3.3 Preliminary analyses | 79 |
| 3.3.1 Outlier check | 79 |
| 3.3.2 Assumption of homogeneity of variance | 80 |
| 3.3.3 Assumption of normality | 80 |
| 3.3.4 Assumption of independence | 81 |
| 3.4 Demographic variables | 81 |
| 3.4.1 Age | 83 |
| 3.4.2 Relationship status | 83 |
| 3.4.3 Employment status | 84 |
| 3.4.4 Therapy | 84 |
| 3.5 Impact of other demographic variables | 85 |
| 3.5.1 Gender | 85 |
| 3.5.2 Educational qualifications | 86 |
| 3.6 Descriptive data and univariate analyses | 86 |
| 3.6.1 Alexithymia | 86 |
| 3.6.1.1 Descriptive analyses and comparison to existing data | 86 |
| 3.6.1.2 Between group analyses | 88 |
| 3.6.2 Attachment | 89 |
| 3.6.2.1 Descriptive analyses and comparison to existing data | 89 |
| 3.6.2.2 Between group analyses | 89 |
| 3.6.2.3 Attachment type | 89 |
| 3.6.3 Psychological distress | 91 |
| 3.6.3.1 Descriptive analyses and comparison to existing data | 91 |
| 3.6.3.2 Between group analysis | 91 |
| 3.7 Care-leaver additional variables | 92 |
| 3.8 Relational analyses | 92 |
| 3.8.1 Bivariate correlations | 92 |

| | |
|--|------------|
| 3.8.2 Comparison between attachment types | 93 |
| 3.8.3 Suicidal ideation | 95 |
| 3.8.4 Regression analyses | 95 |
| 3.9 Mediation analyses | 96 |
| 3.9.1 Introduction to mediation | 96 |
| 3.9.2 Bootstrapping mediational analyses | 97 |
| 3.9.3 Mediation analyses with attachment anxiety as independent variable | 97 |
| 3.9.4 Mediation analyses with attachment avoidance as independent variable | 99 |
| CHAPTER FOUR – DISCUSSION | 102 |
| 4.1 Introduction | 102 |
| 4.1.1 Study aims | 102 |
| 4.1.2 Findings in relation to hypotheses | 102 |
| 4.2 Demographics | 104 |
| 4.2.1 Age | 104 |
| 4.2.2 Gender | 105 |
| 4.2.3 Education achievement | 106 |
| 4.2.4 Relationship status | 106 |
| 4.3 Alexithymia | 107 |
| 4.3.1 Prevalence | 107 |
| 4.3.2 Group differences | 108 |
| 4.4. Attachment | 110 |
| 4.5 Psychological distress | 112 |
| 4.6 Impact of care-leaver variables | 113 |
| 4.7 Relationships between variables | 114 |
| 4.7.1 Alexithymia and attachment | 114 |
| 4.7.2 Alexithymia and psychological wellbeing | 117 |
| 4.7.3 Attachment and psychological wellbeing | 118 |
| 4.7.4 Mediation analyses | 119 |
| 4.8 Limitations | 120 |
| 4.8.1 Methodology | 120 |
| 4.8.2 Removal of outliers | 121 |
| 4.8.3 Constructs | 121 |
| 4.8.4 Population | 122 |
| 4.8.5 Measures | 123 |
| 4.9 Conclusions and implications | 124 |
| 4.9.1 Summary of findings | 124 |
| 4.9.2 Implications for clinical practice | 125 |
| 4.9.3 Implications for theory | 126 |
| 4.10 Future research | 127 |

TABLES

| Table | Page |
|--|-------------|
| 1.1 Systematic review results table | 53 |
| 3.1 Demographic summary | 82 |
| 3.2 Correlations between age and outcome variables | 83 |
| 3.3 Outcome data analysed by gender | 86 |
| 3.4 Mean TAS-20 and subscale scores for care-leavers and t-test comparisons with other samples | 87 |
| 3.5 Mean TAS-20 total and subscale scores for the college student group and t-test comparisons with other samples | 87 |
| 3.6 Mean scores for care-leaver and comparison groups and between group analyses | 88 |
| 3.7 Distribution of attachment types across care-leaver and comparison groups | 90 |
| 3.8 Bivariate two-tailed Spearman's rho correlations between outcome variables | 93 |
| 3.9 Mean outcome scores by attachment type | 93 |
| 3.10 Number of alexithymia 'cases' for different attachment types | 94 |
| 3.11 Multiple regression output | 95 |
| 3.12 Results of linear regression with psychological distress as criterion variable | 95 |

FIGURES

| | |
|---|-----|
| 3.1 A pathway model representing direct and indirect effects in mediational analyses | 96 |
| 3.2 Pathway model of the effects of attachment related anxiety on psychological distress with alexithymia as a mediator | 98 |
| 3.3 Pathway model of the effects of attachment related anxiety on psychological distress with the components of alexithymia as mediators | 99 |
| 3.4 Pathway model of the effects of attachment related avoidance on psychological distress with alexithymia as a mediator | 100 |
| 3.5 Pathway model of the effects of attachment related avoidance on psychological distress with the components of alexithymia as mediators | 101 |

APPENDICES

| | |
|-------------------|--|
| APPENDIX A | Search terms and databases used for the review of the literature |
| APPENDIX B | STROBE checklist for cross-sectional studies |
| APPENDIX C | Research flyer |
| APPENDIX D | Participant information sheet |
| APPENDIX E | Consent form (care-leaver group) |
| APPENDIX F | Consent form (comparison group) |
| APPENDIX G | Demographics questionnaire |
| APPENDIX H | Scoring procedure for educational qualifications |
| APPENDIX I | Toronto Alexithymia Scale – 20 (TAS-20) |
| APPENDIX J | Approval letter from Research and Development department |
| APPENDIX K | Approval e-mail from university ethics committee |
| APPENDIX L | Debrief form |
| APPENDIX M | Risk management update letter to ethics committee |
| APPENDIX N | Data collection risk assessment protocol. |

CHAPTER ONE - INTRODUCTION

1.1 Study overview

1.1.1 Study aim and structure of thesis

The purpose of this piece of research is to build on the understanding of the difficulties experienced by young adults who have grown up in Local Authority care. In particular it explores how alexithymia, attachment style and psychological wellbeing may differ between a group of those who have grown up in care and those in a comparison group who have not. The research also explores the interrelationship between these psychological phenomena in young adults in general. Implications are drawn from the findings of these analyses, both for clinical practice and for the theoretical understanding of the care-leaver population.

This thesis consists of four chapters.

- 1) *Introduction*: The rationale for the study is described and a critical evaluation of the evidence base is conducted through a systematic review. This is then used to develop hypotheses for the research project.
- 2) *Methodology*: The design, materials, procedures and participants used in the study are described and the choice of using them is justified through a review of the literature.
- 3) *Results*: Descriptive and inferential statistics are used to analyse the data collected.
- 4) *Discussion*: Conclusions are drawn from the data and recommendations for practice and further research are discussed. Additionally, limitations of the study are identified and discussed.

1.1.2 Definition of key terms

1.1.2.1 Care-leaver

‘Care-leaver’, as defined by the Children Leaving Care Act (2000), is an individual aged 16-21 (or 24 if still in education) who has been ‘looked after’ for at least 13 weeks since the age of 14 and has been ‘looked after’ at some point whilst being 16 or 17 years old. These individuals may or may not still be ‘looked after’.

‘Looked after children’, as defined by the Children Act (1989), are children or young people who are in the care of the local authority for more than 24 hours. This may be due to voluntary agreements or compulsory care orders.

1.1.2.2 Alexithymia

The term ‘alexithymia’ is used to describe problems with the effective cognitive processing and regulation of emotions. This is typified by difficulties in identifying and describing emotions, impaired ability to differentiate between affective feelings and physical sensations, a lack of fantasy or internal imagination and an operational, externally oriented cognitive style (Taylor *et al.*, 1997).

As in the growing body of literature on alexithymia, the term is used in this report both to denote a dimensional personality construct that is normally distributed in the general population (Parker *et al.*, 2008) and a specific cognitive-affective disturbance above a certain degree of clinical severity (Mason *et al.*, 2005; Salminen *et al.*, 1999; Zackheim, 2007). As recommended by Parker *et al.* (2008) the cognitive-affective disturbance is conceptualised as “indicators of elevated clinically meaningful levels of alexithymia rather than as discrete diagnoses” (p. 391).

1.1.2.3 Attachment

Mary Ainsworth (1989) describes an ‘attachment relationship’ as “an affectional bond” and that “in attachments, as in other affectional bonds, there is a need to maintain proximity, distress upon inexplicable separation, pleasure or joy upon reunion, and grief at loss” (p. 711).

The term ‘attachment behaviour’ is used to describe behaviours that individuals engage in to achieve physical or psychological proximity to an attachment figure and feelings of security (Rholes & Simpson, 2004).

The term ‘attachment style’ has been defined as “stable, global individual differences in (1) tendencies to seek and experience comfort and emotional support from persons with whom one has an attachment bond and (2) presumptions about the responsiveness of attachment figures to bids for comfort and support.” (Rholes & Simpson, 2004; p. 4). The term is used in this paper to describe the nature of internal representations of significant relationships and related thoughts, feelings and behaviours.

1.1.2.4 Psychological wellbeing

The Welsh Government (WG) (2012a) uses the World Health Organisation (WHO) definition of the term ‘wellbeing’ that states it is “a positive physical, social and mental state; it is not just the absence of pain, discomfort and incapacity. It requires that basic needs are met, that individuals have a sense of purpose, that they feel able to achieve important personal goals and participate in society. It is enhanced by conditions that include supportive personal relationships, strong and inclusive communities, good health, financial and personal security, rewarding employment and a healthy and attractive environment” (p.11).

As recommended by WHO (2010) the term is used in this paper to infer more than just an absence of diagnosable mental disorders. The term ‘psychological distress’ is used to denote a lack of wellbeing due to the presence of psychological difficulties that impact on day-to-day living.

1.2 Overview of chapter one

Chapter One introduces the population under study: young adults leaving care, and the social and psychological difficulties that they can experience as children, young adults and later in life. This understanding is then used to describe the rationale for the research. Each of the key variables is examined and its relevance to this population is explored. The evidence base exploring the relationship between alexithymia and attachment is critically evaluated through a systematic literature review and this is used to develop hypotheses for the study.

With respect to the review of the literature, Appendix A gives details of the search terms and databases used. Bodies of literature were reviewed that related to growing up in care, attachment and alexithymia. Full details of the methodology used for the systematic review are provided in section 1.7.

1.3 Care-leavers

1.3.1. Reasons children are taken into care

Children and young people are taken into care when it is deemed that their parents are not able to provide satisfactory levels of care (Children Act, 1989). Some children are moved into care through the family courts or criminal justice system whilst others move under voluntary agreements between the local authority and the parents. The most prevalent reason that young people are taken into care in both England and Wales is abuse or neglect. Specifically, in

2011-12, 61% of looked after children in Wales were in the care of social services for this reason (WG, 2012). Other reasons include: family dysfunction or acute stress (26%), parents' illness, disability or absence (7%) and socially unacceptable behaviour of the child (4%) (WG, 2012). In Wales, 77% of looked after children are cared for in foster placements whereas 5% are cared for in secure units, children's homes, hostels or residential schools (WG, 2012). The remainder are either placed for adoption, with parents, in other types of placements or they are living independently.

1.3.2 Numbers of children in care or leaving care in England and Wales

In the year ending March 31st 2012, there were approximately 5,726 children and young people in the care of social services in Wales (WG, 2012) and 67,050 in England (Department for Education; DfE, 2012). In Wales, this represents 92 per 10,000 population of those aged under 18 (WG, 2012) which is higher than the 59 per 10,000 under the age of 18 in England. Research suggests that children growing up in socially and economically deprived families are more likely to be taken into care (Owen & Statham, 2009). This may go some way to explain the higher rate of children in care in Wales, given the relative deprivation of the country (Office for National Statistics, 2011). However, the number of children being taken into care is increasing across the whole of the UK and in 2011-12 approximately 546 young people in Wales aged 16 or over left or 'aged out' of care (WG, 2012) with 10,000 doing the same in England. This represented an 18% rise compared to the figures in England for 2008 (DfE, 2012). With the growing number of young people being taken into care, the number of care-leavers is set to continue to grow in the forthcoming years and this is one reason why it is important to gain a better understanding of the needs of this population.

1.3.3 Difficulties experienced by young people in/leaving care

The social, physical, economic and psychological outcomes of young people who have spent time in care whilst growing up are often reported as being poorer than those of young people who have not spent time in care. Summarising the findings of research exploring these outcomes, Stein (2006) suggests that looked after children and care-leavers are "among the most excluded groups of young people in society" (p. 423).

1.3.3.1 Education

Although the educational ‘attainment gap’ is decreasing slowly over time, children and young people in care consistently perform less well academically than their non-looked after peers across all stages of education and a significantly smaller proportion achieve academic success (DfE, 2012a). For example, in England 15.5% of looked after children achieved A*-C grades in English and Maths GCSEs compared to 58.7% of non-looked after children (DfE, 2012a). This trend continues into adulthood, with care-leavers significantly more likely than non care-leavers to not be in education, employment and training in early adulthood (DfE, 2012; WG, 2012). These low levels of academic achievement put care leavers at further risk of experiencing deprivation and exclusion in later life.

1.3.3.2 Crime

With respect to crime, a report from the Prison Reform Trust (Blades *et al.*, 2011) highlighted the fact that, although less than 1% of children and young people grow up in the care of social services in England, up to half of people under the age of 18 in young offender institutions, and 27% of adults in the prison system, have spent time in care whilst growing up. In 2010-11, 7.3% of all looked after children aged 10-17 in England had received a conviction, reprimand or final warning in the preceding 12 months compared to 2.4% of all young people aged 10-17 (Harker, 2012).

1.3.3.3 Substance abuse

Young people who spend time growing up in care are also more likely to experience substance misuse problems, both during childhood/adolescence and in later life (DfE, 2012a; National Institute for Health Care and Excellence (NICE) & Social Care Institute for Excellence (SCIE), 2010). In 2012, 4.1% of all looked after children in England were reported to have a substance misuse problem, with 11.3 % of care-leavers aged 16 and 17 (DfE, 2012a). Furthermore, the proportion of individuals identified as being involved in substance misuse appears to increase across the first 12-15 months of the young people being out of the care system (Dixon, 2008).

1.3.3.4 Mental health

Individuals who have spent time in care whilst growing up are more likely to report poorer psychological adjustment and to be, or to become, users of mental health services (Stein, 2006a) and it is thought that these difficulties are not entirely due to the effect of social

deprivation and disadvantage (Ford *et al.*, 2007). This suggests that the specific early experiences of those in care and/or the experience of being in the care system impacts negatively on mental health. Ford *et al.* (2007) reported that 46.4% of looked after children aged 5-17 met the criteria for a psychiatric disorder compared to 14.6% of children not taken into care who came from disadvantaged backgrounds and 10% of children in the general population. Stein and Dumaret (2011) found that this group of young people are more likely to have emotional or mental health difficulties at the time that they are taken into care, whilst they are in care and at the time that they become care-leavers.

In 2004, Meltzer *et al.* (2004) reported the findings of a survey of the mental health of young people aged 5-17 in care in Wales. They found that 49% of respondents had mental health difficulties that significantly impacted on their daily life. Children under the age of ten were eight times more likely than those who lived with their birth families to have a diagnosable mental disorder. Similarly, a survey of young people in care and leaving care in Scotland found that they were significantly more likely to engage in self-harming behaviours and that this was linked to higher levels of depression and poorer self-esteem (Scottish Health Feedback, 2003). There is some international consistency in these findings, with similar relatively poor mental health being reported for young people in care in Australia (Tarren-Sweeney, 2010) and America (Burns *et al.*, 2004; Courtney *et al.*, 2001).

In particular, the transition from care to independent living is thought to be a time of increased risk in terms of psychological wellbeing for young people (Stein & Dumaret, 2011). Dixon (2008) found that 44% of young people leaving care had emotional, behavioural or mental health difficulties, with 22% deemed as having a serious mental health problem at this time. This study also reported that the number of individuals identifying physical and mental health difficulties increased across the first 12-15 months of being out of the care system, with 41% indicating that their mental wellbeing had deteriorated across this time. It is thought that this may be associated with the fact that, compared to young people who have not grown up in care, care-leavers make the transition to living independently at a younger age, with less gradualism and more finality (Stein, 2006a). This is consistent with qualitative research that suggests that some care-leavers felt unprepared for the physical and emotional demands of independent living at the age that they left care (Holland *et al.*, 2010). As this is a time of increased risk of problems, greater understanding is required of the needs of young people at the time that they leave care (Stein & Dumaret, 2011).

Dixon (2008) reported that mental wellbeing at the time of leaving care was determined by care-leavers' current social circumstances, not their earlier experiences in care. However, Ford *et al.* (2007) found that those who were taken into care at an older age and those who had more recently had a higher number of placements were more likely to meet the criteria for a psychiatric disorder. The impact of these care-related factors is of interest in the current study.

Research exploring these outcomes for young people who spend time in care has been criticised as attrition rates for longitudinal studies are often high and loose definitions of 'spending time in care' means that the research samples are heterogeneous with respect to care experiences (Courtney *et al.*, 2001). Furthermore, previous research has not provided evidence that allows these findings to be shaped into a coherent theoretical framework for understanding why these difficulties arise (Stein, 2006).

1.3.3.5 Summary

Care-leavers are clearly a group who have complex and multiple needs that place them at a significant disadvantage as they experience the premature acceleration to adulthood and independence. However, little research has attended to the factors that may confound this picture. With the exception of Ford *et al.* (2007), most of the research compares data relating to this group of people to sets of normative data or to the average of the general population. There is a call for more research that compares the outcomes of young people who have grown up in care to young people who have grown up in their birth families but have similar backgrounds and levels of educational achievement (Ford *et al.*, 2007). This would hopefully lead to a clearer understanding of the causes of these negative outcomes.

1.3.4 Review of policies and services provided

Various policy developments reflect the political response to the poor outcomes faced by young people still in care and leaving care. For example, the Children Leaving Care Act (2000) states that services need to focus on preparing young people more to feel ready and equipped to leave care, and on providing more support to individuals after they have left. The 'Care Matters' white paper (Department for Education and Skills, 2007) and the subsequent 'Children and Young Persons Act' (2008) outlined the role of local authorities and social services in this drive to enhance the wellbeing of these young people.

Subsequently the NICE and SCIE (2010a) collaborated to provide guidance for these organisations, stating that services aiming to assist the transition out of care should be individually tailored and needs led, with the aim of supporting health and wellbeing, engagement with education, resilience and personal identity. In particular, the guidance recognised the need for the provision of specialised mental health services that offer interventions to improve and protect the mental health of young people who are or have been in care. The costing report for this guidance (NICE & SCIE, 2010b) stated that providing these types of services has the potential to lower public spending by reducing the risk of incarceration as an adult and reducing the use of unemployment benefits and health services, in particular those relating to mental health difficulties.

Some outcome research has suggested that leaving care services have had positive impacts on factors such as homelessness, preparation for leaving care and developing interpersonal support networks (Stein, 2006a). However, there is recognition that these services are less able to meet the mental health needs of this group of young people and that more individualised services are needed to aid the transition from care, in particular for those at risk of poor psychological wellbeing (Dixon, 2008; Ford *et al.*, 2007; Stein, 2006a). This is consistent with findings that Welsh care-leavers identified difficulties in receiving the mental health input that they needed due to not meeting the stringent referral criteria for adult mental health services (Holland *et al.*, 2010). Outcome data for these services has also been criticised for being predominately limited to England (Simon & Owen, 2006). Furthermore, although there is a call for better mental-health service provision for this population, there is little documentation specifying what format these should take and the type of therapy, if any, that should be offered.

1.3.5 Research rationale

As detailed above, the prospects for young people growing up in care remain below those of individuals who do not. Not only do care-leavers have to contend with the difficulties experienced by all teenagers, but they also often bring with them the consequences of early trauma and a disrupted journey through the care-services. Their increased use of health, social and criminal justice services demonstrates an increased burden on public services and budgets and, although this is recognised in recent policy and service developments, a clear framework for understanding the difficulties that care-leavers face and how they may be tackled, remains to be developed. As the number of children being taken into care grows, so

does the importance of understanding the unique needs of this group of people throughout their life course. Although some young people who have grown up in care go on to thrive, there is clear evidence that these individuals are less likely to than their peers. Understanding the reasons for their relatively poor outcomes may help to develop appropriate and effective interventions and services.

1.4 Alexithymia

1.4.1 Why are emotional skills important?

Emotion regulation, emotional literacy and emotional intelligence are associated concepts that describe an individual's ability to identify, communicate and regulate affect. Leahy *et al.* (2011) describe emotions as information providers that motivate us to move towards rewarding stimuli and away from threatening/unhelpful stimuli. Therefore, correct identification of emotions is important for successful life functioning. Furthermore, Leahy *et al.* (2011) state that the way in which individuals regulate emotions cognitively and behaviourally can moderate the impact of negative life events. These skills are also thought to be linked to a large array of outcomes throughout the life course from relationship building in childhood (Steele *et al.*, 1999), academic achievement (Gumora & Arsenio, 2002) and psychological wellbeing and career success in adulthood (Zeidner *et al.*, 2008).

1.4.2 Introducing alexithymia

One of the first uses of the term alexithymia was by Sifneos (1973) who used it to describe individuals who presented with psychosomatic illnesses that were thought to be underpinned by an impaired ability to cognitively process emotions. It was thought that this was demonstrated by difficulties in describing affective feelings, limited fantasy and an externally oriented cognitive style. In relation to the more commonly used emotion-related terms discussed above, 'alexithymia' is thought to be associated with poor emotion regulation and emotional literacy, and low emotional intelligence (Taylor *et al.*, 1997). More recent definitions of alexithymia suggest that this construct represents "(i) difficulty identifying feelings and distinguishing between feelings and the bodily sensations of emotional arousal; (ii) difficulty describing feelings to other people; (iii) constricted imaginal processes, as evidenced by a paucity of fantasies; and (iv) a stimulus-bound, externally orientated cognitive style" (Taylor *et al.*, 1997, p.29). Research has demonstrated that those who experience alexithymia demonstrate normal, or stronger, emotional physiological responses, so it is

thought that the difficulties that they experience are due specifically to the cognitive processing of this information (Luminet *et al.*, 2004).

1.4.3 Measurement of alexithymia

1.4.3.1 Assessment measures

Early self-report tools designed to measure alexithymia, such as the Minnesota Multiphasic Personality Inventory (MMPI) Alexithymia Scale (Kleiger & Kinsman, 1980) and the Schalling-Sifneos Personality Scales (Apfel & Sifneos, 1979) have been criticised as lacking validity and reliability (Taylor *et al.*, 2000) and these tend to no longer be used in research. However, there is a growing body of evidence supporting the validity of the use of more recent self-report assessments such as the Toronto Alexithymia Scale -20 (TAS-20; Bagby, Parker *et al.*, 1994) and the Bermond-Vorst Alexithymia Questionnaire (BVAQ; Vorst & Bermond, 2001), and observer rated tools such as the Beth Israel Hospital Psychosomatic Questionnaire (BIQ; Sifneos, 1973). There are clear limitations associated with using self-report measures to assess this variable, not least because it requires the individual to have some insight into what they are lacking. Some authors therefore suggest that the use of multiple methods of alexithymia assessment using self-report and observer-rated tools may be helpful to allow for triangulation (Taylor *et al.*, 2000). Despite this, a review of 1000 journal articles studying alexithymia supported the use of the TAS-20 for measurement of the construct (Taylor & Bagby, 2004) and its authors have claimed its superiority in terms of reliability over observer rated measures such as the BIQ. The TAS-20 is the most widely used measure of alexithymia in peer-reviewed research and its psychometric properties have been replicated across various populations and cultures (Taylor & Bagby, 2004). It is therefore considered that the TAS-20 may be appropriate to use as a lone assessment in studies where the resources for observer assessments are not available (Taylor *et al.*, 2000). With respect to care-leavers, where a reliable familiar ‘observer’ may not be present, the TAS-20 was chosen as the most suitable tool for assessing alexithymia.

The TAS-20 measure consists of three subscales that are thought to assess different components of alexithymia:

- Difficulty Identify Feelings (DIF), for example, not being able to identify physical sensations as signs of affective feelings or not being able to differentiate between different emotions.

- Difficulty Describing Feelings (DDF), for example, not being able to find the right words to describe feelings.
- Externally Oriented Thinking (EOT), for example, being more interested in the objective outside world or factual events than the inner world of thoughts, feelings and subjective interpretations of events.

1.4.3.2 Dimensional and categorical conceptualisations

Parker *et al.*, (2008) concluded that the results of a taxonomic analysis indicated that alexithymia is best conceptualised as a dimensional construct. However, cut-offs for the TAS-20 have been developed, with a score greater than 60 being categorised as high alexithymia and a score below 52 as low alexithymia. It was thought that individuals who score in between this represent a ‘borderline’ group (Oskis *et al.*, 2013; Taylor *et al.*, 1997). With reference to the current study, it is recommended that these criteria are used with caution with older adolescents as it is thought that alexithymic traits may be typical of individuals in the adolescent stage of development. If this is the case, using cut-offs based on adult samples may lead to an overestimation of the prevalence of ‘alexithymia’ in adolescent samples (Parker *et al.*, 2010). However, these cut-offs do allow comparisons between populations and across studies and so will be used for this purpose.

1.4.3.3 Alexithymia as a personality trait

Alexithymia has been described as a stable personality trait (Parker *et al.*, 2008). However, due to the cross sectional nature of the majority of the research it is difficult to conclude whether this is true, or if it is more helpfully represented as a state that fluctuates across time depending on other variables. In response to this, a handful of longitudinal studies have demonstrated the relative stability of TAS-20 scores across different time periods ranging from one month to 5 years (Picardi *et al.*, 2005; Saarijarvi *et al.*, 2006). Although authors describe this as evidence for the stability of alexithymia, they also note that there is some degree of fluctuation in state scores, and that these are affected to a varying degree by the concurrent experience of depression and anxiety. A review paper also reached similar conclusions (Taylor & Bagby, 2004). Parker *et al.* (2008) reported that there is relatively more stability in alexithymia across time when it is conceptualised and measured as dimensional as opposed to a categorical construct.

1.4.4 Alexithymia and demographic variables

Alongside the main research questions, the current study provides the opportunity to explore the relationships between demographic factors and alexithymia in young people growing up in Wales.

1.4.4.1 Prevalence

Using the categorical conceptualisation of alexithymia, the prevalence rates of individuals who experience it at a clinically significant level has been explored in the general populations of several countries. A significant proportion of this information, however, comes from large sample sized research conducted in Finland. This has estimated prevalence rates ranging from 9.9% (Mattila *et al.*, 2006) to 12.8% (Salminen *et al.*, 1999) in the general adult population.

Other research that looked exclusively at young adults found prevalence rates between 8% and 9% in Finnish participants aged between 17 and 21 (Karukivi *et al.*, 2010), Italian undergraduates (Montebarroci *et al.*, 2004) and young adults aged 16-23 in New Zealand (Garisch & Wilson, 2010). In studies of younger adolescents, estimates of prevalence rates in the Finnish population have ranged from 6.9% - 15.9%, depending on the age and gender of participants (Honkalampi *et al.*, 2009; Joukamaa *et al.*, 2007; Sakkinen *et al.*, 2007). However, little research has been conducted to replicate these findings in young people in other countries.

Few studies have explored the prevalence of alexithymia in the United Kingdom. One such study found that 17.9% of British undergraduate students scored over 61 on the TAS-20, which the authors claim to be broadly similar to previous studies (Mason *et al.*, 2005). However, this does seem to represent a somewhat higher prevalence than that found in the previous studies with young adults cited above.

1.4.4.2 Alexithymia and gender

Research has produced variable findings with respect to gender and alexithymia. Several studies have found an increased prevalence of alexithymia in males compared to females in adults in the general population of different countries (Hesse & Floyd, 2011; Lane *et al.*, 1998; Mattila *et al.*, 2006; Parker *et al.*, 2003; Salminen *et al.*, 1999). For example, Mattila *et al.* (2006), in a study of 5454 Finnish adults completing the TAS-20, found that 11.9% of men scored over the clinical cut-off compared to 8.1% of women. More specifically, some studies have reported that, although there is no effect of gender with respect to difficulties

identifying feelings, adult males have greater difficulties describing feelings and a significantly greater externally oriented thinking style (Mattila *et al.*, 2006; Parker *et al.*, 2003; Salminen *et al.*, 1999). Kokkonen *et al.* (2001), in a study of adults aged 30-31, found that the prevalence of alexithymia was significantly higher in males, although the mean score on the DIF subscale was higher in females. Conversely, Guttman and Laporte (2002) found that only externally oriented thinking was significantly higher in Canadian men and Loas *et al.* (2001) found no significant gender effects in either a sample of French healthy volunteers or a group of those meeting diagnostic criteria for substance abuse or eating disorders.

Findings from research with young adults are also inconclusive. Research conducted with young adults in Italy and New Zealand found no significant difference between male and female participants on the overall score on the TAS-20 (Garisch & Wilson, 2010; Montebanocci *et al.*, 2004). However, similar to some of the general population studies, Montebanocci *et al.* (2004) found that males scored significantly higher on DDF and EOT subscales and females scored significantly higher on the DIF subscale. The one study carried out with British undergraduates found that significantly more females (20%) scored over the clinical cut-off than males (7.7%) although the mean scores were not significantly different (Mason *et al.*, 2005).

Some studies looking specifically at alexithymia in adolescence have found that the proportion of females scoring over the clinical cut-off is higher than that in males (Honkalampi *et al.*, 2009; Joukamaa *et al.*, 2007) whilst others have found no gender effects (Karukivi *et al.*, 2010; Sakkinen *et al.*, 2007). These differences may be explained by the different breadth of ages included in the studies. In one of these studies, however, on further analysis at the sub-scale level, Sakkinen *et al.* (2007) found that female adolescents reported significantly more DIF whilst males reported significantly more EOT.

Conclusions from these results are complicated by the fact that some studies compare the prevalence of alexithymia over a certain cut-off whilst others compare mean scores. It appears that this can have a significant impact on the conclusions drawn. For example, in studies with adolescents, the prevalence of clinically significant alexithymia is higher in girls whilst mean scores were either not significantly affected by gender (Honkalampi *et al.*, 2009) or were significantly higher in boys (Joukamaa *et al.*, 2007). These findings demonstrate that

only looking at alexithymia as categorical or dimensional may mask differences between genders.

The effect of gender appears to alter with time and developmental phase. In particular, findings suggest that gender differences may increase or even reverse as participants' age increases, with females reporting more alexithymia than males in adolescence and males reporting significantly more than females in adulthood. Consistent with this, Sakkinen *et al.* (2007) reported that the scores of adolescent boys were similar to those of adult men whilst those for adolescent females were higher than those for adult females. It has been stated that these findings may represent an interaction effect between gender and age on alexithymia or a cohort effect in which different cohorts have different gender norms of emotional regulation (Mattila *et al.*, 2006).

Researchers have questioned whether these gender differences may be explained by the impact of culturally held ideas regarding gender and emotion expression (Salminen *et al.*, 1999). For instance, it has been suggested that, due to cultural expectations, females may feel that they should be better at identifying their feelings, and therefore they may judge themselves against higher criteria on measures such as the DIF subscale of TAS-20 (Kokkonen *et al.*, 2001). However, this interpretation does not fit with the trend for greater difficulties describing feelings and more externally oriented thinking styles in males, as this appears to be in line with typical cultural norms. This consideration of cultural norms may also offer an explanation for the variation of gender effects across cultures and further emphasises the need for locally relevant research to be conducted.

1.4.4.3 Alexithymia and age

The relationship between age and the ability to notice, identify and deal with emotions is complex. Findings from studies of the Finnish general population suggest that the prevalence of alexithymia increases with age (Mattila *et al.*, 2006; Salminen *et al.*, 1999). For example, 4.7% of adults aged 30-44 scored over 60 on the Finnish version of the TAS-20 compared to 29.3% of those over 84 years of age (Mattila *et al.*, 2006) and this finding is consistent with a study completed with North American adults (Lane *et al.*, 1998). However, a study of adults in the general population in Canada (mean age 35.47) reported a weak negative correlation between age and TAS-20 total score, DIF and DDF subscales (Parker *et al.*, 2003) whilst Guttman & Laporte (2002) found that EOT score was positively correlated with age.

Age has been found to be negatively correlated to mean TAS-20 score in undergraduates (Meins *et al.*, 2008) and adolescents (Oskis *et al.*, 2013) with 15-17 year olds reporting significantly less alexithymia than 12-13 year olds (Sakkinen *et al.*, 2007). In particular, Oskis *et al.* (2013) found that EOT was negatively correlated with adolescents' age. Similarly the prevalence of individuals scoring over a cut off of 61 is recorded as lower in older than younger adolescents (Honkalampi *et al.*, 2009; Joukamaa *et al.*, 2007). For example, Sakkinen *et al.* (2007) found, in a sample of Finnish secondary school children aged 12-17, a rate of 15.9% across all ages whilst in the older age group of 15-17 year olds only a rate 12.7%. Joukamaa *et al.* (2007) reported that the prevalence of alexithymia in older adolescents aged 15-16 was comparable to that in adults.

These results suggest a trend of decreasing levels of alexithymia through adolescence but then increasing levels with age through adulthood. It is thought that difficulties in identifying and describing affective states may naturally occur more in children and adolescents due to developmental stage and associated cognitive abilities (Sakkinen *et al.*, 2007). In line with this, Lane and Schwartz (1987) suggest that alexithymia represents an earlier stage of emotion regulation development. It is thought that as an individual develops, so may their emotional regulation capacity. Hence their level of alexithymia decreases. It may be that the subsequent increase in alexithymia with age through adulthood represents a cohort effect, an effect of ageing, or that the increasing importance placed on emotional wellbeing in later life (Lang & Carstensen, 2002) impacts on the way in which individuals rate their emotion regulation ability.

1.4.4.4 Alexithymia and socioeconomic status

Some studies have found an association between alexithymia and low socioeconomic status (Lane *et al.*, 1998; Salminen *et al.*, 1999). Furthermore, educational achievement, a concomitant of socioeconomic status, has been found to be negatively associated to alexithymia in adults (Lane *et al.*, 1998; Mattila *et al.*, 2006; Parker *et al.*, 2003; Salminen *et al.*, 1999) and this difference remains significant when psychological distress is controlled for (Kokkonen *et al.*, 2001). Related research has found that, in adolescents aged 15-16, alexithymia was associated with low education of mother and not coming from a 'white collar' family (Joukamaa *et al.*, 2007). However, Parker *et al.* (1989) found no such

relationship with socioeconomic class or level of education when they used the original version of the TAS.

Salminen *et al.* (1999) suggest that the relationship between alexithymia and educational achievement and socioeconomic status may reflect differences in the social values and psychological environment of the family in which individuals develop. Joukamaa *et al.* (2003) suggest, however, that it is likely that this causation is bidirectional, with high levels of alexithymia being more likely to have a negative impact on education and employment prospects.

1.4.4.5 Alexithymia and relationship status

One study of young adults in Finland found that individuals who were unmarried or widowed scored higher on the Finnish version of the TAS-20 than those who were married, cohabiting, divorced or separated (Mattila *et al.*, 2006). There is a suggestion that the association between relationship status and alexithymia may be moderated by gender, as one study found that the prevalence of alexithymia in unmarried men was significantly higher than that in married, cohabiting and divorced men but in females relationship status was not associated with prevalence of alexithymia (Kokkonen *et al.*, 2001). It may be that the association between alexithymia and relationship status is bidirectional.

1.4.4.6 Summary

To summarise, patterns of relationships between alexithymia and sociodemographic variables are emerging, but generalisations across samples and cultures remain tentative. Authors suggest that the differing results may be due to differing sampling procedures and the range of populations recruited (Kokkonen *et al.*, 2001). Although the research tends to rely on self-report measures that can be susceptible to bias, the ease of this methodology has allowed researchers to recruit large sample sizes and this increases the validity of these findings. There is a strikingly high output of alexithymia research from Finland compared to other countries and as cultural factors are thought to impact the experience and expression of alexithymia, it is important for more British based research to be conducted.

1.4.5 Critical review of the alexithymia and psychological wellbeing literature

1.4.5.1 Alexithymia and global measures of wellbeing

Studies examining the relationship between alexithymia and psychological distress have demonstrated positive associations in general populations using various measures including the Symptom Checklist-90- Revised (SCL-90-R; Derogatis *et al.*, 1994; Grabe *et al.*, 2004; Guttman & Laporte, 2002) and MMPI (Butcher *et al.*, 1989; Loas *et al.*, 2001) and these have been replicated in outpatient (Guttman & Laporte, 2002) and inpatient (Spitzer *et al.*, 2005) samples. Vanheule *et al.* (2007) found that mental health outpatients were more likely to score over the cut-off on the Dutch version of the TAS-20 (38%) than undergraduate students (2%). At the subscale level, in a sample of German mental health inpatients and outpatients, the ‘difficulties identifying feelings’ subscale was a significant predictor of all subscales of the SCL-90-R, whereas the ‘difficulties describing feelings’ and ‘externally oriented thinking’ subscales were not (Grabe *et al.*, 2004).

1.4.5.2 Alexithymia and specific mental health difficulties

As well as general measures of wellbeing, alexithymia has been shown to be linked to specific types of psychological distress. For example, reviews of the literature suggest a link between alexithymia and feelings of depression both in adults (Honkalampi *et al.*, 2000; Kooiman *et al.*, 2004; Taylor and Bagby, 2004) and adolescents (Honkalampi *et al.*, 2009), with some authors suggesting that difficulties describing feelings have a particular association with internalising problems (Honkalampi *et al.*, 2009). Honkalampi *et al.* (2004) demonstrated that a drop in alexithymia across two years was associated with a concurrent decrease in feelings of depression. A similar link has been found between alexithymia and the experience of both state and trait anxiety in adults (Berthoz *et al.*, 1999) and in adolescents aged 17 -21 (Karkuvi *et al.*, 2010) when depression is controlled for. On the basis of how closely alexithymia is linked with these indices of mood, some have questioned whether it can be construed as a separate construct independent from mood state. However, further research has demonstrated that these constructs are indeed distinct from one another and that alexithymia represents a stable personality trait beyond the experience of state affect (Parker *et al.*, 1991; Saarjarvi *et al.*, 2006). Difficulties regulating emotions such as alexithymia have also been associated with diagnoses of post-traumatic stress (Monson *et al.*, 2004), eating disorders (Schmidt *et al.*, 1993), obsessive-compulsive behaviours and thoughts (Carpenter & Chung, 2011), somatisation (Scheidt & Waller, 2002) and personality disorders (Loas *et al.*, 2012), and to the occurrence of suicidal ideation (Hintikka *et al.*, 2004).

1.4.5.3 Alexithymia and behaviour

As well as being associated with indices of psychological wellbeing, alexithymia is also associated with a range of behaviours that can be problematic. For example, it has been found to be associated with greater alcohol consumption both in non-problem drinkers (Bruce *et al.*, 2011) and problem drinkers (Honkalampi *et al.*, 2009; Thorberg *et al.*, 2011). Furthermore, it is suggested that between 45 and 67% of those with a diagnosis of alcohol use disorder present with alexithymia difficulties (Thorberg *et al.*, 2009). These findings may be understood as an indication that those who experience high alexithymia engage in behaviours that enable them to regulate their emotions by external means because they are unable to process them cognitively (De Rick & Vanheule, 2006; Taylor *et al.*, 1997).

Alexithymia has also been linked to deliberate self-harming behaviour (Garisch & Wilson, 2010; Zlotnick *et al.*, 1996). As suggested for the association with alcohol consumption, authors propose that individuals with high levels of alexithymia will use self-injurious behaviour as a tool to regulate and communicate emotions due to the lack of safer alternative strategies (Zlotnick *et al.*, 1996). In line with this, one study demonstrated that individuals who are victims of bullying are more likely to use self-harm to cope with the experienced emotions if they have high levels of alexithymia (Garisch & Wilson, 2010).

Alexithymia has also been linked to crime and delinquency in adolescence (Zimmerman, 2006).

1.4.5.4 Alexithymia and interpersonal interactions

Alexithymia has been reported to be associated with difficulties in relating interpersonally (Hesse & Floyd, 2011; Honkalampi *et al.*, 2009). In particular, it has been demonstrated that individuals who score higher on a measure of alexithymia are more likely to exhibit non-assertive social functioning and are more likely to describe feeling cold and distant from others whilst experiencing low affection and low connectedness in relationships (Vanheule *et al.*, 2007). In particular, one study found that scores on the 'Difficulties in Describing Feelings' subscale of the TAS-20 were correlated with scores on interpersonal subscales 'vindictive', 'cold', 'socially avoidant', 'non-assertive' and 'exploitable' as measured by the Inventory of Interpersonal Problems (IIP-C) (Spitzer *et al.*, 2005).

Researchers suggest that these difficulties in relationships may be linked to the difficulties that individuals with alexithymia tend to have in interpreting and expressing the appropriate non-verbal cues of affect (Spitzer *et al.*, 2005; Vanheule *et al.*, 2007). This is consistent with the finding that women who were deemed to have higher alexithymia difficulties had poorer perspective taking and empathic concern (Guttman & Laporte, 2002).

1.4.5.5 Alexithymia and psychological therapy outcomes

The literature suggests that individuals who experience alexithymia may be less likely to benefit from traditional medical and psychological treatment (Taylor & Bagby, 2004) and, with respect to interpretative psychological therapy, it is thought that such relatively negative outcomes may be due to lower levels of psychological-mindedness (Taylor *et al.*, 1997). Also, other authors have suggested that the impact that alexithymia can have on interpersonal skills may affect the outcomes of therapy by causing difficulties with the development of the therapeutic relationship (Mallinckrodt *et al.*, 1998; Vanheule *et al.*, 2007). Despite this, Vanheule *et al.* (2007) outline some actions that therapists can take to build therapeutic relationships with those who experience difficulties such as alexithymia and Beresnevaite (2000) found that group psychological therapy that focuses on improving emotional awareness and imagination can help to alleviate these difficulties for individuals.

1.4.5.6 Summary

In summary, the literature has documented associations between alexithymia and general psychological wellbeing, specific types of mental distress and interpersonal and behavioural difficulties. However, due to the cross sectional nature of the majority of these papers, it is not possible to be sure of the causal direction of the relationship between alexithymia and these variables. It is intuitive, however, that the inability to successfully regulate feelings of affect would impact on psychological wellbeing and may lead to the attempt to achieve regulation through behaviours such as alcohol use and self-harm. The fact that alexithymia can impede individuals from benefiting from some types of psychological therapy suggests that identification of these difficulties in affect regulation is essential in groups of people for whom therapeutic interventions are to be targeted. Further studies into what psychosocial and situational factors may influence alexithymia are recommended to further both the field of research and clinical practice (Zackheim, 2007).

Few studies have explored the impact of alexithymia in adolescence (Zackheim, 2007) yet, given the increasing reports of psychological distress in adolescent/young adult populations, and the higher prevalence of risk-taking behaviour in this age group (Collishaw *et al.*, 2004), a greater understanding of the ways in which this population manage emotions is needed. As described above, the care-leaver population represents a group of people who are more likely to present with a number of the psychological and behavioural issues that have been associated with alexithymia. However, the ways in which care-leavers manage their emotions are poorly known and it is not clear if this is associated with the difficulties they experience. The current study aims to explore these issues further.

1.4.6 Theoretical understanding of the development of alexithymia

1.4.6.1 Gene vs. environment

Sifneos (1973) originally suggested that it is likely that alexithymia is either inherited, linked with early infancy experiences, or a mixture of the two. In support of this suggestion are studies demonstrating that levels of alexithymia correlate across generations in the same family (Fukunishi & Paris, 2001; Lumley *et al.*, 1996). Also, a study of twins suggested that approximately 50-56% of variance in alexithymia and its subcomponents is explained by non-shared environmental factors, 30-33% by genetic influences and 12-20% by shared environmental factors (Jørgensen, *et al.*, 2007).

1.4.6.2 Neurobiological models

Although the full details are beyond the scope of this thesis, research in the domain of neuroscience has produced findings that support the hypothesis that early experiences are important in the development of emotion regulation capacity. In particular, neuropsychological studies have shown that the development of areas of the brain thought to be responsible for emotional understanding and regulation develop through early attachment relationships with caregivers (Schoore, 2001a). This field of research suggests that traumatic early attachment experiences, like those encountered by infants taken into care, can have highly detrimental effects on right hemisphere development and subsequent emotional regulation and mental health (Schoore, 2001b). Sifneos (1988) differentiated between two types of alexithymia: ‘primary alexithymia’ that results from neurobiological abnormalities and ‘secondary alexithymia’ that develops as a result of psychosocial factors such as trauma or abuse. However, the more recent neurological studies indicate that biological and psychosocial factors are not so easy to separate.

1.4.6.3 Alexithymia and early experiences

In terms of social environment, it is posited that, if primary caregivers respond attentively to an infant's attempt to communicate that they are distressed, and help to soothe the infant's emotions, the infant learns that their feelings of affect are understandable and manageable. Eventually, through repeated experiences, infants internalise these affect regulation strategies and learn to regulate their own emotions (Taylor *et al.*, 1997). In contrast, it is suggested that if caregivers are not responsive to the experiences of emotions, and do not help infants to regulate them, then infants may not develop the necessary skills or strategies to notice and regulate their own emotions effectively (Kooiman *et al.*, 2004; Taylor *et al.*, 1997). It is therefore thought that inadequate care-giving in early relationships may increase the likelihood that alexithymia will develop (Taylor *et al.*, 1997).

Two bodies of research explore the link between alexithymia and early social experiences. Firstly, several studies have shown an association between alexithymia experienced in adulthood and retrospective reports of the nature and quality of parenting and relationships in childhood (e.g., Kench & Irwin, 2000; Kooiman *et al.*, 2004; Lumley *et al.*, 1996). For example, alexithymia in adulthood was shown to be associated with retrospective reports of early maltreatment such as psychological abuse and neglect (Kapeleris & Paivio, 2011) and retrospective reports of general family pathology, too much or too little familial affective involvement, poor familial behaviour control and poor familial problem solving (Lumley *et al.*, 1996). This research demonstrated that different types of deficits in parenting or family relations were linked to different aspects of alexithymia (Lumley *et al.*, 1996). Specifically, 'difficulties identifying feelings' has been linked to retrospective reports of dysfunctional familial affective involvement (Lumley *et al.*, 1996) and family expressiveness (Kench & Irwin, 2000), 'difficulty describing feelings' has been linked to retrospective ratings of maternal care (Fukunishi *et al.*, 1997) and 'externally oriented thinking' has been linked to poor familial behaviour control (Lumley *et al.*, 1996). Kooiman *et al.* (2004) found that retrospective positive reports of maternal parenting served a protective function for individuals who were victims of abuse with respect to later development of alexithymia. A study conducted in Britain found that undergraduates' TAS-20, DIF and DDF scores were weakly and negatively associated with retrospective ratings on the 'care' subscale of the Parental Bonding Instrument but they were not associated with the overprotection subscale (Mason *et al.*, 2005).

Other early experiences thought to be linked to higher alexithymia are ‘harsh discipline’, unhappiness in the family and coming from a ‘broken home’ (Honkalampi *et al.*, 2004; Joukamaa *et al.*, 2007). In contrast to this, some studies have found no association between alexithymia and retrospective reports of family environment (Honkalampi *et al.*, 2004; Zimmerman, 2006). However, the Zimmerman (2006) study measured family structure only, not process or relationship quality within the family which may be better predictors of later difficulties.

A limitation of these studies is that they are cross-sectional in nature and rely on retrospective ratings of family environment and early relationships, and these can be subject to recall bias. The second body of research demonstrating a link between alexithymia and early social experiences consists of longitudinal research, although this is rare. For example, data has been collected in a prospective study following a cohort of Finnish individuals from pre-birth to 31 years of age. Analysis of this data has suggested that higher levels of alexithymia at age 31 were associated with being an unwanted baby, growing up in a rural context and having many brothers and sisters (Joukamaa *et al.*, 2003). The authors suggested that these effects may be mediated through the caregivers’ relationship with the infant, although this was not empirically tested. The same study found that alexithymia at age 31 was not related to the experience of depression by the mother at the time of birth or to parents’ marital status. A second paper analysing this data found that infants who were able to speak more words at the age of one year had significantly lower mean TAS-20 scores when they were aged 31 (Kokkonen *et al.*, 2003). In particular, it was found that speaking ability at one year old had a significant relationship with difficulties describing feelings and degree of externally oriented thinking style at age 31 for males. For females speaking ability at one year old was associated with difficulties identifying feelings and degree of externally oriented thinking style at age 31. The authors suggest that this is evidence for alexithymia as a developmental process that may be evident at a young age and is reinforced as the individual develops through social interaction with those around them (Kokkonen *et al.*, 2003).

In summary, these findings document a link between the nature of early experiences with caregivers and emotion regulation both in childhood and in later life. It may be hypothesised, therefore, that individuals who grow up in the care system, who may have experienced early trauma and disrupted relationships throughout development, may be more likely to develop difficulties in the successful management of emotions.

1.4.7 Alexithymia and emotion regulation in young people in care

The preceding narrative review of the literature led to a consideration of the idea that some of the psychological and social difficulties experienced by care-leavers may be due to difficulties that they have with emotional regulation. To what extent could alexithymia account for the psychological and social difficulties observed in care leavers? A review of the literature using alexithymia-related and care-related keywords found that no previously published studies had compared the experience of alexithymia by those in care with those who grew up with their birth families. However, several studies have explored more general emotional regulation abilities in the care population. For example, young infants in care have been shown to perform less well on measures of emotion regulation (Klee *et al.*, 1997) and emotion understanding (Barone & Lionetti, 2012) than children of the same age who had not been taken into care. However, Garvin *et al.* (2012) found inconsistent results and suggested that the age of being taken into care may impact on the development of emotion regulation skills, with those fostered or adopted earlier performing better.

Studies of infants who spent time in institutions in Eastern Europe before being adopted abroad demonstrate that these children have poorer emotional understanding, evidenced in facial expression recognition and matching tasks, than children who grew up with their biological families (Vorria *et al.*, 2006). Significantly, however, there was no difference between the groups on performance on these tasks when the emotion expressed was anger (Fries & Pollak, 2004). Similar relative difficulties in emotional understanding were found in American foster children who had experienced maltreatment, even when the comparison group was matched for low income (Pears & Fisher, 2005).

A prospective longitudinal study found that, for foster children who were fostered between the ages of three and five, developmental stage as measured by neuropsychological assessments and environmental stress in the first six months of placement predicted difficulties in emotion regulation at age seven (Healey & Fisher, 2011).

Difficulties in emotion regulation for young people who have grown up in care may be caused by early trauma, the impact of being taken into care and disruption of the primary care-giving relationship, and/or the subsequent disrupted relationships that they often experience as they move through multiple placements (Scott, 2011). There is some evidence that difficulties in emotional regulation are similar between maltreated children who have

been taken into care and maltreated children who remain with their birth families (Scott, 2011). This suggests that these early traumatic experiences play a significant role in the outcomes of young people in care and this is supported by evidence that at the time of entry into care the prevalence of mental health and behavioural difficulties is significantly higher than that in the general population (Sempik *et al.*, 2008). The trauma experienced by the young person before going into care, be it through neglect or abuse, will require them to develop ways in which to manage the emotions that this causes. It may be that these individuals are more likely to develop emotion regulation strategies such as shutting off from feelings and not communicating them and this may increase the risk of alexithymia development. Evidence for this comes from studies that have demonstrated links between childhood abuse and neglect with alexithymia in undergraduate students (e.g. Kapeleris & Paivio, 2011), in substance-dependent males (Evren *et al.*, 2009) and in psychiatric outpatients (Zlotnick *et al.*, 2001).

As well as this body of research demonstrating the negative impact of early maltreatment, there is also evidence that the effect of being taken into care can cause further problems. For example, Lawrence *et al.* (2006) demonstrated that children who experienced similar levels of adversity but were not taken into care presented with less behavioural difficulties than those who had been taken into care. Despite the wealth of outcome data suggesting that care-leavers do less well, little research has looked specifically at the psychological characteristics and needs of this older population.

Given the identification of the difficulties that young people in care have with regard to emotion regulation, and the recognition of the importance that early experiences play in developing emotion regulation skills, the concept of attachment provides one framework through which these difficulties could be understood.

1.5 Attachment

1.5.1 Introduction to the concept of attachment

Bowlby (1969/1982) described the ‘attachment system’ as a collection of beliefs, feelings and behaviours that serve to maintain attachment or proximity to an infant’s primary caregiver. He hypothesised that this system of drives and behaviours developed evolutionarily to ensure the protection of offspring and thus the species. It is postulated that, at times of perceived danger, this attachment system is activated and maintains the attachment relationship and

subsequent safety. A simple example of this is that when an infant feels threatened they will seek proximity to a trusted other. It is suggested that the response of the 'other' to these attempts for proximity and reassurance provides the infant with information about themselves in relation to the social world around them. Through repeated experiences of care-giving, it is thought that these attachment related beliefs and feelings, and the behaviours of others at times of perceived threat, become 'internal-working models' of relationships. It is thought that these are internal representations of the beliefs one has about oneself in relation to other people, and the expectations that one has of others. For example, the infant may begin to see herself or himself as someone that others feel is worth protecting and to see others as trustworthy protectors. These internal working models are then activated with the attachment system in later life at times of perceived danger or relationship insecurity. Through this mechanism it is thought that the attachment system that develops in the early years of life continues to play a key role in guiding attachment related thoughts, feelings and behaviours across the whole life span (Shaver & Mikulincer, 2005). The following section reviews research that explores the development of attachment through childhood and its conceptualisation, measurement and impact in adulthood. The findings of this review are then used to consider the role that attachment might play in the difficulties experienced by care-leavers.

1.5.2 Critical review of the attachment literature

1.5.2.1 Development of attachment style in children

If an infant's primary caregiver provides a sensitive and responsive 'safe-base' from which the infant can explore the world in times of safety, and provides reassurance and protection at times of threat, the infant is likely to develop a secure attachment (Bowlby, 1973; Sroufe, 2005). The infant will feel loved and understood, and will trust that if they feel distressed and turn to someone for support, it will be provided. If primary caregivers are unable to provide this 'safe-base', perhaps because they are too distracted by their own difficulties or because they find the distress of their infant too distressing themselves, 'secure attachment' is less likely to develop. In this case, it is thought, individuals may develop, through necessity, alternative strategies for maintaining proximity to attachment figures or different strategies for regulating the emotions associated with perceived rejection (Bowlby, 1973). For example, individuals may engage in extreme behaviours to keep the attention of others in relationships or they may down play or shut-off from the need for relationships altogether.

Ainsworth *et al.* (1978) devised a typology of infant attachment style which used three categories to make sense of the interplay between caregiver and infant behaviour. The three categories were 'secure', 'anxious/ambivalent' and 'avoidant' and allocation to a particular category was made on the basis of the observation of infants' behaviour during separation and subsequent reunion with primary caregivers in a procedure known as 'the Strange Situation paradigm'. Securely attached infants would seek proximity to the caregiver on their return and any distress they experienced through separation was abated by the caregivers' presence. Caregivers of securely attached infants in Ainsworth *et al.*'s studies (1978) tended to be consistent and responsive to the needs of the child. Approximately 70% of infants were categorised as securely attached. Conversely, infants categorised as anxious/ambivalent were not easily comforted by their caregiver's return after a separation and demonstrated ambivalent behaviour towards them. They would be highly distressed when the caregiver left and would approach them when they returned but then would resist contact and reassurance. Primary caregivers of children categorised as anxious/ambivalently attached tended to be inconsistent in meeting their child's needs and would at times be interfering. It is thought that this type of parenting may be likely to create hyper-activation of attachment behaviours in an attempt to gain and maintain the attention of the other (Mikulincer *et al.*, 2003). Approximately 15% of infants were observed to behave in this way. The third group, classified as avoidant attachment, did not exhibit distress when the caregiver left the room and would not seek comfort or proximity with them when they returned, often avoiding any interaction altogether (Ainsworth *et al.*, 1978). Caregivers of these infants tended to be rejecting or punishing of proximity seeking and expressions of distress by the infant. It was thought that these infants had therefore not learnt that expressing feelings to others can be helpful. Approximately 15% of babies were classified as having avoidant attachment. Main and Solomon (1986) introduced a fourth classification called 'disorganised attachment' to describe infants who had inconsistent strategies for dealing with separation and reunion, often interspersed with periods of apparent disorientation and fear, thought to be a result of trauma.

1.5.2.2 Adult attachment style

1.5.2.2.1 General adult attachment style

Bowlby (1988) suggested that the motivation to maintain feelings of security within relationships exists throughout the life course and he posited that the strategies developed in infancy to achieve this persist through adolescence and into adulthood. Bartholomew and Horowitz (1991) extended the work of Bowlby and Ainsworth to describe a four-type model

of attachment in adult relationships. They took Bowlby's idea that attachment-related inner working models represent a model of the self (e.g. are you the type of person that others may love or offer support to or are you the type of person likely to be rejected?) and a model of others (e.g. are others trustworthy and likely to offer support or will they be rejecting?) to outline a four category model of attachment style. They posited that the nature of these two inner models could be categorised as either positive or negative, giving four possible combinations:

- 1) Securely attached: positive model of self and positive model of others.
- 2) Preoccupied: negative model of self and positive model of others.
- 3) Dismissing: Positive model of self and negative model of others.
- 4) Fearful/avoidant: Negative model of self and negative model of others.

It is thought that the preoccupied style maps onto Ainsworth's anxious/ambivalent attachment behaviours in infancy and the dismissing and fearful styles both may represent avoidant attachment behaviours (Bartholomew & Horowitz, 1991). That is to say that individuals, both in infancy and adulthood, may avoid closeness with others because they do not believe that others are trustworthy/helpful (dismissive) or because they feel sure that they themselves are the type of person who will get rejected by others (fearful). The validity of conceptualising inner-working models as one of the self and one of others was enhanced by Bartholomew and Horowitz's (1991) finding that ratings of self-concept were positively correlated with the degree to which participants identified with secure and dismissing attachment types and were negatively correlated with identification with fearful and preoccupied types. Additionally, the concept of others, as measured by a rating of sociability, was positively correlated with ratings of identification with secure and preoccupied types, and negatively correlated with ratings of fearful and dismissing types (Bartholomew & Horowitz, 1991). In a study of 115 individuals living in the community, with an average age of 23.7, the percentage of securely attached individuals ranged from 48% to 63%, depending on the measure used (Stein *et al.*, 2002).

There is evidence that attachment style may change across the type of relationship and the context (Stein *et al.*, 2002) and that attachment relationships differ in quality to other types of relationships (Ainsworth, 1989). Some researchers suggest that attachment behaviours may be state dependent in that they are only evident in the context of attachment – relationships and not other types (e.g. working relationships) (Bosmans *et al.*, 2010). Also, differing attachment behaviours may be elicited in an individual by different partners, for instance

someone who is typically securely attached may present as more preoccupied when in a relationship with someone who behaves in a more dismissive or avoidant way (Kobak & Madsen, 2008). However, trends have been found across the life-course in the way in which individuals tend to feel and behave whilst in attachment relationships and it is thought that, when activated, these behaviours are usually trait –dependent (Ravitz *et al.*, 2010). It has been suggested, therefore, that research that measures this construct should ensure that assessments target beliefs and behaviours specifically in attachment relationships as defined at the beginning of the chapter rather than more general interrelations (Ravitz *et al.*, 2010; Stein *et al.*, 2002). In line with this recommendation, a significant amount of the research exploring attachment in adults looks at it in the context of romantic relationships.

1.5.2.2.2 Adult romantic attachment style

It is thought that the attachment system plays a key role from adolescence onwards in the seeking out of romantic partners (Ainsworth, 1989). Ainsworth suggests that in these adult attachment relationships individuals seek “closeness that, if found, would result in feeling secure and comfortable in relation to the partner” (p. 711). It has been suggested that this represents the activation of the same attachment system as in childhood and may also be evolutionary as it can enable greater security and safety within a parenting couple (Zeifman & Hazan, 2008). Hazan and Shaver (1987) translated the work of Bowlby and others on models of attachment into a framework for understanding adults’ behaviour in romantic relationships. They suggest that the inner-working models of relationships, developed by individuals through their early attachment relationships, shape interactional styles in romantic relationships in their adult lives. This implies that the strategies used to achieve feelings of security in infancy are similarly used in adulthood to accomplish the feelings of security and comfortableness as described by Ainsworth.

Hazan and Shaver (1987) looked to apply the same three attachment type model that Ainsworth used in infants to adult romantic relationships: secure, avoidant and anxious/ambivalent. They asked participants to identify one of three descriptions, adapted from Ainsworth’s (1978) descriptions of infant attachment types, to best describe how they feel and think in romantic relationships. They found that the proportions of adults identified with securely, avoidant and anxious/ambivalent attached descriptions were broadly similar to the proportions found in the Campos *et al.* (1983) study of infants. The validity of these ‘attachment types’ as predictors of relationship beliefs, feelings and behaviours was

confirmed through respondents' descriptions of their most important romantic relationship to date. Namely, those identified as securely attached were more likely to describe their romantic relationship as a trusting and happy experience, whereas those identified as anxiously/ambivalently attached were more likely to have experienced extreme highs and lows of emotion in the relationship, were more likely to have experienced jealousy and were more likely to have typified the relationship more as a desire for reciprocation. Those who identified with the description of avoidant attachment also described highs and lows of emotion and experiences of jealousy, but these were more likely to be accompanied with a fear of intimacy (Hazan & Shaver, 1987).

1.5.3 Measuring attachment

As described above, Ainsworth *et al.* (1978) created one of the first reliable measures of attachment style in infants - the 'strange-situation' paradigm. Since then researchers and clinicians have developed several different approaches to capturing attachment in adult relationships (Ravitz *et al.*, 2010). The following section will review these approaches and describe some of the considerations needed when measuring attachment in research.

1.5.3.1 Continuity of attachment

Some evidence for the stability of the attachment style developed with primary caregivers comes from the study of how adults retrospectively describe the behaviour of their parents when they were infants (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). The results of some studies demonstrate that adults identified as having secure attachment are more likely to describe an affectionate and caring relationship with their parents and are more likely to choose positive descriptors of their mothers and fathers such as 'accepting', 'confident' and 'loving' compared to individuals who are identified with either of the insecure categories. Adults who identified with the description of being anxiously attached in adult relationships are more likely to retrospectively describe their mothers as cold and rejecting during childhood (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987).

The continuity of attachment across the life course is better studied by prospective longitudinal studies as they are less open to bias. However, such studies need far more resources and are thus much rarer. One such study found 72% continuity between the classification of secure or insecure attachment as measured by the strange situation at 12 months old and the Adult Attachment Inventory 20 years later (Waters *et al.*, 2000).

Significant attachment-related life events such as loss or trauma were key predictors of attachment security change.

Whilst there may be a degree of consistency between infant and adult attachment style, Fraley and Shaver (2000) suggest that the correlation between infant attachment and adult **romantic** attachment may only be small to moderate. Furthermore, Shaver *et al.* (2000) suggest that this association gets looser as the person ages. This may be due to the number of other factors that influence attachment in romantic relationships, such as the activation of the caregiving and sex behavioural systems (Fraley & Shaver, 2000) and a greater range of relationship experiences. In a review of research findings, Scheidt and Waller (2002) suggest that attachment representation stability may be relatively high through childhood up to the age of ten but that it appears to reduce when it is studied over a longer period of time into later life. Adolescence and early adulthood mark a transition from attachment relationships and behaviours that centre around family members to those that involve a number of other individuals including peers and romantic partners (Crittenden, 2002). It is thought that this may therefore represent a key time when internal representations of attachment are changeable (Scott Brown & Wright, 2003). There is a call for further research that looks specifically at attachment at this time of life and what impact it has on other psychological constructs (Roisman *et al.*, 2007; Scott-Brown & Wright, 2003).

1.5.3.2 Interview vs. self-report measures of attachment

The assessment of adult attachment falls into two streams: self-report questionnaires and semi-structured interviews, and these broadly stem from the schools of social psychology and developmental psychology respectively (Roisman *et al.*, 2007). The Adult Attachment Interview (AAI) is a semi-structured interview that was developed in line with Ainsworth's work to assess "state of mind with respect to attachment" through an individual's retrospective descriptions of early attachment relationships (Main *et al.*, 1985). In contrast, the majority of self-report measures assess how adults consciously think, feel and behaviour in their current adult attachment relationships (Shaver *et al.*, 2000; Stein *et al.*, 2002). Analyses have demonstrated that there is some association between the two but there is variation in the estimated size of this association (Roisman *et al.*, 2007; Shaver *et al.*, 2000). For example, ratings by AAI coders of participants' descriptions of early experiences of loving and attentive parents have been found to be correlated with self-reported closeness and low anxiety in adult romantic relationships (Shaver *et al.*, 2000). The authors suggested that

these associations may be due to the common influence of early attachment experiences on both relationships with parents and with other adults in later life (Shaver *et al.*, 2000). They do point out, however, that the correlations remained moderate, and so warned against suggestions that these types of measures assess the same thing.

Ravitz *et al.* (2010) completed a systematic review of the literature relating to measures of adult attachment. The findings suggested that the AAI may be the most robust and valid tool for measuring adult attachment style. However, it is recognised that this relies on high levels of resources due to the need for specialised training and the time taken to administer and interpret the interview. Significantly, as well, as highlighted above, the AAI and self-report measures assess different aspects of attachment and thus are not interchangeable (Roisman *et al.*, 2007; Shaver *et al.*, 2000) and as such the nature of the attachment relationship under examination will determine the choice of measure used. Self-report measures have been criticised for being susceptible to defences and response bias. However, it is thought that dimensional self-report measures with robust psychometric properties may be suitable for use in research when the resources are not available to carry out the more substantial AAI or when the focus of the research question is primarily attachment in adult relationships (Ravitz *et al.*, 2010).

1.5.3.3 Dimensional or categorical conceptualisation of attachment

Researchers in this field divide into those who consider attachment to be best conceptualised as a dimensional construct, and those who consider it to be more helpfully described as categorical (Ravitz *et al.*, 2010). The previously discussed ‘model of self’ and ‘model of other’ construction (Griffin & Bartholomew, 1994) is an example of a dimensional conceptualisation of attachment, whilst the classifications of secure, preoccupied, dismissive and fearful (Bartholomew & Horowitz, 1991) represent a categorical conceptualisation. Categorical models have been criticised for lacking statistical power, and putting people into categorical ‘boxes’ is thought to reduce the richness of information provided (Fraley & Waller, 1998; Ravitz *et al.*, 2010). Furthermore, individuals often identify themselves with more than one category of attachment (Bartholomew & Horowitz, 1991; Stein *et al.*, 2002). Brennan *et al.* (1998) carried out a factor analysis of numerous self-report attachment measures and found that the best fitting solution consisted of two dimensions: attachment related anxiety and attachment related avoidance. It is thought that this dimensional model better represents the experiences of attachment in adults than one represented by categories

(Griffin & Bartholomew, 1994). It is suggested therefore that, although categorical classification of attachment can be a useful heuristic in clinical practice, evidence supports the use of dimensional models of attachment in empirical research (Ravitz *et al.*, 2010).

The dimension of attachment related anxiety is thought to represent the ‘inner working model of self’ (Bartholomew & Horowitz, 1991) where high anxiety reflects a belief that one is likely to be rejected or abandoned. This is associated with a relative preoccupation with others whilst in attachment relationships, often relying on them for a feeling of self-worth (Bartholomew & Horowitz, 1991) and a “hyperactivation of attachment behaviours” (Ravitz *et al.*, 2010). It is thought that this hyperactivation of behaviours includes hypervigilance to attachment related threat, with heightened emotional reactions including extreme behaviours used in an attempt to maintain proximity to the attachment figure (Mikulincer *et al.*, 2003). Attachment related avoidance is thought to represent a negative inner-working model of others (Bartholomew & Horowitz, 1991) where high avoidance would reflect feeling uncomfortable about being close to or relying on other people and a “deactivation of attachment behaviour” (Ravitz *et al.*, 2010). This deactivation is thought to include purposeful avoidance of attachment related threat and suppression of emotional reactions to such threats (Mikulincer *et al.*, 2003). There are inconsistent findings in the literature about whether these dimensions are correlated or orthogonal. Bowlby (1973) suggests that, as the model of the self and the model of the caregiver develop side by side, they are likely to be “complementary and mutually confirming” (p.238). Bosmans *et al.* (2010) found a correlation of 0.45 between the scores on the anxiety and avoidance dimensions as measured by the Experience in Close Relationships-Revised (ECR-R) (Fraley *et al.*, 2000).

In summary, adult attachment has been measured in a variety of ways. However, it has been recommended that in research it is best conceptualised and measured as two dimensional and with a specific type of relationship as a focus. This therefore will be the predominant approach of this research. However, as prior research exploring the relationship between romantic attachment and alexithymia has used both dimensional and categorical conceptualisations and measures of attachment, the current study will look at both. The method by which dimensional scores are converted into attachment categories is discussed in more detail in Chapter 3.

1.5.4 Attachment and wellbeing

Research has consistently demonstrated strong associations between attachment and indices of general wellbeing and more specific psychological difficulties.

1.5.4.1 Attachment and mental health

Secure attachment in infancy has been shown to be a protective factor against poor psychological wellbeing later in life in a longitudinal study (Sroufe, 2005). In particular, it was found that the anxious-ambivalent style of attachment in early infancy may be significantly related to anxiety type difficulties in adolescence and early adulthood whereas avoidant style attachment is not (Sroufe, 2005).

With respect to adult attachment, people with psychological difficulties are more likely to present with insecure attachment (Scott-Brown & Wright, 2003; Van Ijzendoorn & Bakermans-Kranenburg, 1996) and individuals classified as securely attached by self-report measures of adult romantic attachment have significantly better psychological wellbeing (Stein *et al.*, 2002). Using the SCL-90-R, Bosmans *et al.* (2010) found a significant correlation between both attachment-related anxiety and avoidance, as measured by the ECR-R, and reported psychological distress.

In terms of attachment categories, some studies have found that adolescents who were deemed to be anxious/ambivalently attached were more likely to report higher levels of overall symptoms of psychological distress than securely or avoidantly attached individuals (Cooper *et al.*, 1998; Scott Brown & Wright, 2003). Specifically, these individuals were more likely to report higher levels of anxiety, depression and internalising difficulties than those who reported secure or avoidant styles (Scott Brown & Wright, 2003). It has been suggested that individuals who describe high levels of avoidance in attachment relationships may be less likely to recognise and report psychological distress in line with the ‘deactivating’ strategy (Scott Brown & Wright, 2003). Conversely, however, Stein *et al.* (2002) found that those classified as having dismissing styles had global psychological distress scores (GSI) significantly higher than securely attached individuals but had significantly lower interpersonal sensitivity (IST) scores than those who were identified as preoccupied or fearful. Stein *et al.* (2002) go on to suggest that using a dismissive strategy may protect individuals from experiencing psychological distress in the interpersonal domain but not more general distress.

1.5.4.2 Attachment and behavioural outcomes

Insecure attachment has been linked with less academic success and behavioural difficulties. For example, longitudinal studies suggest that avoidant style attachment during infancy is a significant predictor of later conduct disorders, more so than anxious attachment (Sroufe, 2005). However, adolescents identified as anxiously attached are more likely to report educational underachievement and some delinquent behaviour than avoidant or securely attached individuals and it is thought that this is because of the different ways of managing emotions (Cooper *et al.*, 1998).

1.5.4.3 Attachment and interpersonal outcomes

In a longitudinal study it was found that attachment in infancy was associated with social competence in adolescence and level of hostility in romantic relationships in early adulthood (Sroufe, 2005). Similarly, in a cross sectional study, Scott Brown and Wright (2003) found that adolescents who were deemed to be ambivalently attached identified having significantly more interpersonal problems than those who were deemed to be securely or avoidantly attached.

In adults, Bartholomew and Horowitz (1991) found distinctive interpersonal styles that relate to each of their attachment style categories. For example, securely attached adults are more likely to report higher intimacy, warmth and balance of control in friendships and a higher level of involvement in romantic relationships. In general, individuals identified as having fearful and preoccupied style attachment reported more interpersonal problems than those classified as having a secure or dismissive style. Adult attachment style has also been found to be related to satisfaction in marital relationships (Feeney, 1999).

1.5.4.4 Summary

In summary, attachment has been linked to a large number of psychological and social difficulties with some authors suggesting that the type of insecure attachment (e.g. anxious or avoidant) may dictate the type of difficulty that is experienced (e.g. Scott Brown & Wright, 2003). As attachment appears to be related to a number of the difficulties experienced by young people in and leaving care, the following section reviews the literature that explores the impact of attachment in this population.

1.5.5 Attachment in care

1.5.5.1 Attachment of children in care

In the context of neglect or abuse, as often experienced by those in care, it may be predicted that the 'safe base' required for the development of secure attachment in infants would be less likely to be available. It is suggested that, in these early relationships, the activation of the attachment system by insecurity, and hence the motivation to seek proximity to the caregiver, can lead to further trauma if the caregiver is the source of threat (Fonagy & Luyten, 2009). It has been shown that early traumatic experiences of this nature can make the development of insecure attachment more likely (Kapleris & Paivio, 2011), with some suggesting that this specifically increases attachment-related avoidance (Carpenter & Chung, 2011) or disorganised attachment (Scott, 2011). Furthermore, qualitative research exploring the experiences of care-leavers suggests that it is rare for a young person growing up in the care system to have a consistent adult figure with whom they have a positive relationship throughout childhood and adolescence (Holland *et al.*, 2010) making it unlikely for the impact of early trauma to be attenuated.

In line with these predictions, research has shown that children and young people who have been taken into care or adopted are more likely to have insecure or disorganised attachment than 'norms', with only 25% of adopted children deemed to be securely attached 12-18 months after adoption (Barone & Lionetti, 2012). Other studies present a more optimistic picture and have demonstrated a greater proportion (52%) of infants aged between 12 and 24 months being classified as securely attached when they completed the 'strange situation' three months after being taken into a foster placement (Dozier *et al.*, 2001). This figure was not significantly different to that found in a meta-analysis of studies looking at non-fostered children (Van Ijzendoorn, 1995). However, Dozier *et al.* (2001) did report that the foster children who were insecurely attached were more likely to have a disorganised style, that is to say they were less likely to show a coherent pattern of behaviours that they used to cope with attachment related threat.

It is suggested that the ability of the infant to use the foster parent as a secure base is associated with more positive outcomes in later life (Scott, 2011). Research suggests that the attachment styles of children taken into care can be shaped by the attachment representations of the adoptive or foster mothers as measured by the AAI (Barone & Lionetti, 2012) and some authors suggest that the concordance is similar to that between non-fostered infants and

their birth mothers (Dozier *et al.*, 2001). However, it is thought that the age at which the child is taken into care may have an impact on this effect, with those taken into care before 18 months of age being more likely to develop an attachment style in line with their interactions with their foster carer, and those taken after this age being less amenable (Dozier *et al.*, 2002). Research has also shown, however, that foster and adoptive parents will organise their behaviour around the attachment behaviour displayed by the infant (Stovall & Dozier, 2000), increasing the risk that insecure attachment developed through the disrupted early relationship may be transferred and maintained in the new foster home. Stovall and Dozier (2000) found, in a study of a small sample, that children taken into foster care earlier were more likely to display secure attachment behaviours. However, Dozier *et al.* (2001) found no effect of age taken into care for infants aged 12-24 months, although this may be due to the narrow and young age range in this sample. Dozier *et al.* (2001) also found that the reason for being in foster care and the number of placements were not related to attachment security as measured by the strange situation in fostered infants aged 12-24.

Although there is some suggestion that the security of attachment for infants in foster care may be at greater risk, it is unclear whether this is due to early relationship disruption, trauma in the primary relationship, the timing of any relationship disruption or the attachment style of adoptive/foster parents. It seems likely that all of these factors will contribute to the attachment style of the young person (Dozier *et al.*, 2001; Scott, 2011).

1.5.5.2 Attachment styles of care-leavers

Relatively little is known about attachment style in care-leavers and the role it plays in their lives. Sinclair *et al.* (2005) found that care-leavers who had a strong attachment with a close other, such as a foster carer, partner or family member, were more likely to have positive outcomes later in life. Millward *et al.* (2006) similarly found that children in care that were insecurely attached were more likely to experience periods of depression and anxiety as an adult.

1.5.5.3 Attachment as an explanation for the difficulties experienced by care-leavers

Stein (2006) suggests that attachment theory may offer an explanation for the life experiences and outcomes of those who have spent time growing up in the care system. For example, it has been suggested that the impact of early trauma on psychological wellbeing may be

mediated through insecure attachment (Carpenter & Chung, 2011). This proposes that the typical early relational experiences of young people who are taken into care may prevent individuals from developing positive inner-working models of themselves and others which in turn has a negative impact on psychological wellbeing. Stein (2006) goes on to suggest that attachment theory may also provide a basis for therapeutic work with this population. He suggests that providing a 'secure base' may help the young person to develop more adaptive ways of coping and interacting with the world around them.

This current study aims to build on the findings of the research described above with younger children by exploring whether attachment style continues to differ in later life between those ageing out of care and young adults who have grown up with their birth families. Similarly, it further explores the idea that attachment related beliefs and behaviours go some way to explaining the psychological distress experienced by care-leavers.

1.6 Attachment and alexithymia

The development and maintenance of intimate relationships and the regulation of affect appear to be closely interrelated. It may be expected, therefore, that emotional (dys)regulation in the form of alexithymia may have some origin in the (in)security of attachment.

1.6.1 Emotion regulation and attachment relationships in childhood

As described above, the nature of early experiences plays a role in the development of both attachment and alexithymia. More specifically, it is thought that ability to regulate emotions is developed through attachment relationships, with the caregiver's ability to mirror the affective states of the infant directly impacting the infant's development of the ability to self-regulate emotions (Fonagy & Luyten, 2009). It is suggested that these experiences in early attachment relationships may determine which strategies individuals use to regulate emotions (Bowlby, 1988) and process sensory information in later life (Crittenden, 2006). For example, it is thought that infants in securely attached relationships may be more likely to identify the sensations of emotions and to express them in a regulated way compared to insecurely attached infants who may inhibit or magnify expressions of emotions in line with the response from caregivers (Crittenden, 2006). It is suggested that the presence of a secure base that enables infants to feel safe allows them to connect more with their inner worlds and to use introspection and that this leads to the development of skills in regulating these internal worlds (Liotti & Gilbert, 2011). It is hypothesised that individuals who do not have secure

early attachment relationships, such as those whose relationships are typified by abuse or neglect, are unlikely to internalise helpful strategies for regulating their emotions and may be more likely to develop difficulties (such as alexithymia) in regulating affect (Taylor *et al.*, 1997).

Relatively few longitudinal studies have explored how attachment style and skills in emotion regulation develop alongside each other throughout childhood. One such longitudinal study, however, suggests that individuals with insecure or disorganised childhood attachment, as measured by the ‘strange situation’ at 12 months of age, may be less likely to become proficient in internal state language by 36 months of age compared to infants who are securely attached (Lemche *et al.*, 2004). It is thought that the development of a language with which to describe one’s internal world enables more proficient regulation of emotions (Taylor *et al.*, 1997). Lemche *et al.* (2004) suggest therefore that their finding may represent the early development of difficulties in the cognitive processing of emotions and the externally oriented thinking styles associated with alexithymia. Similarly, it has been found that security of the attachment relationship between the child and mother in infancy is associated with the child’s ability to interpret and understand mixed-emotions at the age of 6 (Steele *et al.*, 1999) and capacity to regulate emotions throughout childhood (Sroufe, 2005).

1.6.2 Alexithymia and adult attachment

The majority of the literature exploring the link between alexithymia in adulthood and attachment style broadly falls into two categories: one includes studies that measure the relationship between alexithymia and retrospective early attachment experiences, and the other includes studies that explore the relationship between alexithymia and concurrent experiences of adult attachment relationships. The former have found significant positive correlations between alexithymia and retrospective ratings of separation anxiety (Triosi *et al.*, 2001), whilst significant negative correlations have been found with retrospective ratings of feeling emotionally secure during childhood (Berenbaum & James, 1994). These findings support the idea that the security of the attachment felt within early relationships may have implications for the degree of alexithymia in later life. However, these studies are limited by the use of retrospective reports of early relationships that are susceptible to recall bias.

In terms of the relationship between alexithymia and adult attachment, several studies have found negative correlations between alexithymia and secure adult attachment style, and

positive correlations with both anxious and avoidant attachment (e.g. Montebanocci *et al.*, 2004; Weardon *et al.*, 2003). It may be that individuals with secure attachment are likely to report fewer difficulties with identifying and communicating emotions because they believe that others are likely to help them and they may also be less likely to report externally oriented thinking styles because they feel more comfortable engaging in introspection to help cope with feelings of affect (Mikulincer *et al.*, 2003).

In terms of the relationship between different attachment styles and alexithymia, it has been suggested that individuals with avoidant attachment may be more likely to suppress expression of affect in later life whilst those with anxious attachment may be more likely to have developed an over-expressive style of affect management as a strategy to keep the attention of inconsistent caregivers (Kobak & Sceery, 1988). However, other researchers suggest that those who are identified as anxious-ambivalently attached may be more likely to 'bottle-up' emotions such as anger in romantic relationships through fear of pushing the other partner away (Feeney, 1999). This is consistent with the findings of Deborde *et al.* (2012) who found that alexithymia was positively correlated with scores of attachment anxiety but not related to avoidant attachment.

It has been proposed that gaining a better understanding of the impact of attachment on emotion regulation may elucidate the relationship between attachment and the experience of psychological difficulties in childhood and early life (Borelli *et al.*, 2010). In particular, it is possible that difficulties in recognising and regulating emotions go some way to explaining the link between insecure attachment and psychological wellbeing. In line with this it has been found that the effect of attachment on psychological and psychosomatic difficulties may be mediated by affect regulation (Scheidt & Waller, 2002) and this may be especially prominent for those who have experienced childhood trauma (Carpenter & Cheung Chung, 2011).

The following section presents the findings of a systematic review of the literature exploring the link between alexithymia and attachment in young adults. Particular attention is also paid to the above question regarding the relationships between alexithymia, attachment and psychological wellbeing.

1.7 Systematic review

1.7.1 Review methodology

An initial review of the literature using all of the search terms relating to alexithymia, attachment and care-leavers (see appendix A) was completed to assess whether a similar study had been carried out with the care-leaver population. As no such studies were identified, the search was broadened to review studies of the question: ‘what is the relationship between alexithymia and attachment?’

On the 13th March 2013 a systematic search of the Cardiff University Full Text Journals, Embase, AMED, Ovid MEDLINE, PsycINFO and PsycArticles databases was carried out using the keyword search terms ‘alexithymia’ and ‘attachment’ combined with the Boolean operator ‘and’. Once duplicates were removed this identified 252 studies. Limiting the search to peer reviewed and English language publications reduced this to 186.

The titles of these 186 studies were reviewed and any studies where it was clear that the researchers had not measured both alexithymia and attachment and explored the relationship between the two were discarded. The abstracts of the remaining 147 articles were subsequently reviewed with the same question in mind, after which 50 remained.

These 50 articles were accessed in full and assessed against the following inclusion and exclusion criteria:

Inclusion criteria:

- Empirical study
- Primary data
- Explores the relationship between alexithymia and attachment
- Mean age of participants under 25

Exclusion criteria:

- Articles reporting studies that measure general emotional regulation as opposed to alexithymia.
- Articles reporting studies that measure interpersonal functioning as opposed to attachment.
- Single case studies.
- Conference abstracts where no full paper is available.
- Studies that select participants on the basis of a physical diagnosis.
- Studies that measure attachment to therapist.

These inclusion/exclusion criteria were selected to ensure that the studies included would be those that were most likely to present reliable and valid data that could be generalizable to the care-leaver population.

Fifteen studies remained and were included in the systematic review. Table 1.1 outlines the methodological details of these studies and their findings with respect to alexithymia and attachment. The following section of the report presents a narrative description and critical review of these research papers.

1.7.2 Study Methodology

1.7.2.1 Samples

Twelve of the studies recruited university students as their sample, and six of these stipulated that the participants were studying psychology (Bekker *et al.*, 2007; Kapeleris & Paivio, 2011; Laible, 2007; Mallinckrodt & Wei, 2005; Montebanocci *et al.*, 2004; Weardon *et al.*, 2005). One included only medical students (Hexel, 2003). Fossati *et al.* (2009) provided a breakdown of the subjects studied by the participants whilst Meins *et al.* (2008) and Sonnby-Borgström (2009) detailed the faculties or campuses that the students were recruited from. The two remaining studies that sampled university students (Hesse & Floyd, 2011; Weardon *et al.*, 2003) did not include a description of the subjects that the participants were studying. The final study that included a nonclinical sample recruited school students (Oskis *et al.*, 2013) as participants. The majority of studies that explored alexithymia and attachment in clinical populations were excluded due to a higher mean age of participants. However, one study recruited adolescent outpatients diagnosed with borderline personality disorder

(Deborde *et al.*, 2012) and another sampled army recruits who were experiencing depression and/or anxiety (Triosi *et al.*, 2001).

The average age of participants in the studies ranged from 14 to 24 years. In terms of gender, 12 of the studies had a majority of females in the sample with three of these recruiting females only (Deborde *et al.*, 2012; Oskis *et al.*, 2013; Weardon *et al.*, 2003). Two study samples consisted of approximately equal numbers of males and females (Montebarocci *et al.*, 2004; Sonnby-Borgström, 2009) whilst Triosi *et al.* (2001) was the only study that recruited an exclusively male sample.

The studies were completed in a range of countries but all of them were Westernised developed countries. In terms of ethnicity, six studies (Bekker *et al.*, 2007; Hesse & Floyd, 2011; Kapeleris & Paivio, 2011; Laible, 2007; Maillinckdrodt & Wei, 2005; Weardon *et al.*, 2005) reported the ethnicity of the participants and they all described a majority of individuals who identified themselves as Caucasian/White. The remaining nine studies did not report any information concerning ethnicity (Deborde *et al.*, 2012; Fossati *et al.*, 2009; Hexel, 2003; Meins, 2008; Montebarocci *et al.*, 2004; Oskis *et al.*, 2013; Sonnby-Borgström, 2009; Triosi *et al.*, 2001; Weardon *et al.*, 2003).

In summary, although there is some demographic variation in the study samples, a significant majority of the participants are western Caucasian females. Although the relationship between alexithymia and adult attachment was replicated in the few studies that recruited male participants, this limited demographic range restricts the generalizability of the findings to other populations. However, in terms of age, gender and ethnicity, the predominance of Caucasian females in young adulthood reflects the sample used in this study. This increases the confidence that findings from these previous studies have some relevance to the current study. However, the studies tended to use university students and most commonly these were studying psychology or social science subjects. This therefore represents a very narrow demographic. The findings of the small number of studies that have investigated clinical populations, or those not attending university, may be more generalizable to care-leavers given the apparent increased prevalence of psychological distress and decreased academic success in this population. The current study aims to build on the limitations of the existing knowledge base by exploring alexithymia and attachment, and their interrelationship, in the relatively unstudied population of care-leavers and young adults at a community college.

1.7.2.2 Measures

Fourteen of the fifteen studies used the TAS-20 to measure alexithymia. The remaining study (Bekker *et al.*, 2007) used the BVAQ (Vorst & Bermond, 2001) which measures the same components as the TAS-20 plus additional ‘fantasizing’ and ‘emotionalising’ subscales. However, Bekker *et al.* (2007) found that, following a factor analysis, both the ‘fantasizing’ and ‘emotionalising’ scales did not load onto an ‘affective component’ of alexithymia as hypothesised by the test developers and these findings are in line with existing criticisms about the inclusion of these additional subscales. For example, the BVAQ represents an attempt to overcome a common criticism of the TAS-20 in that it lacks assessment of internal fantasy, which is seen as a key component of alexithymia (Taylor *et al.*, 2000). However, the fantasy related subscale of the TAS was removed in part because of its susceptibility to social desirability bias and poor correlations with the other components of alexithymia (Bagby *et al.*, 1994). As yet there is no evidence that the BVAQ has overcome these problems, and currently it does not have as substantial a body of research evidencing its psychometric properties as the TAS-20 (Taylor *et al.*, 2000). The authors of the TAS-20 measure claim that the DDF and EOT factors together assess the focus on the external world that is associated with a lack of internal fantasy (Taylor *et al.*, 2000). For these reasons, the TAS-20 was chosen for use in the current study.

In terms of attachment, a greater variety of measures were used. Fourteen of the studies used self-report measures and five of these (Bekker *et al.*, 2007; Fossati *et al.*, 2009; Hexel, 2003; Montebanocci *et al.*, 2004; Triosi *et al.*, 2001) used the Attachment Style Questionnaire (Feeney *et al.*, 1994) or one of its translations. This measure aims to capture general adult attachment across five dimensions; ‘confidence’, ‘discomfort with closeness’, ‘relationships as secondary’, ‘need for approval’ and ‘preoccupation with relationships’. Two higher order factors have been found that map over these five subscales; avoidance (low ‘confidence’, high ‘discomfort with closeness’ and high ‘relationships as secondary’) and anxiety (low ‘confidence’, high ‘need for approval’ and high ‘preoccupation with relationships’). Some of the studies used these higher order factors to explore the relationship between attachment and alexithymia (Bekker *et al.*, 2007) whilst others used the five primary subscales (e.g. Montebanocci *et al.*, 2004). The two higher order dimensions in the ASQ are broadly similar to those captured by the other dimensional measures used, the ECR (Brennen *et al.*, 1998) and the RSQ (Griffin & Bartholomew, 1994). One study (Mallinckrodt & Wei, 2005) used the ECR which specifically aims to capture adult romantic attachment style in “emotionally

intimate” relationships along ‘anxiety’ and ‘avoidance’ dimensions whilst the RSQ, used by Deborde *et al.* (2012) and Kapeleris and Paivio (2011), identifies the two dimensions as ‘model of self’ and ‘model of other’.

Another measure frequently used was the relationship questionnaire (RQ; Bartholomew & Horowitz, 1991); a single item assessment of attachment which consists of descriptions of the four categories of attachment style (secure, preoccupied, dismissing-avoidant and fearful avoidant). Individuals are asked to rate which best describes them when thinking about their “most important” adult relationships. Authors state that ‘model of self’ and ‘model of other’ scores can be calculated by combining the mean rating for each category in various ways. Four studies used this measure (Meins *et al.*, 2008; Sonnbly-Borgström, 2009; Triosi *et al.*, 2001; Weardon *et al.*, 2005).

Other self-report measures include the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987) used by Laible (2007) which specifically measures adult attachment in relationships with peers and parents, and the Revised Adult Attachment Scale (Collins & Read, 1990) used by Weardon *et al.* (2003) which measures generalised adult attachment across three dimensions; ‘Close’, ‘Depend’ and ‘Anxiety’. One study used a self-report measure developed by Guerrero (1996) that was designed to capture adult attachment across five dimensions, but after completing a factor analysis of the data, Hesse and Floyd (2011) conceptualised their findings across two dimensions; ‘anxious/avoidant’ and ‘need for relationships’.

Only one study used a non-self-report assessment of attachment (Oskis *et al.*, 2013). In this study, through the use of the Attachment Style Interview (Bifulco *et al.*, 2002), attachment style was categorised based on information gleaned about participants’ relationships with primary caregivers and two “closest support figures”. The findings of Oskis *et al.* (2013) are in concordance with findings of those studies that use self-report measures only and thus support the use of these measures when the resources for observer-rated interview techniques are not available.

In summary, the studies identified through the review used attachment assessment tools with a range of psychometric properties. The measures that are multi-item and conceptualise attachment across two dimensions have been demonstrated to have greater validity and

reliability than categorical or single item measures (Fraley & Waller, 1998; Ravitz *et al.*, 2010). This was demonstrated in one study included in the review in which nine participants could not be allocated a 'type' of attachment as they did not identify significantly more with one than with others (Weardon *et al.*, 2005). The measures used also vary in the degree to which they direct participants to consider attachment relationships when answering the questions. For example, some of the measures direct participants to report their thoughts and feelings in 'emotionally intimate' or 'most important' adult relationships whilst others such as the ASQ ask more generalised questions about relationships. The current study builds on some of these criticisms by using the ECR-R which specifically measures romantic attachment and directs individuals to consider 'emotionally intimate' relationships. This measure also builds on the criticisms of the original ECR in that it enables more precise measurements of attachment related anxiety and avoidance across the whole dimension (Fraley *et al.*, 2000).

1.7.2.3 Methodology

The validity of the findings of the research included in the review is bolstered by the relatively high sample sizes included in the majority of the studies. This increases the confidence with which one can generalise the findings and conclude that attachment difficulties are associated with the experience of alexithymia in other populations. However, all of the studies employ a cross-sectional methodology so that, although a relationship between these constructs can be identified, the presence or direction of a causal effect between them cannot be concluded. Some of the studies used statistical mediational analyses which, as described below, allow further exploration of identified correlations in cross-sectional data. Although the resources were not available to carry-out a large scale longitudinal study, the current study adopts these statistical methods to gain a more detailed picture of the relationships between alexithymia, attachment and psychological wellbeing in younger adults.

Deborde *et al.* (2012) conducted the only study to proactively recruit a comparison group, whilst Hexel *et al.* (2003) created two groups based on locus of control and Oskis *et al.* (2013) and Triosi *et al.* (2001) created groups based on attachment type.

1.7.2.4 Quality of written reports

The STROBE checklist (von Elm *et al.*, 2008) for cross-sectional studies (see Appendix B) was used to critically evaluate the quality of the research papers. All 15 of the papers provided good quality abstracts and introductions with a description of the rationale for the research based on existing scientific knowledge and hypotheses that were clearly stated. In terms of method, however, none of the papers reported the dates across which the data was collected. Furthermore, although almost all papers gave an indication to the location of the research, only five gave a more detailed description of the setting in which data collection took place (Deborde *et al.*, 2012; Hesse & Floyd, 2011; Mallickrodt & Wei, 2005; Oskis *et al.*, 2013; Weardon *et al.*, 2003). All of the studies described the source of participants, but only Deborde *et al.* (2012), Oskis *et al.* (2013) and Triosi *et al.* (2001) clearly detailed inclusion and exclusion criteria. This may be because participants were not excluded for any reason but this is not clear from the report. Most of the papers reported the gender and age of the participants however few reported any additional demographic information, for example eight of the studies did not include information regarding the ethnicity of participants (Deborde *et al.*, 2012; Fossati *et al.*, 2009; Hexel, 2003; Meins *et al.*, 2008; Montebanarocci *et al.*, 2004; Oskis *et al.*, 2013; Triosi *et al.*, 2001; Waerdon *et al.*, 2003).

All studies clearly described the study outcomes, how they were measured and diagnostic criteria if these were used. However, only a few of the studies specifically described strategies employed to decrease bias. For example, Oskis *et al.* (2013) used mixed methods of assessment to reduce response bias, Kapeleris and Paivio (2011) described randomising the order of questionnaires to control for order effects and Fossati *et al.* (2009) focused on reports of current relationships to assess attachment to in an attempt to reduce memory bias. The majority of the studies were also limited in that they did not indicate how the study sample size was calculated or arrived at and few studies described numbers that were eligible at each stage of the research. This may have been because participants were approached and completed data collection in a short period of time.

In terms of the statistical analysis of data, all the studies provided clear descriptions of the approaches used and presented the findings for each. Furthermore, all of the papers provided summaries of the key findings in the discussion and provided at least some discourse regarding the limitations of the study. All of studies apart from Hexel (2003) also gave some interpretation of the findings. The majority of studies also gave some consideration to the

generalizability of the findings, but none of the studies indicated the funding source for the research.

These findings suggest that the quality of the research included in the review is relatively high. This increases the confidence one can have in the validity and reliability of the findings. Additionally, the limitations identified through the use of the STROBE highlights areas in which the current study can improve upon previous studies. For example, the current study will include descriptions of relevant dates, settings and inclusion/exclusion criteria.

1.7.3 Study findings

1.7.3.1 Between group analyses

Four studies carried out between-group analyses. For example, Deborde *et al.* (2012) found that individuals diagnosed with borderline personality disorder reported significantly higher alexithymia and poorer attachment security than a comparison group recruited through schools and universities. Hexel *et al.* (2003) found that a group of individuals with external locus of control scored significantly higher on the TAS-20, its three subscales and a measure of attachment related anxiety. Finally, both Oskis *et al.* (2013) and Triosi *et al.* (2001) placed participants into groups based on their attachment style; Oskis *et al.* (2013) found that those who were insecurely attached reported significantly higher levels of alexithymia, whilst Triosi *et al.* (2001) found that those who were deemed to have fearful or preoccupied styles of attachment were more likely to report alexithymia at a level above the clinical cut-off than those who were identified as have a dismissing style of attachment.

1.7.3.2 Correlational analyses

Almost all (14/15) of the studies reported the results of correlational analyses between alexithymia and attachment subscales. The inconsistencies in the ways in which alexithymia and attachment are conceptualised and measured, however, makes drawing conclusions complicated. Despite this, it can be seen that all of these studies found a significant relationship between at least one component of alexithymia with a component of attachment. Exploring the findings of ten studies that carried out correlational analyses between TAS-20 total score and a measure of attachment (Deborde *et al.*, 2012; Hesse & Floyd, 2011; Hexel, 2003; Kapeleris & Paivio, 2011; Laible, 2007; Meins *et al.*, 2008; Montebanocci *et al.*, 2004, Oskis *et al.*, 2013; Sonnby-Borgström, 2009; Triosi *et al.*, 2001) suggests that the TAS-20 total score correlates with both attachment related anxiety and subscales that load onto this

factor (e.g. need for approval and preoccupations with relationships) and attachment related avoidance and subscales that load onto this factor (e.g. relationships as secondary and discomfort with closeness) although this does vary somewhat between studies.

Four of the studies carried out correlational analyses to explore the relationship between the individual components of alexithymia, as measured by the subscales of the TAS-20 and attachment (Meins *et al.*, 2008; Montebanocci *et al.*, 2004; Oskis *et al.*, 2013; Triosi *et al.*, 2001). With respect to ‘difficulties identifying feelings’, some studies found that this was only significantly related to subscales related to attachment anxiety (Meins *et al.*, 2008; Oskis *et al.*, 2013) whilst others found that it was associated with both attachment related anxiety and avoidance responses (Montebanocci *et al.*, 2004; Triosi *et al.*, 2001). All four of these studies found that ‘difficulties describing feelings’ was significantly associated with both attachment related anxiety and avoidance associated subscales. With respect to ‘externally oriented thinking’, two of the studies (Meins *et al.*, 2008; Triosi *et al.*, 2001) found it to be only associated with subscales relating to attachment avoidance, whilst Montebanocci *et al.* (2004) found it was associated with both attachment related anxiety and avoidance type responses. Oskis *et al.* (2013) found no correlation between EOT and attachment subscales.

1.7.3.4 Multiple regressions

Eight of the fifteen studies (Bekker *et al.*, 2007; Deborde *et al.*, 2012; Fossati *et al.*, 2009; Laible, 2007; Meins *et al.*, 2008; Oskis *et al.*, 2013; Triosi *et al.*, 2001; Weardon *et al.*, 2003) carried out regression analyses to explore the relationships between alexithymia and/or its components and attachment. Of those that included alexithymia as an integrated variable, some found that it was predicted by both attachment related anxiety and avoidance subscales (Bekker *et al.*, 2007; Meins *et al.*, 2008; Triosi *et al.*, 2001; Weardon *et al.*, 2003) although it should be noted that Weardon *et al.* (2003) only included the DIF and DDF subscales as their measure of alexithymia. Conversely, others found that alexithymia was only significantly predicted by subscales relating to attachment related anxiety (Deborde *et al.*, 2012; Oskis *et al.*, 2013).

With respect to the subscales of alexithymia, three studies carried out regression analyses to explore their relationship with attachment (Fossati *et al.*, 2009; Meins *et al.*, 2008; Oskis *et al.*, 2013). Meins *et al.* (2008) and Oskis *et al.* (2013) found that DIF was significantly predicted by subscales related to attachment related anxiety only whilst Fossati *et al.* (2009)

found that it was predicted by both avoidance and anxiety related subscales. Fossati *et al.* (2009) found that DDF was not predicted by any component of attachment whilst Meins *et al.* (2008) found that it was significantly predicted by attachment related avoidance and anxiety. Conversely, Oskis *et al.* (2013) found that DDF was only predicted by an attachment avoidance related subscale (discomfort with closeness). With respect to the EOT subscale, Fossati *et al.* (2009) and Meins *et al.* (2008) found that it was only significantly predicted by attachment avoidance related subscales whilst Oskis *et al.* (2013) found that it was significantly inversely predicted by secure attachment.

In summary, the between group and relational analyses conducted in the research included in the review suggests that alexithymia and its components are related to the level of security felt in attachment relationships. Oskis *et al.* (2013) question whether adolescents who fear separation are less likely to develop skills in regulating emotions autonomously so may report more alexithymia. Furthermore, those who feel more secure in their relationship with their primary caregiver may create less dependence on this relationship which may support the development of self-regulation of emotions, and hence less alexithymia traits. Oskis *et al.* (2013) felt that fear of separation may be a significant factor related to the adolescent period of development because of the demands of the separation-individuation process.

The specific relationships between the subcomponents of these two constructs are less clear. Despite this there is some indication that the ‘difficulties identifying feelings’ subscale is more significantly associated with attachment related anxiety whilst the ‘externally oriented thinking’ subscale is more closely linked to attachment related avoidance. In interpreting these findings, Meins *et al.* (2008) and Oskis *et al.* (2013) suggest that attachment related anxiety, which may indicate hyperactivation of emotional responses, may impair the ability to correctly identify physical sensations as affect and which emotion is being experienced. Conversely, attachment related avoidance, which has been suggested to represent deactivation of emotions (Griffin & Bartholomew, 1994), may create a propensity to focus of external events (EOT) as a means of ignoring internal feelings. Also, as stated by Oskis *et al.* (2013), to feel attachment to another person requires an element of introspection and internal awareness. Oskis *et al.* (2013) found that those with constraining closeness, as would be associated with someone with attachment-related avoidance, experienced more ‘difficulties describing feelings’. The authors state that this is consistent with the idea that individuals

who avoid attachment relationships are less likely to have developed skills in describing their emotions to other people in trusted relationships.

In conclusion, it is recommended that future research explores the relationships between subscales as well as total scores as using total scores only may mask the complexities of the associations between specific facets of alexithymia and particular aspects of attachment.

1.7.3.5 Mediation analyses

As stated above, some of the studies used mediation analyses to explore the relationships between alexithymia and attachment and an indicator of psychological wellbeing. Some of the studies hypothesised that attachment may be related to poorer wellbeing because insecurely attached individuals are less able to effectively regulate their emotions and as such are more likely to experience distress. This conceptualisation is supported by the findings of three of the studies included in the review: Deborde *et al.* (2012) found that alexithymia partially mediated the relationship between security of attachment and severity of symptoms linked to a diagnosis of borderline personality disorder, Fossati *et al.* (2009) found that components of alexithymia partially mediated the relationships between attachment and aggression and Mallinckrodt and Wei (2005) found that components of alexithymia mediated the relationship between insecure attachment and psychological distress. Alternatively, it has been hypothesised that the experience of alexithymia can play a role in causing insecure adult attachment styles as effective emotional regulation is a key facet in relationship building (Scheidt & Waller, 2002). This conceptualisation is supported by the findings of Kapeleris and Paivio (2011) who demonstrated that alexithymia partially mediated the relationship between infant maltreatment and insecure adult attachment. Also, research exploring the link between alexithymia and adult interpersonal relationships indicates that adults with high levels of alexithymia have more difficulties in experiencing affection and connectedness in attachment relationships with others (Hesse & Floyd, 2011; Vanheule *et al.*, 2007) and typically exhibit relational styles concordant with insecure attachment styles (Spitzer *et al.*, 2005) such as engaging in anxious and avoidant behaviours in relationships (Hesse & Floyd, 2011). There are a number of other ways in which these relationships could be conceptualised. For example, the experience of psychological distress, such as a severe low mood, could impair the ability to successfully regulate affect and reduce the capacity to make secure attachments. The current study will use statistical analyses to explore the mediation relationships between alexithymia, attachment and wellbeing.

1.8 Alexithymia, attachment & wellbeing in care

Few studies have explored the relationship between attachment and emotion regulation in young people in care. For example, in a relatively small study (N=20), Barone and Lionetti (2012) explored how the attachment organisation of adoptive parents and their adopted children may play a role in the emotional understanding of “late-adopted pre-schoolers” (between 36 and 60 months of age when adopted). The results demonstrated that the children who were deemed to have a disorganised attachment style performed significantly poorer on a test of emotional understanding than did those who were deemed to be securely or insecurely attached. Results suggested that the children who were insecurely attached performed no worse than those who were securely attached. However these results were not compared to non-foster children. Similarly, Healey and Fisher (2011) found that, for children who were fostered between the ages of 3 and 5, attachment behaviour 6 months after entering foster care was correlated with emotion regulation when aged 7 and 11 years.

Despite the evidence of the importance of alexithymia and attachment for mental health, no studies have yet examined attachment style and prevalence of alexithymia in young people who are in the process of leaving care.

1.9 Study plan

The current piece of research aimed to address a number of outstanding questions derived from the existing literature. Firstly, it aimed to build on information about the relatively poor psychological outcomes of young people in care by exploring whether care-leavers present with higher levels of alexithymia, psychological distress and romantic attachment related anxiety and avoidance compared to young people who have not spent time in care. In contrast to a large proportion of previous research, this investigation aims to compare care-leavers to a group of young people with similar demographic backgrounds as opposed to data from the general population. This will allow a better understanding of the specific impact that being in care, and the traumatic early experiences associated with it, has on these psychological outcomes.

Secondly, this study aims to replicate in care-leavers, and young people from more deprived socioeconomic backgrounds as a whole, the research that has been conducted with other groups of people exploring the relationship between alexithymia, attachment and psychological wellbeing.

1.10 Hypotheses

Hypothesis one: Care-leavers will report higher levels of alexithymia than the comparison group.

Hypothesis two: Care-leavers will report higher levels of attachment related anxiety and avoidance than the comparison group.

Hypothesis three: Care-leavers will indicate higher levels of psychological distress than the comparison group.

Hypothesis four: There will be an association between alexithymia and attachment in the sample as whole.

Hypothesis five: There will be an association between alexithymia and psychological distress in the sample as a whole.

Hypothesis six: There will be an association between attachment and psychological distress in the sample as a whole.

Hypothesis seven: Alexithymia will mediate the relationship between attachment insecurity and psychological distress.

Table 1.1 Systematic review results

| Study | Population Demographics | Measure s | Design and aim | Means/Prevalence of alexithymia | Impact of demographics | Alexithymia attachment relationship | Mediational analyses |
|-----------------------------|---|---|--|---------------------------------|---|---|---|
| Bekker <i>et al.</i> (2007) | <p>202 psychology undergraduate students</p> <p>Age Mean 20.66 SD 4.26 Range 17-50. 90% younger than 24</p> <p>66.8% female</p> <p>100% White/Caucasian</p> <p>In the Netherlands</p> | <p>BVAQ ASQ</p> <p>ACS-30 VKP</p> | <p>Cross sectional</p> <p>Investigated the relationship between adult attachment, alexithymia, autonomy-connectedness and anti-social behaviour.</p> | N/A | <p>Males scored significantly higher on 'relationship as secondary' (ASQ).</p> <p>Men scored significantly lower 'need for approval' (ASQ).</p> <p>Men scored lower on anxious attachment.</p> <p>Men scored significantly higher on avoidant attachment.</p> <p>Men scored significantly higher on emotionalizing (BVAQ)</p> | <p>Bivariate correlations: Cognitive component of alexithymia was correlated with 'confidence' ($r = -0.34$), 'relationships as secondary' ($r = 0.30$), 'need for approval' ($r = 0.30$) and 'discomfort with closeness' ($r = 0.37$).</p> <p>Emotionalising subscale was correlated with 'relationships as secondary' ($r = 0.39$), 'need for approval' ($r = -0.36$) and 'preoccupations with relationships' ($r = -0.38$).</p> <p>Fantasizing subscale was correlated with 'discomfort with closeness' ($r = -0.15$) and 'preoccupations with relationships' ($r = -0.27$).</p> <p>Regression analyses: Cognitive component of alexithymia was predicted by anxious and avoidant attachment</p> <p>Emotionalising subscale predicted by anxious and avoidant attachment.</p> | <p>Fantasizing mediated the relationship between attachment and antisocial and passive-aggressive behaviour. (Higher levels of fantasizing associated with more anti-social behaviour).</p> <p>No other subscales of alexithymia mediated the relationship between attachment and antisocial behaviour.</p> |

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| Debord <i>et al.</i> (2012) | <p>54 adolescent outpatients diagnosed with borderline personality disorder.</p> <p>Mean age 16.52 (SD1.18)</p> <p>51 control participants matched for socioeconomic variables</p> <p>Mean age 16.35 (SD1.04)</p> <p>100% female</p> <p>France, Belgium and Switzerland.</p> | <p>TAS-20 RSQ</p> <p>SIDP-IV</p> | <p>Cross-sectional</p> <p>Tested the mediation of the effect of attachment on 'Borderline Personality Disorder' by alexithymia.</p> | <p>Mean TAS-20 BPD group 57.75 (SD11.24)</p> <p>Mean TAS-20 control group 49.78 (SD9.28)</p> <p>Controls reported significantly less alexithymia, higher secure attachment & lower fearful & preoccupied attachment.</p> <p>Overall controls reported a significantly more positive model of self.</p> | N/A | <p>Bivariate correlations Alexithymia (TAS-20) was correlated with attachment security ($r = -0.25$), preoccupied attachment ($r = 0.22$), fearful attachment ($r = 0.23$) and model of self ($r = -0.20$).</p> <p>Regression analyses: Alexithymia was predicted by secure attachment, preoccupied style, fearful style and model of self.</p> | <p>Alexithymia (TAS-20) partially mediated the relationship between secure attachment (RSQ) and borderline severity.</p> <p>Alexithymia (TAS-20) completely mediated the relationship between fearful attachment (RSQ) and borderline severity.</p> <p>Alexithymia (TAS-20) did not mediate the relationship between preoccupied attachment and borderline severity.</p> <p>Alexithymia partially mediated the relationship between model of self and borderline severity.</p> |
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| Fossati <i>et al.</i> (2009) | 637 undergraduate students Mean age 23.01 (SD 2.97) 66.6% female In Italy | TAS-20 ASQ BIS-11 AQ | Cross- sectional Explored relationship between alexithymia, adult attachment and impulsive aggressivene ss. | DIF mean 16.46 (SD 6.19) DDF mean 13.86 (SD 3.78) EOT mean 19.41(SD4.84) | Males scored significantly higher on EOT (TAS-20) and 'relationship as secondary' (ASQ). Females scored significantly higher on DIF (TAS-20) and 'preoccupation with relationships' (ASQ). Age correlated negatively with 'need for approval', 'preoccupation with relationships' & DDF. | Regression analyses: No analysis including TAS-20 total. DIF was associated with 'relationships as secondary' and 'preoccupation with relationships' DDF was not predicted by attachment EOT was associated with 'relationships as secondary' | DIF and EOT partially mediated the relationship between 'relationships as secondary' and impulsive aggressiveness. DIF and EOT partially mediated the relationship between 'preoccupation with relationships' and impulsive aggression. |
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| Hesse & Floyd (2011) | <p>921 undergraduate students</p> <p>Mean age 20.77 (SD3.02) Range 17-50.</p> <p>63.3% female</p> <p>78.9% Caucasian 11% Hispanic 5.6% African-American 6.7% Asian 9% Native American</p> <p>In USA</p> | <p>TAS-20 Guerre-ro (1996)</p> <p>TAS-G TAS-R</p> | <p>Cross sectional</p> <p>Explores the mediation of the relationship between alexithymia and attachment by affection.</p> | <p>Mean alexithymia 3.04 (SD 0.80)</p> | <p>Males reported significantly higher alexithymia (TAS-20).</p> <p>Females reported significantly higher 'need for relationships'</p> | <p>Bivariate correlations: Alexithymia was correlated with anxious/avoidant attachment ($r = 0.64$, $p < 0.001$) and need for relationships ($r = -0.33$, $p < 0.001$)</p> <p>Structural equation modelling: Alexithymia predicted anxious/avoidant attachment.</p> | <p>Affection partially mediated the relationship from alexithymia to attachment anxiety/avoidance.</p> <p>Affection fully mediated the relationship between alexithymia and the need for relationships.</p> |
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| Hexel (2003) | <p>22 medical students</p> <p>Mean age 23.6 (SD3.3). Range 20-42.</p> <p>58.6% female</p> <p>In Austria</p> | <p>TAS-20 ASQ</p> <p>FKK</p> | <p>Cross sectional</p> <p>Explores the relationship between alexithymia, adult attachment and locus of control.</p> | <p>Internal locus of control group mean TAS-20 = 36.17 (SD 9.88).</p> <p>External locus of control group mean TAS-20 = 43.80 (SD10.73).</p> <p>Internal locus of control group reported lower TAS-20, DIF, DDF and EOT, were more confident in attachment, and identified less need for approval and preoccupation with relationships.</p> | <p>No effect of gender of TAS-20 total.</p> <p>Males scored significantly higher on DDF and EOT (TAS-20).</p> <p>Males scored significantly higher on 'Relationships as secondary' (ASQ).</p> <p>Females scored significantly higher on 'need for approval' and 'preoccupation with relationship'.</p> <p>No effect of age.</p> | <p>Canonical correlation:</p> <p>Low alexithymia (TAS-20) is significantly associated with secure attachment.</p> | N/A |
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| Kapeler -is & Paivio (2011) | 187 undergraduate students Mean age 22 (SD 5.5.) 74.3% female 66.6% Caucasian 9.0% Afro- Caribbean 7.9% Asian 6.3% east Indian 1.6% Aboriginal 0.5% Hispanic 6.9% Other In Canada | TAS-20 RSQ CTQ-SF FEQ ECQ-2 RSE RSCQ | Explores the mediation of the relationship between childhood maltreatment and adult attachment by emotional competence. | TAS-20 mean 43.66 (SD12.01) Range 23-79 | Age, gender, ethnicity, relationship length and family income were not associated with alexithymia or attachment. | Bivariate correlations: Alexithymia (TAS-20) was correlated with secure attachment style ($r = -0.53$), preoccupied attachment style ($r = 0.33$), fearful attachment style ($r = 0.56$) and dismissing attachment style ($r = 0.40$). Mediational analyses – direct paths The direct association between emotional competence and adult attachment was significant. | Emotional competence mediated the relationship between infant psychological maltreatment and adult attachment style. |
| Laible (2007) | 117 undergraduate psychology students Mean age 19.6 (SD1.41) 55.6% female 78% Caucasian | TAS-20 IPPA IRQ SEQ PTM | Explores the mediation of the relationship between adult attachment and social behaviour by emotional competence. | N/A | Gender and parents' education were not associated with alexithymia (TAS-20) | Bivariate correlations: Alexithymia was correlated with peer attachment ($r = 0.42$) and parent attachment ($r = 0.36$). Hierarchical regression: Peer attachment was a significant predictor of alexithymia. | Other aspects of emotional competence (emotional expressiveness and empathy) mediated the relationship between attachment and social behaviour. Alexithymia did not mediate this relationship. |

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| Mallinckrodt & Wei (2005) | <p>430 university psychology students</p> <p>Mean age 19.72 (SD 1.90) range 18-42</p> <p>60% female</p> <p>86% white/Caucasian 6% African American/Black 2.8% Asian American or Pacific Islander 0.7% Hispanic 3.1% other</p> <p>In USA</p> | <p>TAS-20 (DIF and DDF only) ECR</p> <p>SES SPS OQ</p> | <p>Explores the mediation of the relationships between attachment and psychological distress and perceived social support by emotional awareness and social self-efficacy.</p> | <p>Mean alexithymia 2.34 (SD0.71)</p> | N/A | <p>Bivariate correlations: ‘Emotional awareness’ (DIF+DDF) was correlated to attachment related anxiety ($r = -0.45$, $p < 0.01$) and attachment related avoidance ($r = -0.45$, $p < 0.01$).</p> <p>Mediational analyses – direct paths: Attachment related avoidance and anxiety were associated with ‘emotional awareness’ (DIF+DDF).</p> | <p>Emotional awareness (DIF+DDF) mediated the relationships between insecure attachment, both anxiety and avoidance, and psychological distress and perceived social support.</p> |
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| Meins <i>et al.</i> (2008) | 270 undergraduate students Mean age 19.80 (SD 2.49) range 18-35 68.9% female In Britain | TAS-20 RQ Mind- mindedn ess interview | Cross- sectional Explores the relationship between alexithymia, adult attachment and mind- mindedness. | Mean TAS-20 47.34(SD9.97) DIF 16.37 (SD 5.65) DDF 13.39 (SD 4.26) EOT 17.59 (SD 4.12) | TAS-20 negatively correlated to age No effect | <p>Bivariate correlations: TAS-20 positively correlated to attachment anxiety ($r = 0.40$) and attachment avoidance (0.21)</p> <p>DIF was positively correlated with attachment anxiety ($r = 0.46$)</p> <p>DDF was positively correlated with attachment anxiety ($r = 0.35$) and avoidance ($r = 0.30$).</p> <p>Regression analyses: Alexithymia was predicted by attachment related avoidance and anxiety.</p> <p>DIF was predicted by attachment related anxiety.</p> <p>DDF was predicted by attachment related anxiety and avoidance.</p> <p>EOT was predicted by attachment related avoidance.</p> | Mind-mindedness fully mediated the relationship between attachment related avoidance and EOT. |
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| Monteb arocci <i>et al.</i> (2004) | 301 undergraduate psychology students Mean age 22.2 (S.D. =1.2) 50.8% female In Italy | TAS-20 ASQ | Cross- sectional Explored the relationship between alexithymia and adult attachment. | 8.3% TAS-20 ≥ 61 9.5% males TAS-20 ≥ 61 7.2% females TAS-20 ≥ 61 | Females scored significantly higher on DIF (TAS-20). Males scored higher on DDF(TAS-20), EOT(TAS-20) and Relationships as secondary(ASQ). The pattern of correlations between TAS-20 and ASQ subscales was moderated by gender. | Bivariate correlations: Alexithymia (TAS-20) correlated with all subscales of the ASQ (r = 0.26-0.45, p<0.01) DIF (TAS-20) correlated with all subscales of the ASQ (r = 0.18-0.45, p<0.01) DDF (TAS-20) correlated with all subscales of the ASQ (r= 0.19-0.37, p<0.01) EOT (TAS-20) correlated with all ASQ subscales (r = 0.12 -0.37, p<0.01) apart from with the need for approval. | N/A |
| Sonnby - Borgstr -öm (2009) | 102 students or recently graduated 50% female Median age 24 In Sweden | TAS-20 RQ IRQ Facial EMG | Cross sectional Explored the relationship between adult attachment, alexithymia, facial imitation, empathy and emotional contagion. | Mean TAS-20 44.76 (SD9.99) 7% TAS- 20≥61 | N/A | Bivariate correlations: Alexithymia (TAS-20) was correlated to model-of-self (r = -0.28). Alexithymia (TAS-20) was correlated to model-of-other (r = -0.39). | N/A |

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| Oskis <i>et al.</i> (2013) | <p>60 adolescents school students</p> <p>Mean age 14.08 (SD 2.7) range 19-18</p> <p>25% 9-11 38% 12-15 37% 16-18</p> <p>100% female</p> <p>In England</p> | TAS-20 ASI | <p>Cross sectional.</p> <p>Explored the relationship between alexithymia and attachment in adolescence.</p> | <p>6.6% TAS-20 ≥61</p> <p>Mean TAS-20 46.20 (SD 9.10)</p> <p>Mean DIF 13.97 (SD4.72)</p> <p>Mean DDF 11.83 (SD3.62)</p> <p>Mean EOT 20.40 (SD4.53)</p> <p>53% securely attached</p> <p>25% Anxious insecure</p> <p>22% avoidant insecure</p> | <p>Alexithymia was negatively correlated with age.</p> <p>EOT was negatively correlated with age.</p> <p>No effect of age on attachment style.</p> | <p>ANOVA based on attachment type: Anxious-insecure and avoidant –insecure individuals exhibited greater levels of alexithymia (TAS-20) than those who were securely attached.</p> <p>Bivariate correlations: Alexithymia was correlated with fear of separation.</p> <p>DIF was correlated with ‘felt attachment’ and ‘fear of separation’.</p> <p>DDF was correlated with ‘fear of separation’, ‘fear of rejection’ and ‘constraints on closeness’.</p> <p>Regression analyses: Alexithymia (TAS-20) was predicted by ‘fear of separation’ (ASI).</p> <p>DIF (TAS-20) was predicted by ‘fear of separation’ (ASI).</p> <p>DDF (TAS-20) was predicted by ‘constraints on closeness’(ASI).</p> <p>EOT was predicted by ‘felt attachment’ (ASI).</p> | N/A |
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| Triosi <i>et al.</i> (2001) | 100 army recruits diagnosed with depression and/or anxiety symptoms. Mean age 20.3(SD1.8) 100% Male In Italy | TAS-20 ASQ RQ BDI STAI-S SASI | Explored the relationship between alexithymia and adult attachment. | 36% TAS-20 \geq 61 25% TAS-20 52-60 | N/A | <p>Partial correlations (controlling for anxiety and depression): Alexithymia (TAS-20) was correlated with all subscales of the ASQ other than ‘preoccupation with relationships’.</p> <p>DIF was correlated with all subscales of the ASQ other than ‘discomfort with closeness’.</p> <p>DDF was correlated with all subscales of the ASQ other than ‘preoccupation with relationships’.</p> <p>EOT was correlated with the ‘confidence’ and ‘discomfort with closeness’ subscales of the AQ.</p> <p>Chi-square analysis: The prevalence of alexithymia (TAS20\geq61) was higher in individuals deemed as preoccupied or fearfully attached than dismissing.</p> <p>Regression analyses: Alexithymia was predicted by ‘Confidence’, ‘Need for Approval’ and ‘Relationships as secondary’ when depression and anxiety were controlled for.</p> | N/A |
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| Weardo-n <i>et al.</i> (2005) | <p>144 psychology undergraduate students.</p> <p>Mean age 19.42 (3.34) range 17-44.</p> <p>86.6% Female</p> <p>86.6% White, 4.9% Indian or Pakistani, 8.5% other.</p> <p>In England</p> | <p>TAS-20 RQ</p> <p>PANAS RSE</p> <p>Symptom reporting questionnaire</p> | <p>Cross-sectional</p> <p>Explored the mediating effect of alexithymia on the relationship between adult attachment and symptom reporting.</p> | <p>Mean TAS-20 46.62 (SD 9.14).</p> <p>51.1% 'securely attached'.</p> | <p>No significant effect of age or sex.</p> | <p>Bivariate correlations: Alexithymia (DIF+DDF) was negatively correlated with secure attachment ($r = -.348$, $p < 0.005$), and positively correlated with anxious preoccupied ($r = .196$, $p < 0.05$) and avoidant fearful ($r = 0.337$, $p < 0.005$) attachment.</p> <p>Alexithymia (DIF+DDF) was not correlated with avoidant dismissing.</p> <p>Alexithymia (DIF+DDF) was negatively correlated with 'model of self' and 'model of others'.</p> | <p>Alexithymia (TAS-20) partially mediated the relationship between fearful attachment and symptom reporting.</p> <p>Alexithymia (TAS-20) partially mediated the relationship between secure attachment and symptom reporting.</p> |
| Weardo-n <i>et al.</i> (2003) | <p>201 undergraduate students</p> <p>Mean age 20.59 (SD 2.35) range 18-34</p> <p>100% female</p> <p>In England</p> | <p>TAS-20 RAAS</p> <p>PANAS PILL CHIP</p> | <p>Cross-sectional</p> <p>Explored the mediating role of alexithymia in the relationship between adult attachment and symptom reporting and health-related coping.</p> | <p>Mean DIF 16.98(5.34)</p> <p>Mean DDF 13.00 (SD 3.65)</p> <p>Mean EOT 19.74 (4.38)</p> | <p>Age was not significantly correlated with alexithymia or attachment.</p> | <p>Bivariate correlations: Alexithymia (DIF+DDF) was correlated to attachment related anxiety ($r = 0.50$) and attachment related avoidance ($r = 0.43$).</p> <p>Regression analyses: Alexithymia was predicted by attachment related avoidance and anxiety when negative affectivity was controlled for.</p> | <p>Alexithymia partially mediated the relationship between attachment and symptom reporting, and between attachment and emotionally preoccupied coping style.</p> |

Alexithymia measures:

BVAQ: Bermond and Vorst Alexithymia Scale (Vorst & Bermond, 2001).

TAS-20: Toronto Alexithymia Scale (Bagby, Parker *et al.*, 1994).

Attachment measures:

ASI: Attachment Style Interview (Bifulco, *et al.*, 2002).

ASQ: Attachment Style Questionnaire (Feeney *et al.*, 1994).

ECR: Experiences of Close Relationships (Brennan *et al.*, 1998)

Guerrero attachment measure (Guerrero, 1996)

IPPA: Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987).

RAAS: Revised Adult Attachment Scale (Collins & Read, 1990).

RAAS-Anxiety: Revised Adult Attachment Scale – Anxiety (Collins & Read, 1990).

RQ: Relationships questionnaire (Bartholomew & Horowitz, 1991).

RSQ: Relationships styles Questionnaire (Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994).

Other measures:

ACS-30: Autonomy-connectedness scale (Bekker & Van Assen, 2006).

AQ: Buss-Perry Aggression Questionnaire (Buss & Perry, 1992).

BDI: Beck Depression Inventory (Beck *et al.*, 1979).

BIS-11: Barratt Impulsiveness Scale-11 (Patton *et al.*, 1995).

CHIP: Coping with Health Injuries and Problems Inventory (Endler *et al.*, 1998).

CTQ-SF: Childhood Trauma Questionnaire – Short Form (Bernstein & Fink, 1998).

ECQ-2: Emotion Control Questionnaire-2 (Roger & Najarian, 1989).

FEQ: Family Expressiveness Questionnaire (Halberstadt, 1986).

FKK: Questionnaire of Competence and Control Orientations (Krampen, 1991).

IRQ: Interpersonal Reactivity Questionnaire (Davis, 1983).

Mind-mindedness Interview (Meins *et al.*, 1998; 2006).

OQ: Outcome Questionnaire (Lambert *et al.*, 1996).

PANAS: Positive and Negative Affectivity (Watson *et al.*, 1988).

PBI: Parental Bonding Instrument (Parker *et al.*, 1979).

PILL: Pennebaker Inventory of Limbic Languidness (Pennebaker, 1982)

PTM: Prosocial Tendencies Measure (Carlo & Randall, 2002).

RSCQ: Robson Self-Concept Questionnaire (Robson, 1989).

RSE: Rosenberg self esteem questionnaire (Rosenburg, 1965).

SASI: Separation Anxiety Symptom Inventory (Silove *et al.*, 1993).

SES: Social Self-efficacy (Sherer *et al.*, 1982).
SEQ: Self Expressiveness Questionnaire (Halberstadt *et al.*, 1995).
SIDP-IV: Structured Interview for DSM-IV Personality Disorders (Pfohl *et al.*, 1997).
SPS: Social Provisions Scale (Cutrona & Russell, 1990).
STAI-S: State-Trait Anxiety Index State form (Spielberger *et al.*, 1983).
TAS-G: Trait Affection Scale Given (Floyd, 2002).
TAS-R: Trait Affection Scale Received (Floyd, 2002).
VKP: Vragenlijst voor Kenmerken van de Persoonlijkheid (Questionnaire for Personality Characteristics) (Duijsens *et al.*, 1996)

CHAPTER TWO - METHODOLOGY

2.1 Aims of the research

The purpose of the study was to determine whether young adults who have grown up in care experience greater levels of alexithymia, insecure attachment and psychological distress than young adults who have grown up with their birth families.

A secondary aim of the study was to explore the relationships between these psychological variables in the sample as a whole.

2.2 Design

2.2.1 Methodology

To fulfil the primary aim of the study a cross-sectional between-subjects quantitative methodology was employed. Standardised psychometric measures were used to compare a group of young adults who had spent time in the care system with a group of those who had not. Psychometric methodology was chosen based on evidence demonstrating the valid and reliable use of self-report questionnaires in the place of more comprehensive interview techniques when the resources needed for these are not available, and the large body of data demonstrating the good psychometric properties of the chosen measures. Both groups of participants completed three standardised psychometric measures: the TAS-20 (Bagby, Parker *et al.*, 1994), the ECR-R (Fraley *et al.*, 2000) and the SCL-90-R (Derogatis, 1994), and a demographics questionnaire. These are described in detail later. The groups were proactively matched for gender and recruitment of the comparison group was purposefully undertaken from a population that would be similar in terms of age and demographic background to the care-leaver group. The differences between the groups in terms of demographic variables are outlined in Chapter Three. This methodology also allowed for correlational analyses to be conducted exploring the relationships between the constructs measured.

2.2.2 Service user involvement

A group of care-leavers were consulted for their opinions on the general premise of the study, the materials used for recruitment, and the content of the questionnaires. This group suggested that, due to the personal nature of the topics covered in the questionnaires, they would be more inclined to take part in the study if they could do it alone or in a small group

with the researcher. They also suggested that it would be important for them to feel confident about the privacy of their answers and how the materials would be used. This information was integrated into the design of the research methodology and materials. All of the individuals consulted felt that they would be able to complete the questionnaires without requiring assistance.

2.3 Participants

2.3.1 Sample size calculations

No known previous studies have determined whether care-leavers have higher levels of alexithymia than young adults who have not grown up in care. Zimmermann (2006) found an effect size of 0.66 when comparing young offenders to non-offending adolescents with respect to levels of alexithymia. Using parameters of 80% power and a 0.05 probability level, the sample size needed for an effect size of 0.66 is a minimum of 29 people per group for a one-tailed analysis. The fact that many of those in or leaving care go on to receive criminal convictions suggests that some parallels can be drawn between groups of care-leavers and young offenders. The Zimmerman (2006) study was therefore used as a benchmark for the sample size for the current research.

Montebarocci *et al.* (2004), studying 301 university students, found correlations between adult attachment style factors and alexithymia which ranged from 0.26 – 0.45. With a medium effect size correlation of 0.30 the sample size needed is 85 for a two-tailed analysis (with 0.8 power and probability level 0.05). Therefore the present study aimed to recruit 50 participants for each group, with the understanding that a sample size of approximately 43 people per group should provide sufficient power to identify meaningful results.

2.3.2 Inclusion criteria

Individuals could participate in the study if they:

- Were aged between 16 and 22.
- Had the capacity to provide informed consent.
- Consented to taking part in the study.

Additional inclusion criteria for the care-leaver group were based on the Children Leaving Care Act (2000) definition of a care-leaver. This states that a ‘care-leaver’ is an individual

who has been ‘looked after’ in the care system for at least 13 weeks since the age of 14 and have been ‘looked after’ at some point whilst aged 16 or 17. These individuals may or may not have still been in care but they were under the provision of care-leaver services.

2.3.3 Exclusion criteria

Individuals were unable to take part in the study if:

- They were deemed to be intoxicated at the time of data collection.
- They did not have a sufficient level of literacy to be able to read the information sheet and questionnaires, and provide informed consent.
- They were not under the provision of care-leaver services (care-leaver group only).

Individuals who indicated that they had not been in a relationship with a partner that they considered close were excluded from completing the ECR-R and from the subsequent attachment data analysis.

2.4 Procedure

2.4.1 Recruitment

The comparison group was recruited from two campuses of Coleg Gwent in South East Wales that provide vocational courses. Between 56% and 77% of students (depending on campus) come from areas of ‘high deprivation’ (Estyn, 2012). These campuses were targeted as students were likely to have similar educational attainments to care-leavers and were likely to come from similar geographical and socio-economic backgrounds. Permission to recruit the students for the study was sought from relevant personnel and potential participants were informed about the possibility of taking part in the study through staff communication and flyers (see Appendix C). It was made clear that participation in the research was voluntary and that decisions made about taking part would not affect the services provided to students by the college. Those interested in taking part in the study met with the researcher and completed the questionnaires in a private room on one of the college campuses. This was carried out either individually or in groups of up to five and this was the choice of the participants.

Organisations that provide services for young people leaving care in South Wales were contacted to discuss recruitment of the care-leaver group. These included statutory social-care

services such as ‘care-leaver teams’ and third sector organisations such as ‘Action for Children’ and ‘Trosgynnal’. Permission to carry out the study was sought from service managers, and social workers and personal advisors were asked to invite young people on their caseload to participate in the research. They were asked to ensure that potential participants understood that taking part was voluntary and that their choice would not affect the services that they receive. If the young person was interested in taking part then they were given the study information sheet to read (see Appendix D). On completion of reading this, if they remained interested and consented to meet with the researcher, their social workers/personal advisors passed their contact details to the researcher. The young person was able to contact the researcher directly, or the researcher contacted them via telephone, to arrange an appointment for a first meeting. During the first meeting the participant re-read the information sheet and was provided with an opportunity to have any questions answered. If they chose to participate they proceeded to the main study at that point. Otherwise they were able to choose not to participate or to schedule a further appointment.

2.4.2 Consent

All participants were asked to complete a consent form before taking part in the study (see Appendices E and F). This asked them to confirm that they had read and understood the information sheet, had been given the opportunity to ask questions and consented to take part in the study. They also signed to indicate that they understood how the data was going to be stored and what it was going to be used for. The participants in the care-leaver group were also asked to consent to their social workers being contacted for more information regarding their time in care (this is described in more detail below).

2.4.3 Payment

All participants were informed that in return for taking part in the study they would be entered into a prize draw for the chance to win £20 worth of high-street vouchers. Following completion of data collection one participant from each group was selected at random to receive the vouchers. It was felt that this level of reward demonstrated that the contribution to research provided by the participants was valued, whilst at the same time not being so large that it would be deemed coercive.

2.4.4 Data collection/storage

Data collection took place between October 2012 and March 2013. Participants completed the consent form and the questionnaires in one meeting with the researcher. The questionnaires were completed in the order in which they are described below. The whole process took no more than one hour. Participants in the comparison group completed the questionnaires in a designated room in the college whilst the care-leavers completed them either at a service base or at their homes. Individuals were invited to ask questions throughout if they did not understand any of the questions or wanted more information. The questionnaires were briefly checked following completion to check for any missed questions. If these were identified participants were asked if they would like to answer them.

All the information collected about participants, including their completed questionnaires, was anonymised and kept confidential. The only circumstance in which confidentiality was broken was if a participant had said something that caused the researcher to be seriously concerned for the participant's safety, or for the safety of someone else. The process of this is described below with a description of the ethical considerations relevant to the study.

2.5 Measures

Four self-report measures were completed by participants, a demographics questionnaire, an alexithymia measure, an assessment of attachment related anxiety and avoidance and a measure of psychological distress.

2.5.1 Demographics questionnaire

A questionnaire was designed and used in the study to collect demographical information from the participants (See Appendix G). Participants provided information about their age, gender, ethnicity, educational achievements, employment and marital status. These questions were based on those used in the 2011 national Census (Office for National Statistics, 2011). Individuals were given a score for educational achievement using information regarding the equivalence of qualifications from the London School of Economics (McIntosh & Steedman, 1999) and the City and Guilds qualification comparison (City & Guild, n.d.) (see appendix H for how qualifications were rated). Participants were asked to say whether they had ever spent time in care whilst growing up. One person recruited through the college reported that they had spent time care and as such were placed in the 'care-leaver' group.

Research typically uses employment status of parents as a measure of socioeconomic class for studies with young people, however this may be not possible, or less relevant to care-leavers who may not have lived with their birth parents for a number of years, and may have had several foster parents across their time in care. Therefore this was not explicitly measured in the study.

Participants were asked if they had ever been in a relationship with a girlfriend, boyfriend or partner that they considered close, and this was used as a screening question for inclusion in the attachment-related part of the study. Those who had not had the experience of being in a close relationship would not have been able to complete the attachment measure validly.

Participants were also asked if they had ever spoken to anyone professionally about their thoughts and feelings and if so who that was with.

2.5.2 Alexithymia measure

Participants completed the Toronto Alexithymia Scale (TAS-20) (Bagby, Parker *et al.*, 1994), a 20-item, self-report psychometric measure of Alexithymia (see Appendix I). Respondents were asked to read statements and record the degree to which they believed each one applied to them. Answers were recorded on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Five of the items required negative scoring. For each participant the TAS-20 provided an overall Alexithymia index score (TAS-20), as well as scores on the three inter-correlated subscales: Factor 1: 'difficulty identifying feelings' (DIF) (e.g. "I am often confused about what emotion I am feeling"); Factor 2: 'difficulty describing feelings' (DDF) (e.g. "I find it hard to describe how I feel about people") and Factor 3: 'externally oriented thinking' (EOT) (e.g. "I prefer to just let things happen rather than to understand why they turned out that way"). A higher score on each factor is indicative of a higher level of that specific difficulty.

Several studies have outlined the psychometric properties of the TAS-20. For example, research has demonstrated a good level of internal consistency in the overall TAS-20 scale (Cronbach's alpha = .81), as well as the individual subscales (DIF alpha = 0.78; DDF alpha = 0.75; EOT alpha = 0.66) (Bagby, Parker *et al.*, 1994). Furthermore, the test-retest reliability of the overall scale has been demonstrated to be good (0.77, $p < .01$) (Bagby, Parker *et al.*, 1994). The convergent validity of the TAS-20 was confirmed to be adequate through research

that demonstrated correlations between TAS-20 scores and scores on personality scales that would be theoretically coherent with the experience of alexithymia. For example, TAS-20 scores were negatively correlated with openness to feelings and openness to fantasy (Bagby, Taylor *et al.*, 1994). The same study found evidence supporting the discriminant validity of the TAS-20 in that the overall scores were not significantly correlated with measures of agreeableness and conscientiousness (Bagby, Taylor *et al.*, 1994). Additionally a significant positive correlation between TAS-20 scores and those on the Beth Israel Hospital Psychometric Questionnaire, a measure also used in alexithymia research, implies adequate concurrent validity (Bagby, Taylor *et al.*, 1994).

Research has replicated these sufficient psychometric properties in samples of adolescents (Loas *et al.*, 2012; Sakkinen *et al.*, 2007), undergraduates and psychiatric outpatients and inpatients (Bagby, Parker *et al.*, 1994; Loas *et al.*, 2001). However, the psychometric properties of the EOT subscale has received some criticism; it appears to have poorer internal consistency than the other two subscales (Culhane *et al.*, 2009; Loas *et al.*, 2012; Parker *et al.*, 2003; Taylor *et al.*, 2003;) and its reliability has been called into question (Kooiman *et al.*, 2002). Another criticism of the TAS-20 centres on a dispute over the number of factors that a model of alexithymia is best represented by (Kooiman *et al.*, 2002). However, a review of the literature implies that research that has used the more robust Confirmatory Factor Analysis methodology supports the use of a three-factor model (Bagby *et al.*, 2007; Loas *et al.*, 2001) despite the DIF and DDF subscales being highly correlated (Taylor *et al.*, 2000). This three-factor model has been validated in non-clinical and clinical samples of adults (Bagby, Parker *et al.*, 1994; Loas *et al.*, 2001; Parker *et al.*, 2003) and adolescents (Loas *et al.*, 2012; Sakkinen *et al.*, 2007). However, no known studies were found that explore this in individuals from the UK. The TAS-20 has also been translated into different languages and the three factor model has been confirmed across these (Taylor *et al.*, 2000). Therefore, despite the criticisms, the TAS-20 and its three facet measure of alexithymia was considered most appropriate for use in this study. The validity and reliability of this psychometric tool are well established and this self-report measure of alexithymia has been the most widely used and accepted measure in peer-reviewed research (Sakkinen *et al.*, 2007).

The TAS-20 provided both dimensional scores and categorical outcomes using the cut-offs used in previous research (High alexithymia: TAS-20 ≥ 61 ; Oskis *et al.*, 2013; Taylor *et al.*, 1997).

2.5.3 Attachment measure

Participants completed the Experiences of Close Relationships – Revised (ECR-R) questionnaire (Fraley *et al.*, 2000), a 36-item self-report measure of adult romantic attachment style. Responses were marked on a 7-point Likert-type scale ranging from 1 ('strongly disagree') to 7 ('strongly agree') in response to statements regarding how the individual feels whilst in 'emotionally intimate' relationships. Participants were asked to think about these relationships in general and not to focus on one specific partner. The questionnaire yields average scores on subscales representing two dimensions of relationship attachment: attachment-related anxiety (e.g. "I worry that I won't measure up to other people") and attachment-related avoidance (e.g. "I prefer not to be too close to romantic partners"). Fourteen items require reverse scoring. Participants' responses were analysed as both dimensional and categorical data.

The ECR-R was developed using an item response theory analysis of items used in other adult attachment measures (Fraley *et al.*, 2000). The psychometric properties of the scale have been replicated across multiple studies. For example, the internal consistencies for the two subscales have been demonstrated to be high ($\alpha \geq .90$) (Sibley & Liu, 2004) and the test-retest reliability has been demonstrated to be good for both attachment related anxiety and avoidance scales ($\alpha \geq .90$). Latent variable path analyses demonstrated a shared variance of over 84% across two test times at 3-week and 6-week assessment periods for both scales (Sibley & Liu, 2004; Sibley *et al.*, 2005). The discriminant and convergent validity of the ECR-R has also been demonstrated to be adequate (Sibley *et al.*, 2005). These robust psychometric properties have been replicated across different cultures and translations (e.g. Tsagarakis *et al.*, 2007).

Both exploratory and confirmatory analyses have favoured a two factor solution over those with single or three factors for models of the attachment dimensions assessed by the ECR-R (Sibley & Liu, 2004; Sibley *et al.*, 2005). The ECR-R is recommended as one of the most appropriate self-report tools to use for assessment of adult attachment style (Sibley *et al.*, 2005).

2.5.4 Psychological distress measure

The Symptom Checklist-90 –Revised (SCL-R-90) (Derogatis, 1994) was completed by participants to provide information about their experience of psychological distress. This 90-item self-report measure asked individuals to rate how much in the last seven days they had experienced different indicators of distress on a five-point Likert scale ranging from 0 (“Not at all”) to 4 (“Extremely”). This measure provides three indices of global distress. The Global Severity Index (GSI) provides an overall measure of the number and intensity of signs of distress. The Positive Symptom Distress Index (PSDI) indicates the average level of intensity an individual experiences signs of distress, and the Positive Symptom Total (PST) indicates the breadth of distress the individual reports. The higher the score on these scales, the more psychological distress individuals are reporting. The authors of the measure state that the GSI is the best single indicator of the current distress experienced (Derogatis, 1994).

Numerous studies have confirmed the reliability and validity of the SCL-90-R (Derogatis, 1994). The internal consistencies for the nine primary symptom dimensions have been demonstrated to be satisfactory with all alpha coefficients calculated as over 0.75, and its test-retest reliability is deemed to be adequate, with coefficients ranging between 0.68 and 0.90 for the different subscales (Derogatis *et al.*, 1976; Horowitz *et al.*, 1988). Derogatis and Cleary (1977) found evidence that supported the factorial structure of the SCL-90-R and its convergent and discriminant validity has been demonstrated to be acceptable (Koeter, 1992; Derogatis *et al.*, 1976). The SCL-90-R has been recommended as an appropriate measure for screening for mental health difficulties in young adults (Wiznitzer *et al.*, 1992).

Normative data has been collected and published for the SCL-90-R (Derogatis, 1994).

2.5.5 Additional care-leaver questions

Participants in the care-leaver group were also asked to give permission for the researcher to contact their social worker/personal advisor in order to ask a series of questions about their time in care. These questions included:

- How old were they when they were taken into care?
- How long have they spent in care?
- For what reason were they taken into care?
- How many placements have they had whilst being in care?
- Have they returned to their birth family for any time since being in care?

Previous clinical work with young people leaving care had shown that collecting this information from their social worker/personal advisor ensured that the information was consistent with that recorded officially by social services.

This information was collected with the aim of gaining a greater understanding of the care experiences in the sample of young people who took part in the study, as well as allowing preliminary analysis of the impact that these factors may have had on the psychological constructs measured.

2.6 Ethical considerations

2.6.1 Ethical approval

The study protocol was scrutinised for scientific validity by the review panel at the Cardiff and Vale NHS University Health Board. Following approval the details of the study were submitted to National Institute for Social Care and Health Research (NISCHR) for ‘Research and Development’ evaluation and to the school of psychology ethics committee at Cardiff University for an ethical review. Permission to carry out the study was granted from both committees (see Appendices J and K)

2.6.2 Participant wellbeing

It was not envisaged that taking part in the study would cause participants any significant distress. However, a period of ‘debrief’ time was designated for individuals after completion of the questionnaires to discuss with the researcher any concerns that may have arisen. A debrief booklet (see Appendix L) was also given to participants that contained information about local services that provide support for a range of psychological or social difficulties.

Participants were told, prior to taking part in the study, that if they disclosed information that caused concern for their own or somebody else’s safety, for example identifying thoughts of suicide, then the researcher would need to share this information with other professionals. When this occurred during data collection the researcher sought consent from the participant and informed the social worker or personal advisor for young people leaving care, and the school tutor or General Practitioner for college students. In cases where concerns were sufficient to warrant more immediate risk assessment and management, the Clinical Psychologist supervising the research contacted the participant via phone and referred to mental health services. During data collection more participants than anticipated reported

thoughts of suicide and high levels of general psychological distress. In response to this the researcher contacted the university ethics board with a revised protocol of how risk was being assessed and managed for these participants (see Appendix M).

2.6.3 Researcher wellbeing

A risk assessment protocol was followed to ensure the safety of the researcher whilst visiting participants in the community (see Appendix N). Regular meetings with the supervising clinical psychologist allowed for exploration of the psychological impact of the research and maintained the emotional well-being of the researcher

2.6.4 Funding

The research was funded by Cardiff and Vale Health Board, NHS Wales as part of the researcher's doctoral training in Clinical Psychology.

2.7 Plan for statistical analysis

2.7.1 Missing data

Data were collected and included from 43 participants in each study group. All 86 participants completed the demographics questionnaire however two from the care-leaver group did not provide information about their qualifications. All participants also completed the TAS-20 in full. Fourteen (5 from the care-leaver group and 9 from comparison group) participants did not complete the ECR-R as they had not experienced being in a romantic relationship that they considered close and as such these were not included in the analyses regarding attachment. One person from the care-leaver group did not complete the SCL-90 – R because they did not feel they had time and as such is excluded from the wellbeing analyses. An additional one person missed one question on the SCL-90-R, however the scoring instructions for the SCL-90-R allow for the global scores to be calculated when a small number of answers have been missed so this person's data is included in the wellbeing analyses.

One person took part in the research but it was subsequently discovered that they did not meet the criteria for being a 'care-leaver'. As such their data were excluded and a further participant was recruited into the care-leaver group.

2.7.2 Statistical analysis

The data were analysed using SPSS 19. Descriptive statistics were used to outline the demographics of the sample and to collate the basic findings of the study. T-tests were used to compare the findings in the study to normative data or other samples from the existing literature. Inferential between-subjects analyses were carried out to explore the differences between care-leavers and the comparison group and correlational analyses were used to explore the relationships between the psychological constructs measured. By collapsing the data across the groups the sample was of a sufficient size to allow for a multiple regression analysis of the degree to which alexithymia and insecure attachment predicted psychological distress. A mediational analysis was also carried out to explore the mediating role of alexithymia in the relationship between attachment and psychological distress.

CHAPTER THREE - RESULTS

3.1 Introduction

This chapter will present the results of the research in terms of descriptive and inferential statistics. Firstly, the process and outcomes of preliminary analyses that assess the data against a number of assumptions will be described. Secondly, the descriptive statistics regarding the demographic variables will be presented for the care-leaver and comparison groups. The relationship between the demographic variables and the outcome measures will also be presented here. The subsequent section of the chapter will outline the descriptive statistics for the outcome measures; alexithymia, attachment and psychological distress, and will analyse between-group differences. The relationships between the outcome measures will be presented through bivariate correlations, ANOVAs based on categorical assignment of attachment type and a multiple linear regression that assesses how well alexithymia, its subcomponents and attachment related anxiety and avoidance predict psychological distress. The chapter will be concluded with a presentation of the findings of mediational analyses exploring the role of alexithymia as a mediator of the relationship between attachment insecurity and psychological distress.

3.2 Type one error risk reduction

Carrying out a large number of inferential analyses increases the risk of 'Type One' errors, which is the incorrect rejection of the null hypothesis. Although results of analyses will be reported as significant if $p < 0.05$, these will be interpreted with greater caution than those that meet the more robust $p < 0.01$ level.

3.3 Preliminary analyses

3.3.1 Outlier check

Initially the data were checked for obvious input errors by visually scanning the mean scores and minimum and maximum values for each variable. No errors were detected through this procedure. Secondly, an outlier SPSS analysis was conducted with the continuous variables (Pallant, 2007): Toronto Alexithymia Scale total score (TAS-20), Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), Externally Oriented Thinking (EOT), attachment related anxiety, attachment related avoidance and psychological distress (GSI; SCI-90-R). In this process cases were excluded pairwise. No outliers were found on the DIF, DDF and attachment related anxiety subscales or the GSI. One outlier each was found on the TAS-20 total score and the attachment related avoidance subscale of the ECR-R, and these

related to different participants. Four outliers were found on the EOT subscale of the TAS-20, one of which related to the same participant who provided outlying data on the TAS-20 total subscale. When each of these data points was identified and checked against the raw data, no input error was found. These outliers were removed from further analyses to prevent distortion of the means. Therefore, the subsequent analyses did not include these data points. However, the analyses were also run with these data points included to check the impact that removing them had on the outcomes and this is discussed further in the concluding chapter.

3.3.2 Assumption of homogeneity of variance

One assumption of parametric analyses is that there is no significant difference between groups in terms of variance of data. SPSS 19 uses Levene's test of homogeneity of variance to determine if the variance of data from one group is significantly different to that from another. This test was carried out across the two groups (care-leavers and comparison) for all continuous variables: age, alexithymia (TAS-20), DIF, DDF, EOT, attachment related anxiety (ECR-R), attachment related avoidance (ECR-R) and psychological distress (GSI: SCL-90-R). The F value for the Levene's analysis of variance did not reach significance at the 0.05 level for any of these variables so the assumption of homogeneity of variance is not violated by the data.

3.3.3 Assumption of normality

Parametric analyses also assume that the data are normally distributed in the sample. This was reviewed in the current study by calculating a z-score for skewness and kurtosis by dividing each by its standard error. A z-score of 1.96 or above indicates an unsatisfactory level of skewness or kurtosis for parametric analyses (at the $p < 0.05$ level) as it implies that the data is not normally distributed. None of the scales and subscales had excessive kurtosis (z scores ranged from -1.64 to 0.49). Data from the alexithymia measure (z score = 1.24) and its three subscales (z scores = 1.83; -0.15; -0.45 respectively) were not significantly skewed. Similarly, there was no significant skew in the data from the attachment related anxiety subscale (z score = -0.03). However, the data from the avoidance subscale of the ECR-R was unacceptably skewed (z score 2.30) as was the GSI scale of the SCL-90-R (z score 3.98). Age was also significantly skewed in the sample (z score 2.87). At a group level, age, attachment related avoidance and GSI were skewed in the comparison group; only GSI was skewed in care-leaver group.

As age, one of the attachment subscales and the psychological distress scale violated the assumptions of normality, non-parametric statistics were used when data from one or more of these variables were processed in univariate analyses. When analysing across more than two groups, both Analysis of Variance (ANOVAs) and Kruskal-Wallis analyses were carried out for these variables. As there was no notable difference in terms of significance of findings, and ANOVAs are thought to be fairly robust against assumption violations (Pallant, 2007), the results of the ANOVAs are presented only.

To make presentation of the findings clearer, in terms of the correlational relationships between outcome variables, only Spearman's Rho coefficients are given. Pearson's R correlations were also conducted when the analysis included two variables that were not significantly skewed and this did not make any notable difference to the findings.

3.3.4 Assumption of independence

Parametric tests assume that the data from two groups are independent from each other. As the two groups who took part in this study were recruited through different procedures and from different organisations, and they completed the questionnaires separately, it can be assumed that this assumption holds true.

3.4 Demographic variables

Table 3.1 outlines the demographic information for the sample of participants who took part in the study. Statistical analyses revealed that there was a significant difference in the distribution of age between care-leavers and the comparison group, with the average age being older in care-leavers. Significant differences in terms of employment and relationship status were also found between the groups. Examination of the descriptive statistics suggests that care-leavers were more likely to not currently be in education, employment or training and were more likely to be living with a partner than individuals in the comparison group. Care-leavers were also more likely to have spoken to a professional about their thoughts and feelings.

There were no significant differences between groups in terms of gender, ethnicity (collapsing across non- 'White British' ethnicities), qualifications or experience of a close relationship.

Table 3.1. Demographic summary for care-leavers and comparison group

| | Care-leavers | Comparison | Between Group Difference |
|-------------------------------|--------------|--------------|-------------------------------|
| Gender % | | | |
| Female (N) | 60.5% (26) | 60.5% (26) | n.s. |
| Male (N) | 39.5% (17) | 39.5% (17) | |
| Age (SD) | 18.35 (1.53) | 17.44 (1.20) | U(n1 = n2= 43)= 1248** |
| Ethnicity % | | | Cramer's V = 0.050 |
| White British (N) | 95.3% (41) | 93% (40) | |
| Asian/British Bangladeshi (N) | 0 | 2.3% (1) | |
| Asian/British other (N) | 0 | 2.3% (1) | |
| White& Black Caribbean (N) | 0 | 2.3% (1) | |
| White Irish (N) | 2.3% (1) | 0 | |
| White other (N) | 2.3% (1) | 0 | |
| Qualifications % | | | Cramer's V = 0.32 |
| Level one | 39.5% | 34.9% | |
| Level two | 27.9% | 51.2% | |
| Level three | 4.7% | 4.7% | |
| Other | 4.7% | 7.0% | |
| No qualifications | 18.6% | 2.3% | |
| Missing data | 2.3% | 0% | |
| Employment status % | | | Cramer's V = 0.80** |
| None | 62.8% | 0% | |
| Student | 14.0% | 79.1% | |
| Government scheme | 14.0% | 0.0% | |
| Student & employee | 9.3% | 18.6% | |
| Missing data | 0% | 2.3% | |
| Relationship status % | | | Cramer's V = 0.27* |
| Single | 48.8% | 60.5% | |
| Relationship (non-cohabiting) | 32.6% | 37.2% | |
| Relationship (cohabiting) | 18.6% | 2.3% | |
| Relationship history % | | | X ² (1)=1.37 |
| Close relationship | 88.4% | 79.1% | |
| No close relationship | 11.6% | 20.9% | |
| Therapy % | | | X ² (1) = 17.39*** |
| Yes | 81.4% | 37.2% | |
| No | 18.6% | 62.8% | |
| Total | 43 | 43 | |

* p<0.05; **p<0.01; ***p<0.001

As the groups differed on some demographic variables (age, employment status, relationship status and participation in therapy), analyses were carried out to determine whether the impact of these variables on outcome measures would confound group differences.

3.4.1 Age

Two-tailed Spearman's rho correlations were used to explore the relationship between age and the outcome variables for the sample as a whole. The p values are given in Table 3.2.

Table 3.2 Correlations between age and outcome variables across whole sample

| | Age (N) |
|------------------------------|---------------------------|
| Alexithymia (TAS-20) | $\rho (85) = 0.11, n.s.$ |
| TAS- DIF | $\rho (86) = 0.16, n.s.$ |
| TAS- DDF | $\rho (86) = 0.13, n.s.$ |
| TAS- EOT | $\rho (82) = -0.16, n.s.$ |
| Attachment anxiety (ECR-R) | $\rho (72) = -0.04, n.s.$ |
| Attachment avoidance (ECR-R) | $\rho (71) = 0.17, n.s.$ |
| Psychological distress (GSI) | $\rho (85) = 0.14, n.s.$ |

As can be seen, age was not correlated significantly with any of the outcome variables. When running these analyses separately for the data from care-leavers and the comparison group, there remained no significant correlations between age and outcome variables. Furthermore, analysing the data by splitting the sample into younger (aged 16-18 [N=62]) and older (19-22 [N=23]) demonstrated that there was no significant difference in the mean score on the TAS-20 ($t(83) = 0.760, n.s.$) and its subscales, or the prevalence of clinically significant alexithymia ($TAS-20 \geq 61$) ($\chi^2(1) = 0.13, n.s.$). There were also no significant differences between older and younger participants in terms of attachment related anxiety ($t(70) = 0.480, n.s.$), attachment related avoidance ($U(n_1 = 49, n_2 = 22) = 656.5, n.s.$) and psychological distress ($U(n_1 = 62, n_2 = 23) = 842.5, n.s.$). Age was therefore not added as a covariate in any subsequent analyses.

3.4.2 Relationship status

When looking at the sample as a whole, a univariate ANOVA demonstrated that current relationship status was not significantly related to alexithymia (TAS-20) ($F(2,82) = 0.053, n.s.$) or its three subscales: DIF ($F(2,83) = 0.114, n.s.$), DDF ($F(2,83) = 0.177, n.s.$) and EOT ($F(2,79) = 1.190, n.s.$). There was also no significant association between relationship status and attachment related avoidance ($F(2,68) = 1.297, n.s.$). However, relationship status did

have a significant association with attachment related anxiety ($F(2,69) = 3.120, p = 0.050$) and psychological distress ($F(2,82) = 3.223, p < 0.05$). Sheffe post hoc analyses showed that those who described themselves as single reported higher attachment related anxiety than those that were in relationships although this only approached significance ($p = 0.057$). Individuals who were living with a partner reported higher psychological distress as measured by the GSI subscale of the SCL-90-R than those who identified themselves as single but again, this only approached significance ($p = 0.052$).

3.4.3 Employment status

An ANOVA demonstrated that employment status across the whole sample was not significantly related to alexithymia ($F(3,80) = 2.461, n.s.$) and its three subscales; DIF ($F(3,81) = 1.464, n.s.$); DDF ($F(3,81) = 1.715, n.s.$); EOT ($F(3,77) = 1.135, n.s.$). Neither was it related to attachment related anxiety ($F(3,67) = 0.634, n.s.$), attachment related avoidance ($F(3,66) = 0.669, n.s.$) or psychological distress ($F(3,80) = 2.014, n.s.$).

3.4.4 Therapy

The majority (81.4% [35]) of the care-leavers reported that they had spoken to someone in a professional role about their thoughts and feelings. Almost half of these (37.2% [16] of all care-leavers) reported having some engagement with the specialised care-leaver mental health service provided by the team with which the research was conducted. Other professionals engaged with included counsellors, multidisciplinary CAMHS staff, young-offending services and specialist mental-health inpatient staff. In contrast, 37.2% (16) of the comparison group reported that they had spoken to someone in a professional context about their thoughts and feelings. This tended to be with a counsellor or anger management programme, provided by a school or college, with others accessing external support through CAMHS, social services, or in one case each, the police and a private sports psychologist. Statistically, care-leavers were significantly more likely to have accessed some kind of therapeutic support than the comparison group ($X^2(1) = 17.39, p < 0.001$).

A t-test showed that those that had had contact with some form of therapy reported significantly higher alexithymia ($t(83) = -2.482, p < 0.05$), and in particular difficulties identifying feelings ($t(84) = -4.016, p < 0.001$) and difficulties describing feelings ($t(84) = -2.566, p < 0.05$). A Mann-Whitney U analysis demonstrated that individuals who had spoken

to a professional about their thoughts and feelings also reported significantly higher attachment related avoidance ($U(n_1 = 26, n_2 = 45) = 762, p < 0.05$) and significantly more psychological distress ($U(n_1 = 35, n_2 = 50) = 1,205, p < 0.01$).

Although the association may not be causal, it would be theoretically understandable that individuals with more psychological concerns such as alexithymia, attachment difficulties and psychological distress are more likely to need and be referred for therapy.

3.5 Impact of other demographic variables

Although gender and educational qualifications were matched across the two groups, previous research has suggested that these variables may be associated with the experience of alexithymia, attachment and psychological well-being. Therefore, analyses were carried out to establish whether these associations were replicated in the current sample.

3.5.1 Gender

Table 3.3 shows the mean scores on outcome measures for males and females looking at the sample as a whole. As shown, a two-tailed independent t-test demonstrated that there was no significant difference between males and females with respect to the mean TAS-20 total score and the DDF and EOT subscales. However, there was a significant difference between males and females on the DIF subscale of the TAS-20, with females scoring higher than males. This suggests that the young adult females who took part in the study reported more difficulties with identifying their feelings than males of a similar age.

Using the cut-off value for the TAS-20 ($TAS-20 \geq 61$; Taylor *et al.*, 1997), 49.0% (25) of females reported clinically significant levels of alexithymia compared to 26.5% (9) of males. This difference was significant at the 95% confidence level ($\chi^2(1) = 4.322, p < 0.05$).

Two-tailed analyses demonstrated that there was no significant difference between males and females with respect to attachment related anxiety and attachment related avoidance as measured by the ECR-R.

However, a two-tailed Mann-Whitney U analysis demonstrated that there was a significant difference in reported psychological wellbeing between males and females, with female participants reporting significantly more psychological distress than males.

Table 3.3 Outcome variable data analysed by gender

| Measure | Females (SD) N=51 | Males (SD) N=34 | t-value |
|------------------------------|-----------------------|----------------------|--|
| Alexithymia (TAS-20) | 58.79 (13.24) N=51 | 55.62(13.63) N=34 | t (83) = -0.873 |
| TAS- DIF | 20.08 (6.93) N=52 | 16.88(7.30) N=34 | t (84) = -2.047* |
| TAS- DDF | 15.81 (4.82) N=52 | 14.35(4.89) N=34 | t (84) = -1.361 |
| TAS-EOT | 22.90(4.53) N=50 | 24.38(4.66) N=32 | t (80) = 1.734 |
| Attachment related anxiety | 70.15 (20.83) | 63.44(20.11) | t(70) = -1.317 |
| | | | u-value |
| Attachment related avoidance | 61.09 (22.47) | 55.60 (20.78) | U (n ₁ =47, n ₂ =24) = 667.0 |
| Psychological distress | 1.00 (0.79) | 0.70(0.71) | U (n ₁ =51, n ₂ =34) = 1095.5* |

* p<0.05; **p<0.01; ***p<0.001

3.5.2 Educational qualifications

An ANOVA demonstrated that, in the sample as a whole, educational qualifications were not related to level of alexithymia ($F(4,78) = .222$, n.s.) or to any of the subscales: DIF ($F(4,79) = 0.273$, n.s.), DDF ($F(4,79) = 0.294$, n.s.) and EOT ($F(4,75) = 0.775$, n.s.). Furthermore, there was no significant association between qualification level and attachment related anxiety ($F(4,65) = 1.609$, n.s.), attachment related avoidance ($F(4,64) = 0.543$, n.s.) or psychological distress ($F(4,78) = 0.334$, n.s.).

3.6 Descriptive data and univariate analyses

3.6.1 Alexithymia

3.6.1.1 Descriptive analyses and comparison to existing data

Tables 3.4 and 3.5 present the mean scores for the TAS-20 and its subscales for the care-leaver and comparison groups respectively. The authors of the TAS-20 provide norms for an adult population (N=1933; mean age 35.47) that provide a comparison to the outcomes found in this sample (Parker *et al.*, 2003). As age is thought to be associated with alexithymia, the current findings were also compared to the data provided by Meins *et al.* (2008) who recruited 270 British undergraduates (N = 270; mean age 19.8), as this gives a more accurate comparison in terms of age. However, it should be noted that this data cannot be considered 'norms' as they were sampled from a group of university students. The findings of these two samples are also presented in Tables 3.4 and 3.5, as are the outcomes of t-test analyses

(allowing for unequal variances) comparing them to the care-leaver and comparison groups respectively.

Table 3.4 Mean TAS-20 total and subscale scores for care-leavers and t-test comparisons with other samples

| | Care-leavers (SD) | Normative group Parker <i>et al.</i> (2003) (SD) | Undergraduates (Meins <i>et al.</i> , 2008) (SD) |
|--------|----------------------|--|--|
| TAS-20 | 59.93(13.07) | 45.57(11.35)*** | 47.34(9.97)*** |
| DIF | 19.91(7.33) | 14.38(5.21)*** | 16.37(5.65)** |
| DDF | 16.21(4.91) | 12.50(4.20)*** | 13.39(4.26)*** |
| EOT | 24.05(4.09) | 18.70(4.72)*** | 17.59(4.12)*** |

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

These comparisons show that the care-leaver group reported significantly higher overall alexithymia than the undergraduate students and the adult normative group. Specifically, they reported greater difficulties in all components of alexithymia: difficulty identifying feelings, difficulty describing feelings and a more pronounced externally oriented thinking style.

Table 3.5 Mean TAS-20 total and subscale scores for the college student group and t-test comparisons with other samples.

| | Non-care leavers (SD) | 'Norms' Parker <i>et al.</i> (2003) (SD) | Undergraduates (Mein <i>et al.</i> , 2008) (SD) |
|--------|--------------------------|--|---|
| TAS-20 | 54.37(12.28) | 45.57(11.35)*** | 47.34(9.97)*** |
| DIF | 17.72 (7.00) | 14.38(5.21)** | 16.37(5.65) |
| DDF | 14.26(4.69) | 12.50(4.20)* | 13.39(4.26) |
| EOT | 22.90(3.74) | 18.70(4.72)*** | 17.59(4.12)*** |

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 3.5 demonstrates that the comparison group of college students in the current study also reported significantly higher overall alexithymia than the adult normative group and the undergraduate sample. In particular, the difference appeared to be greatest with respect to more difficulties identifying feelings and a more pronounced externally oriented thinking style compared to the normative adult sample and a more pronounced externally oriented thinking style compared to the undergraduate students.

Overall, these results suggest that both groups in the present study experience greater levels of alexithymia than adult norms and undergraduate university students.

3.6.1.2 Between group analyses

The key hypotheses of the study predicted significant differences between the care-leaver group and the comparison group with respect to alexithymia, attachment related anxiety and avoidance and psychological distress. Table. 3.6 details the mean scores on each of these outcome variables and presents the findings of one-tailed between-group analyses.

A one-tailed independent t-test demonstrated that care-leavers scored significantly higher on the TAS-20 and the DDF subscale. There was no significant difference between groups on the DIF and EOT subscales. These results may indicate that young people who have grown up in care reported higher levels of alexithymia than young people who have not spent time in care. In particular, the care-leavers reported greater difficulty describing their feelings.

Table 3.6 Mean scores for care-leaver and comparison groups and between group analyses.

| Measure | Care-leavers (SD) | Non-care leavers (SD) | One-tailed group difference |
|--|-----------------------------|----------------------------|--|
| Alexithymia (TAS-20) | 59.93(13.07) | 54.37(12.28) | t (83) = -2.02* |
| TAS-DIF | 19.91(7.33) | 17.72 (7.00) | t (84) = -1.415 |
| TAS-DDF | 16.21(4.91) | 14.26(4.69) | t (84) = -1.90* |
| TAS- EOT | 24.05(4.09) | 22.90(3.73) | t (80) = -1.325 |
| Attachment related anxiety : Total Mean response | 67.50(21.56) 3.75 (1.20) | 68.18(20.00) 3.79(1.11) | t(70) = 0.138 |
| Attachment related avoidance Total Mean response | 62.30(21.56) 3.46(1.17) | 54.18(20.60) 3.01(1.14) | U (n ₁ =34, n ₂ =37) = 767.5 |
| Psychological distress (GSI) | 0.92(0.79) | 0.84(0.75) | U (n ₁ =43, n ₂ =42) = 962.0 |

* p<0.05; **p<0.01; ***p<0.001

Using the cut-offs for the TAS-20 (Taylor *et al.*, 1997), 40.7% of the whole sample reported clinically significant levels of alexithymia (TAS-20 \geq 61). At the group level, this represented 45.2% of care-leavers compared to 34.9% of the comparison group. This was not a statistically significant difference ($X^2(1) = 0.330$, n.s.).

3.6.2 Attachment

3.6.2.1 Descriptive analyses and comparison to existing data

Table 3.6 provides the mean scores for attachment related anxiety and avoidance for both care-leavers and the comparison group. Although there are no norms for the ECR-R measure of attachment, data is available from a study by Bosmans *et al.* (2010) in which 289 undergraduate students in Belgium completed this measure. Again, these do not represent ‘norms’ as they are a sample of university students but they do provide a comparison for the findings of the present study. Bosmans *et al.* (2010) reported mean item responses for the two subscales rather than subscale total scores, with a mean score of 2.80 (SD 1.11) for attachment related anxiety and 2.38 (SD 0.90) for attachment related avoidance. Using the mean item responses for the current study, between group t-tests (allowing for unequal variances) suggested that the care-leaver group scored significantly higher on attachment related anxiety ($t(46) = -4.627, p \leq 0.001$) and attachment related avoidance ($t(42) = -5.414, p \leq 0.001$) than the undergraduate students. Similar analyses indicated that the comparison group in the current study also scored significantly higher on attachment related anxiety ($t(40) = -4.921, p \leq 0.001$) and attachment related avoidance ($t(38) = -3.111, p \leq 0.01$). This demonstrates that both groups in the current study reported more attachment related anxiety and attachment related avoidance than undergraduate students of a similar age in previous research.

3.6.2.2 Between group analysis

As seen in Table 3.6 one-tailed analyses demonstrated that there was no significant difference between care-leavers and non-care leavers with respect to attachment related anxiety and avoidance. The difference with respect to attachment related avoidance did approach significance ($p=0.055$). As relationship status was significantly associated with attachment related anxiety, this was controlled for using an ANOVA and the difference between the groups remained non-significant.

3.6.2.3 Attachment type

The continuous data from the two attachment scales of the ECR-R was used to assign participants to attachment ‘types’. This was determined by carrying out a median split on both data sets so that individuals were described as either ‘high’ or ‘low’ with reference to attachment related avoidance and attachment related anxiety. If a participant’s score was above the median for that dimension they were categorised as ‘high’, if it was below the

median it was categorised as 'low'. On this basis participants were assigned to one of four categories using Bartholomew & Horowitz's (1991) conceptualisation of attachment type:

- Secure: low anxiety and low avoidance
- Preoccupied: high anxiety and low avoidance
- Dismissive: low anxiety and high avoidance
- Fearful/avoidant: high anxiety and high avoidance

It should be noted that this process involves categorising individuals on the basis of comparison to the results of other participants, not by comparing them to a standardised model of attachment type. Therefore, this only provides information about how participants' type of attachment may be similar or different to other participants in this study, it does not give objective information about how a person's attachment type may compare to others in the general population.

Table 3.7 demonstrates the percentage of each group (care leaver or comparison) that were assigned to each attachment type. Also presented are the percentages of each attachment type that belong to each care-group. Only participants that had a score for both scales of the ECR-R were included in this analysis which equated to 71 participants (37 care-leavers and 34 from the comparison group).

A chi-squared analysis demonstrated that there was no significant relationship between which group participants were in (care-leaver or comparison) and the attachment type that they were assigned to ($X^2(3) = 1.486$, n.s.).

Table 3.7 Distribution of attachment types across care-leaver and comparison group.

| | | Attachment type | | | |
|------------------|----------------------|-----------------|-------------|------------|------------------|
| | | Secure | Preoccupied | Dismissive | Fearful avoidant |
| Care leavers | % of group (N) | 32.4% (12) | 13.5% (5) | 21.6% (8) | 32.4% (12) |
| | % of attachment type | 54.5% | 38.5% | 61.5% | 52.2% |
| Comparison group | % of group (N) | 29.4% (10) | 23.5% (8) | 14.7% (5) | 32.4% (11) |
| | % of attachment type | 45.5% | 61.5% | 38.5% | 47.8% |
| Total (N) | | 31% (22) | 18.3% (13) | 18.3% (13) | 32.4% (23) |

3.6.3 Psychological distress

3.6.3.1 Descriptive analyses and comparison to existing data

The mean GSI scores for care-leavers and the comparison group can be seen in Table 3.6 where a higher score represents greater psychological distress. These can be compared to normative data collected and provided by the authors of the SCL-90-R (Derogatis, 1994) for adult ‘nonpatients’. It should be noted, however, that the ages of the 974 individuals included in these norms were over 18, so the age range does differ to that of the current sample. The mean GSI score for this standardisation group was 0.31 (SD 0.31). A t-test (allowing for unequal variances) demonstrated that the care-leaver group ($t(37) = -4.988, p \leq 0.001$) and the comparison group ($t(49) = -4.617, p \leq 0.001$) scored significantly higher on the GSI than the adult normative group. Derogatis *et al.* (1994) also provide normative data for adolescent non-patients aged 13-18 with a mean GSI score of 0.76 (SD 0.54). These norms represent a younger age range than that used in the current study but in terms of level of distress reported, they are a closer comparison. A t-test (allowing for unequal variances) demonstrated that there were no significant differences between the adolescent normative data and the GSI scores of the care-leaver group ($t(37) = -1.297, n.s.$) and the comparison group ($t(49) = -0.690, n.s.$) in the current study. The effect size for the difference between the care-leavers’ psychological distress and that of this younger standardisation group is small ($d=0.24$) and there is negligible difference ($d=0.12$) between the comparison and standardisation groups.

As teenage suicide has received recent attention, especially in South Wales, the responses to the suicidal ideation question in the SCL-90 were explored separately. Of the whole sample, 17.6% (15) indicated that they had some thoughts of ending their own life in the 7 days prior to completing the questionnaire. This represented 21.4% (9) of care-leaver respondents and 14.0% (6) of the young people in the comparison group.

3.6.3.2 Between group analysis

As seen in Table 3.6, a one-tailed Mann-Whitney-U revealed that there was no significant difference between the psychological well-being scores of care-leavers and the comparison group. When relationship status was controlled for using an ANOVA the differences between the groups remained non-significant.

3.7 Care-leaver additional variables

The information provided by social care teams regarding the experiences of the care-leavers whilst in care was incomplete. This is in part due to the low levels of resources available to these teams to conduct additional work, such as being involved in research.

Information regarding the age at which the care-leavers went into care was provided for 33 participants. This ranged from 4 years to 16 years (mean 10.18, SD 3.89). Spearman's rho correlational analyses indicated that there was no significant relationship between the age at which an individual went into care and alexithymia ($\rho = -0.227$, n.s.) or its three subscales (DIF: $\rho = -0.147$, n.s.; DDF: $\rho = -0.078$, n.s.; EOT: $\rho = -0.122$). There was also no significant relationship between age at entry into care and attachment related anxiety ($\rho = -0.168$, n.s.), attachment related avoidance ($\rho = -0.074$, n.s.) and psychological distress ($\rho = -0.155$, n.s.).

There was not sufficient data available to enable statistical analysis of the other variables.

3.8 Relational analyses

3.8.1 Bivariate correlations

Bivariate correlations were conducted to investigate relationships between the outcome measures for the sample as a whole. The results are shown in Table 3.8.

These correlational analyses were subsequently run separately for the care-leaver and comparison groups. Using Fisher r-to-z transformation the correlation coefficients between the outcomes of each group were compared. The only difference found significant to the 95% confidence level was between the correlation coefficients between DIF and EOT subscales, with the coefficient for care-leavers being 0.356(41), $p < 0.05$ and for the comparison group being -0.035(41), n.s.

Table 3.8 Bivariate two-tailed Spearman's rho correlations between outcome variables

| | DIF (TAS- 20) | DDF (TAS- 20) | EOT (TAS- 20) | Attachment Anxiety (ECR-R) | Attachment Avoidance (ECR-R) | Psychological distress (SCL-90-R) |
|--|---------------------|---------------------|---------------------|----------------------------------|------------------------------------|---|
| Alexithymia (TAS-20) | 0.841*** | 0.850*** | 0.499*** | 0.404*** | 0.409*** | 0.376*** |
| DIF (TAS-20) | - | 0.619*** | 0.165 | 0.451*** | 0.267* | 0.499*** |
| DDF (TAS-20) | | - | 0.312** | 0.310** | 0.476*** | 0.288** |
| EOT (TAS-20) | | | - | 0.174 | 0.357** | 0.045 |
| Attachment anxiety (ECR-R) | | | | - | 0.456*** | 0.481*** |
| Attachment avoidance (ECR- R) | | | | | - | 0.371** |
| Psychological distress (SCL-90- R) | | | | | | - |

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

3.8.2 Comparison between attachment types

The relationship between attachment type and other outcome variables was explored through ANOVAs. The findings are shown in Table 3.9

Table 3.9 Mean outcome scores by attachment type

| Outcome measure | Secure (SD) (N = 22) | Preoccupied (SD) (N = 13) | Dismissive (SD) (N=13) | Fearful avoidant (SD) (N=23) |
|---------------------------|-------------------------|------------------------------|---------------------------|---------------------------------|
| TAS-20 | 50.68 (9.800) | 56.38 (12.507) | 55.46 (11.970) | 63.55 (12.424) |
| TAS-20 DIF | 15.41(6.068) | 20.85(7.128) | 17.23(5.924) | 21.91(6.728) |
| TAS-20 DDF | 13.41(4.144) | 14.46(4.807) | 15.15 (4.913) | 17.52(4.581) |
| TAS-20 EOT | 22.62(3.186) | 21.08(3.499) | 24.00(4.285) | 24.97(4.391) |
| Psychological distress | 0.4818 (0.497) | 0.9650(0.615) | 1.020(0.779) | 1.253(0.832) |

An ANOVA demonstrated that there was significant relationship between attachment type and mean TAS-20 total score ($F(3,66) = 4.594$, $p < 0.01$). A Sheffe post hoc analysis revealed that there was a significant difference in TAS-20 score between participants who were identified as securely attached and those that were identified as having fearful avoidant type attachment, with securely attached individuals scoring significantly lower. This demonstrates that individuals with fearful avoidant type attachment are more likely to report alexithymia than those that are securely attached.

At the subscale level, ANOVAs demonstrated that there was significant relationships between attachment type and DIF ($F(3,67) = 4.624$, $p < 0.01$), DDF ($F(3,67) = 3.613$, $p < 0.05$)

and EOT subscales ($F(3,64) = 3.123, p < 0.05$). Post-hoc analyses demonstrated that individuals identified as having fearful avoidant style attachment reported significantly greater difficulties identifying feelings and greater difficulties describing feelings than those identified as being securely attached. With respect to the EOT subscale, individuals identified as having fearful avoidant style attachment reported a significantly greater externally oriented thinking style than participants who were identified as having a preoccupied style of attachment.

Table 3.10 demonstrates the number of each attachment type that were alexithymia ‘cases’ as determined by an overall TAS-20 score ≥ 61 .

Table 3.10 Number of alexithymia ‘cases’ for different attachment types.

| Attachment type (n) | Number of alexithymia cases | % of attachment type scoring over cut-off | % of alexithymia cases assigned to attachment type |
|------------------------------|------------------------------------|--|---|
| Secure (22) | 5 | 22.7% | 17.2% |
| Preoccupied (13) | 7 | 53.8% | 24.1% |
| Dismissive (13) | 4 | 30.8% | 13.8% |
| Fearful avoidant (23) | 13 | 59.1% | 44.8% |
| TOTAL | 29 | | 100 |

A chi squared test demonstrated that this difference across attachment types was not significant although approached significance ($p = 0.059$) with over half of those participants identified as preoccupied or fearful avoidant reporting clinically significant levels of alexithymia.

An ANOVA demonstrated that there was a significant relationship between attachment type and psychological distress ($F(3,66) = 4.754, p < 0.01$). A Sheffe post hoc test revealed that individuals identified as having a fearful avoidant style of attachment reported significantly more psychological distress than those identified as being securely attached. When alexithymia (TAS-20) was controlled for using an ANCOVA, psychological distress was no longer significantly different between attachment groups. This suggests that the difference in levels of alexithymia between attachment types accounts for some of the difference in reported psychological distress and indicates that alexithymia may be a potential moderating or mediating factor.

3.8.3 Suicidal ideation

Looking specifically at the question that asked participants about the occurrence of thoughts of taking their own lives, those that identified that this had occurred scored significantly higher on the TAS-20 ($t(82) = -4.172, p < 0.01$). This was underpinned by significantly higher scores on the DIF, DDF and EOT subscales. Those that identified some suicidal thoughts in the past seven days also scored significantly higher on the attachment related anxiety subscale ($t(69) = -2.394, p < 0.05$).

3.8.4 Regression analyses

As there was only one significant difference between care-leaver and comparison groups with respect to outcome correlation coefficients, and that was between two of the TAS-20 subscales, the data were combined as one group to carry out regression analyses. A multiple linear regression was carried out in which the outcome measures with significant bivariate correlations with psychological distress (DIF, DDF, attachment related anxiety and attachment related avoidance) were entered as predictor variables and psychological distress was entered as the criterion variable. TAS-20 total score was not included as this represents a sum of its subscales. This linear model was significantly related to psychological distress and accounted for 32.4% of its variation ($\text{Adj } R^2 = 0.324$ $F(4,65) = 9.277, p < 0.001$). Tables 3.11 and 3.12 give the outcomes of this linear regression.

Table 3.11 Multiple regression model output

| R | R Square | Adjusted R square | Std. Error of the estimated |
|-------|----------|-------------------|-----------------------------|
| 0.603 | 0.363 | 0.324 | 0.613 |

Table 3.12 Results of linear regression with psychological distress as criterion variable

| Predictor variable | B | Std. Error | β | t |
|-------------------------------------|--------|------------|---------|---------|
| TAS-20 DIF | 0.046 | 0.015 | 0.422 | 3.050** |
| TAS-20 DDF | -0.009 | 0.022 | -0.056 | -0.405 |
| Attachment related anxiety | 0.006 | 0.004 | 0.178 | 1.480 |
| Attachment related avoidance | 0.008 | 0.004 | 0.210 | 1.750 |

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Although together the variables account for a significant proportion of the variance, DIF was the only significant independent predictor of psychological distress.

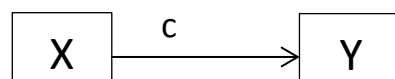
3.9 Mediation analysis

3.9.1. Introduction to mediation

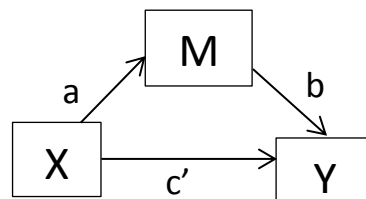
Mediation analyses allow greater exploration and understanding of the relationship between one variable and another. More specifically, it analyses the indirect effects of an independent variable on a dependent variable through one or multiple mediator variables. Preacher and Hayes (2008) use the model shown in Figure 3.1 to conceptualise the role of mediating variables.

Figure 3.1 A pathway model representing direct and indirect effects

A The total effect of independent variable (X) on dependent variable (Y)



B The direct and indirect effects of independent variable (X) on dependent variable (Y)



In Figure 3.1, path c represents the total effect of the independent variable (X) on dependent variable (Y) and this is the sum of the direct and indirect effects. The indirect effect of X on Y through a mediator (M) is the product of paths a and b (ab) where a is the effect of X on M and b is the effect of M on Y when the effect of X is controlled for (Preacher & Hayes, 2008). Path c' represents the direct effect of X on Y when the indirect effect (ab) is controlled for. The coefficient ab represents the change in Y as a result of a unit change in X that is attributable to the indirect pathway through M. The coefficient for path c' represents the change in Y as a result of a unit change in X that is attributable to the direct pathway, not through M. The ratios of these direct and indirect effects will be provided to demonstrate the relative size of the indirect and direct effects.

3.9.2 Bootstrapping mediational analyses

Preacher and Hayes (2008) use a bootstrapping methodology to estimate the sampling distribution of ab and use this to derive percentile based bias-corrected confidence intervals (ci%) for the mediational relationship (ab). Hayes (2009) states that if these confidence intervals do not span zero, then there is ci% chance that the indirect effect is not zero. The authors suggest that this is preferable to the ‘product of coefficients’ approach (Sobel, 1982) as it does not assume that the sampling distribution of ab is normal. Preacher and Hayes (2008) also claim superiority over the ‘causal steps strategy’ (Baron & Kenny, 1986) as the bootstrapping methodology retains greater power whilst controlling for type 1 errors, even in smaller samples. Also, the bootstrapping methodology attempts to quantify the indirect effect (ab), unlike the causal steps strategy (Preacher & Hayes, 2009).

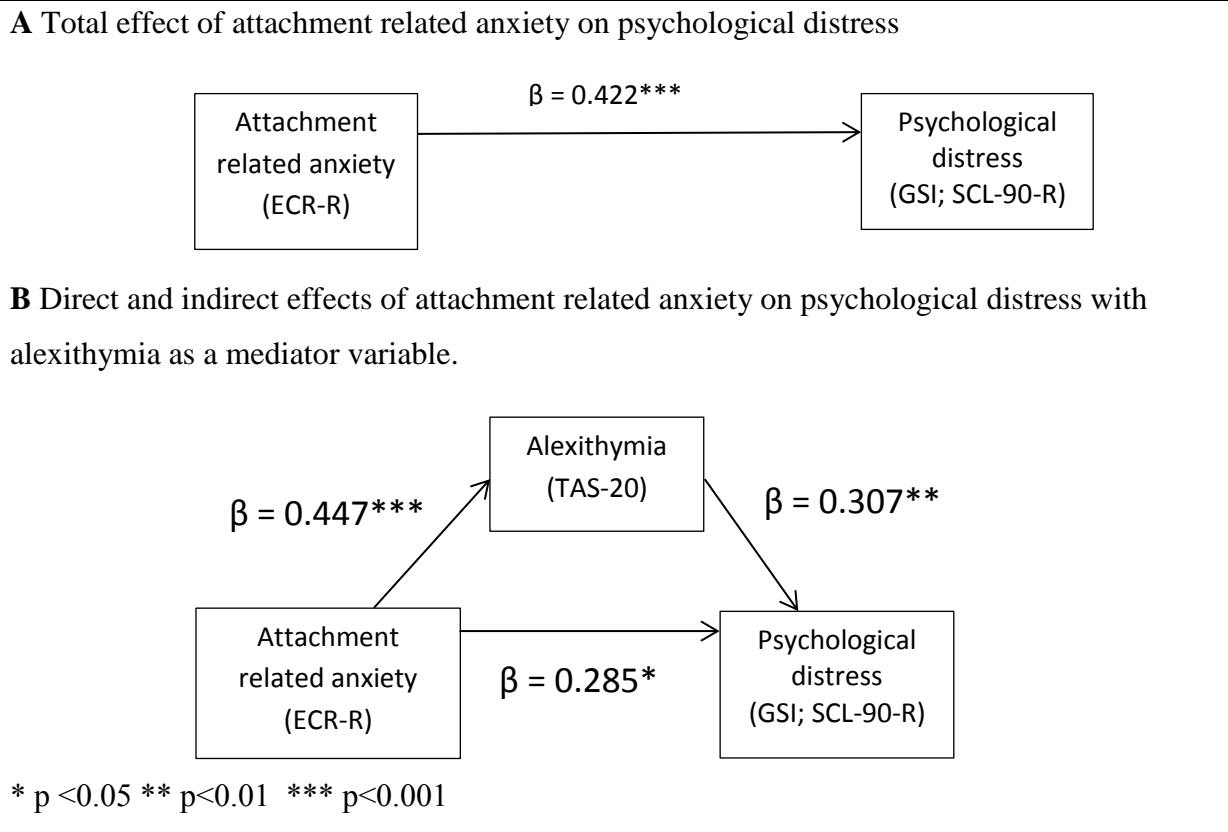
The bootstrapping methodology was therefore chosen to explore the mediational roles of alexithymia and its subscales in the relationship between attachment and psychological distress.

3.9.3 Mediational analyses with attachment related anxiety as the independent variable

Initially, alexithymia (TAS-20 total score) was entered as a mediating variable between attachment related anxiety and psychological distress in Preacher and Hayes’ (2008) indirect mediational analyses. Figure 3.2 shows a model of these associations with standardised beta coefficients and significance values for the respective relationships between variables. To attain standardised coefficients the raw scores were converted to z scores prior to analysis. This was done to allow for ease of comparison between pathway coefficients and clarity of presentation as the unstandardized coefficients are notably small given the small scale of Y.

Only participants that provided data for all three variables were included in the analysis, therefore $N = 70$.

Figure 3.2 Pathway model of the effects of attachment related anxiety on psychological distress with alexithymia as a mediator.



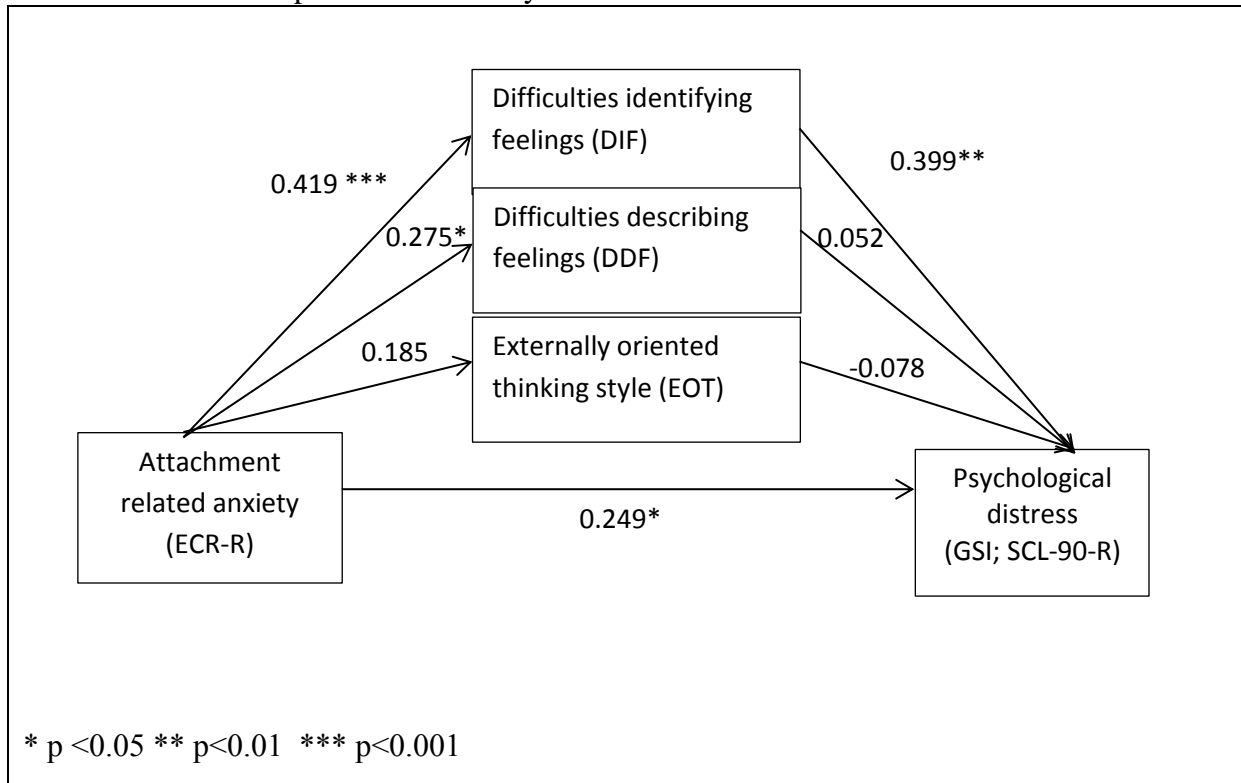
The **unstandardized** indirect effect (ab) was 0.00508 (0.2791×0.0182) with bias-corrected 95% bootstrap confidence intervals of 0.0013; 0.0108 calculated using 10,000 bootstrap samples. This demonstrates that there is a significant indirect effect of attachment related anxiety on psychological distress with alexithymia as a mediator variable. This implies that alexithymia statistically accounts for some of the relationship between attachment related anxiety and psychological distress. The **unstandardized** coefficient for the direct effect (c') is 0.0106. The ratio of indirect to direct effect is therefore 0.479.

This model accounts for 25.2% of the variance in psychological distress ($\text{Adj. } R^2 = 0.252$, $F(2, 67) = 12.606$, $p < 0.0001$).

When the three subcomponents of alexithymia (DIF, DDF and EOT) were included as possible mediators, the indirect effect with DIF as a mediator was significant ($ab = 0.1460 \times 0.0425 = 0.00621$, 95% CI 0.0016; 0.0130). The indirect effects with DDF and EOT as mediators were not significant (DDF: $ab = 0.0646 \times 0.0081 = 0.000523$, 95% CI -0.0021; 0.0042; EOT: $ab = 0.0353 \times -0.0153 = -0.000540$, 95% CI -0.0039; 0.0008). Figure 3.3

shows a model of these pathways with standardised coefficients. This model accounted for 27.5% of the variance in psychological distress ($\text{Adj}R^2 = 0.275$ $F(4,63) = 7.358$, $p < 0.001$).

Figure 3.3 Pathway model of the effects of attachment related anxiety on psychological distress with the components of alexithymia as mediators



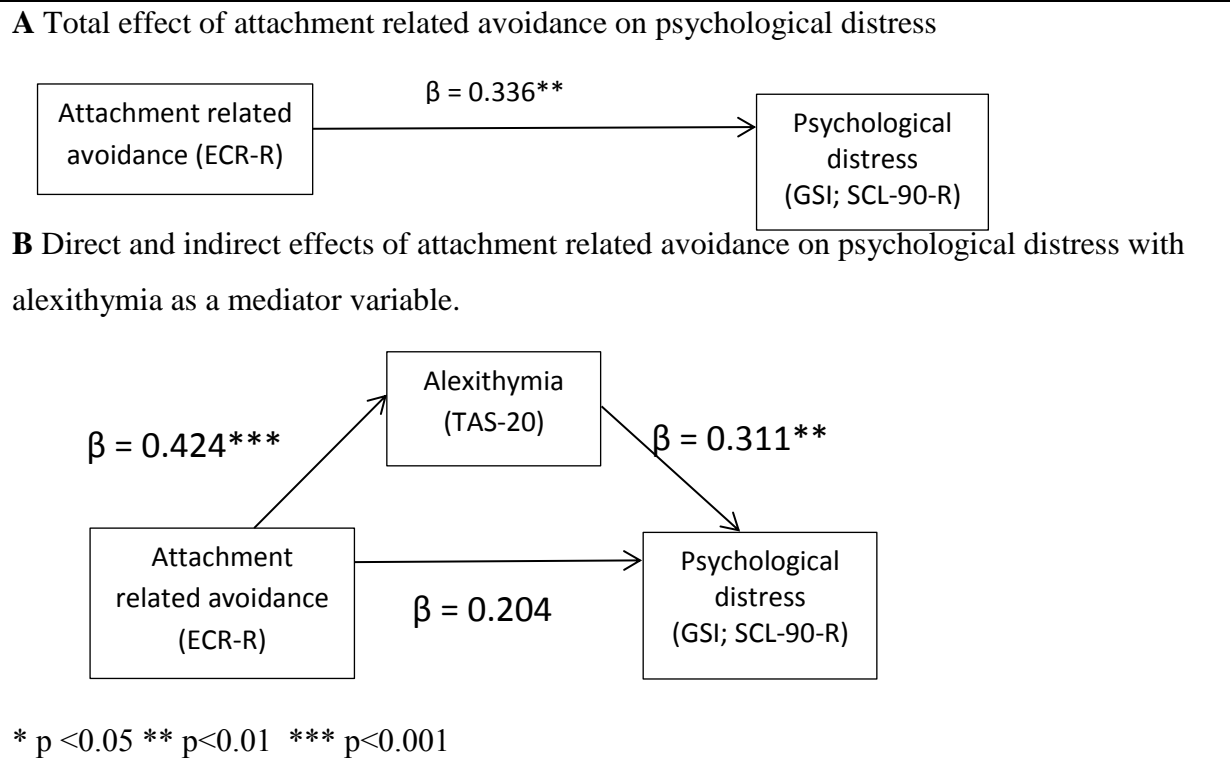
3.9.4 Mediation analyses with attachment related avoidance as the independent variable

The above analyses were repeated with attachment related avoidance as the independent variable ($n=69$). The results are shown in Figure 3.4.

The unstandardized indirect effect (ab) was 0.0048 (0.2601×0.0185) with bias-corrected 95% bootstrap confidence intervals of 0.0015; 0.0097 calculated using 10,000 bootstrap samples. This demonstrates that there is a significant indirect effect of attachment related avoidance on psychological distress with alexithymia as a mediator variable. This implies that alexithymia statistically accounts for some of the relationship between attachment related avoidance and psychological distress. The unstandardized coefficient for the direct effect (c') is 0.0074. The ratio of indirect to direct effect is 0.650.

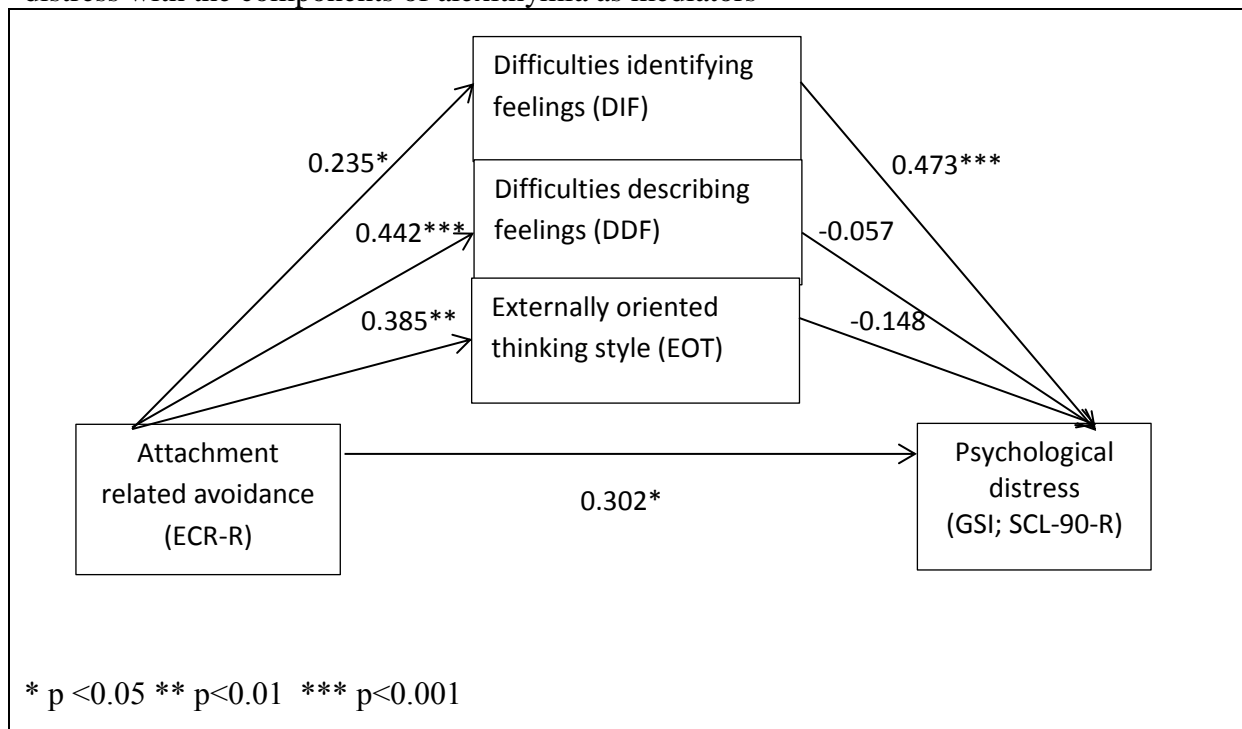
The model in Figure 3.4 accounts for 18.3% of the variance in psychological distress ($\text{Adj } R^2 = 0.183$ $F(2, 66) = 8.605$, $p < 0.001$).

Figure 3.4 Model pathway of the effects of attachment related avoidance on psychological distress with alexithymia as a mediator.



When the subcomponents of alexithymia were included as possible mediating variables, the indirect effect with DIF as a mediator was significant ($ab = 0.0805 \times 0.0504 = 0.00406$, 95% CI 0.0007; 0.0097). The indirect effects with DDF and EOT as mediators were not significant (DDF: $ab = 0.1023 \times -0.0090 = -0.000921$ 95% CI -0.0056; 0.0033; EOT: $ab = 0.0720 \times -0.0288 = -0.00207$ 95% CI -0.0081; 0.0010). Figure 3.5 shows a model of these pathways with standardised coefficients. This model accounted for 26.5% of the variance in psychological distress ($\text{Adj } R^2 = 0.265$ $F(4,62) = 6.934$, $p < 0.001$).

Figure 3.5 Pathway model of the effects of attachment related avoidance on psychological distress with the components of alexithymia as mediators



CHAPTER FOUR - DISCUSSION

This chapter will summarise the findings of the research and explore how they correspond with the existing literature. The implications of the findings for clinical practice and psychological theory will be discussed and the limitations of the study and its findings will be examined. From this, ideas for further research will be outlined.

4.1 Introduction

4.1.1. Study aims

The main aim of the study was to explore whether care-leavers differed from a group of young adults who had grown up with their birth families with respect to measures of alexithymia, attachment security and psychological wellbeing. This aim was developed in the context of existing literature documenting the relative negative outcomes for young people who have grown up in care in multiple aspects of life including academic achievement (DoE, 2012a), crime (Harker, 2012) and mental health (e.g. Ford *et al.*, 2007), and policy developments calling for more individualised and specialised mental health services for care-leavers (NICE & SCIE, 2010). With this in mind, the study aimed to examine the potential of these psychological constructs to provide some understanding of why a significant proportion of care-leavers do less well than their peers. This study built on previous research by comparing care-leavers to a group of young people from more similar demographic backgrounds than the normative samples typically used as comparisons. A secondary aim of the research was to further the understanding of how alexithymia, attachment and psychological distress relate to one another.

This chapter begins by presenting a summary of the study hypotheses and the corresponding findings.

4.1.2 Findings in relation to hypotheses

Hypothesis one: Care-leavers will report higher levels of alexithymia than the comparison group.

This hypothesis was supported by the findings. In particular, care-leavers reported significantly greater difficulties describing feelings.

Hypothesis two: Care-leavers will report higher levels of attachment related anxiety and avoidance than the comparison group.

This hypothesis was not supported by the findings. Care-leavers did not report significantly more attachment related anxiety. Care leavers did report higher levels of attachment related avoidance, with a small to medium effect size difference between the two groups. However, this did not reach statistical significance.

Hypothesis three: Care-leavers will indicate higher levels of psychological distress than the comparison group.

The results of the study did not support this hypothesis; there was no significant difference between the groups with respect to psychological distress.

Hypothesis four: There will be an association between alexithymia and attachment.

This hypothesis was supported by the results in that alexithymia, as measured by the Toronto Alexithymia Scale (TAS-20), was positively correlated with attachment related anxiety and avoidance, as measured by the Experiences of Close Relationships – Revised scale (ECR-R). There were specific relationships between the different dimensions of attachment insecurity and the subcomponents of alexithymia, as described in detail below.

Hypothesis five: There will be an association between alexithymia and psychological distress.

Alexithymia and psychological distress, as measured by the Symptom Checklist 90 Revised (SCL-90-R), were found to be positively correlated, lending support to this hypothesis.

Hypothesis six: There will be an association between attachment and psychological distress.

This hypothesis was supported, as both attachment related anxiety and avoidance were found to be positively correlated with psychological distress.

Hypothesis seven: Alexithymia will mediate the relationship between attachment and psychological distress.

This hypothesis was supported by the findings. In particular, difficulties identifying feelings appeared to account for a significant proportion of the associations between attachment related anxiety and avoidance and psychological distress.

Before the main findings of the study are discussed in more detail, the impact of various demographic variables on the psychological outcome measures will be explored.

4.2 Demographics

Although an attempt was made to target a comparison group who were likely to have similar demographic backgrounds to care-leavers, the two groups did differ on some variables. As previous research has indicated that demographic variables are linked to alexithymia, attachment and psychological wellbeing, their impact in this study was investigated, firstly to determine whether they confounded any between group differences, and secondly to explore whether there were similar effects in a population of young adults in Wales and populations studied in previous research.

4.2.1 Age

Exploring the sample as a whole, there was no association between age and TAS-20 total score, any of its subscales or the prevalence of clinically significant alexithymia ($TAS-20 \geq 61$). This contrasts with previous research which has found that alexithymia, and in particular externally oriented thinking style, tends to decrease with age throughout adolescence and early adulthood (Oskis *et al.*, 2013; Sakkinen *et al.*, 2007). This finding also contrasts with previous studies which have found that the prevalence of clinically significant alexithymia decreases with age through adolescence (Honkalampi *et al.*, 2009; Joukamaa *et al.*, 2007). A lack of association with age in the current study may reflect the fact that, compared to previous research, the sample of participants had a relatively narrow age range. This may be especially true if changes of alexithymia with age represent a cohort effect, as individuals within this age range (16-22) could be thought of as representing the same cohort. Other research suggests that difficulties with emotional regulation may be a natural part of adolescence that decreases as an individual's cognitive and affective developmental stage increases (Sakkinen *et al.*, 2007). As the current study recruited individuals aged 16 upwards, it may be that participants had passed through this stage of development already, and had not yet entered the stage of later adulthood when, some have suggested, alexithymia begins to increase (Mattila *et al.*, 2006; Salminen *et al.*, 1999).

Age was also not related to attachment or psychological wellbeing.

4.2.2 Gender

Although gender was matched across groups, analyses including the sample as a whole were carried out to explore whether the associations with gender found in previous studies were replicated in the current sample. Similar to the findings of Mason *et al.* (2005) with British undergraduates and studies carried out with similar age groups in other countries (Garisch & Wilson, 2010; Montebanocci *et al.*, 2004), there was no significant relationship between gender on mean TAS-20 score. However, in terms of the prevalence of clinically significant levels of alexithymia, the current study found that females were more likely than males to score above the cut off of 61 on the TAS-20 and this is in line with findings from previous research with adolescents (Honkalampi *et al.*, 2009) and British undergraduate students (Mason *et al.*, 2005). These findings are in contrast to studies with relatively older adults which have found that the prevalence of clinically significant alexithymia tends to be higher in men (e.g. Hesse & Floyd, 2011; Mattila *et al.*, 2006). This suggests that, for young females in particular, although they do not generally report more difficulties identifying and regulating their emotions, those who do report problems, report them as more severe. According to the results of research with adults, this effect may reduce or even reverse as people get older, therefore it might be expected that the proportion of females reporting clinically significant alexithymia in the current sample will decrease as they age.

At the subscale level, in concordance with the findings of previous research (Kokkonen *et al.*, 2001; Montebanocci *et al.*, 2004), females in the present study scored significantly higher on the DIF subscale of the TAS-20. This is to say that young females reported significantly more difficulties identifying feelings than males of a similar age. However, unlike previous studies with young adults and adolescents (Montebanocci *et al.*, 2004; Sakkinen *et al.*, 2007), males did not score significantly higher on the DDF or EOT subscales, suggesting that gender was not associated with difficulties describing feelings or with the degree of externally oriented thinking style.

These findings suggest that there may be differences between the genders with respect to the capacity to identify and regulate emotions or differences in their tendencies to report difficulties. One explanation offered for the higher prevalence of clinically significant alexithymia in females, and in particular more difficulties identifying feelings, is that it may be due to cultural influences dictating gender norms about identification and the expression of emotion (Salminen *et al.*, 1999). These cultural pressures may dictate that females are

socialised differently to the experience of emotions, that they have different early experiences or that they compare themselves to different expected standards (Kokkonen *et al.*, 2001), and as such may rate themselves as having more difficulties. The findings may indicate that a concomitant of coming from a deprived socio-economic and/or academic background reduces the protective effect that being female typically has with respect to difficulties describing feelings and externally oriented thinking, or that there is less difference between the ways in which males and females from these backgrounds are socialised to the expression of emotion.

There was no association between gender and reported attachment related anxiety or avoidance. However, gender was associated with psychological distress, with females reporting higher levels of symptomology. This finding is consistent with normative data from the authors of the SCL-90-R for both adult and adolescent non-patients. Again, this may indicate an elevated level of psychological distress in females, or the fact that females are more likely to report difficulties. As difficulty in identifying feelings was an independent predictor of psychological distress, these elevated scores in females may be linked to the increased problems that they report in this component of alexithymia.

4.2.3 Educational achievement

Unlike some previous research (e.g. Mattila *et al.*, 2006, Parker *et al.*, 2003), educational achievement was not related to reported alexithymia in the present study. There was also no association between educational attainment and attachment related anxiety, avoidance and psychological wellbeing. It may be that the range of educational achievement in the current study was too narrow to observe any significant association with psychological outcomes.

4.2.4 Relationship status

Unlike the findings from previous studies (e.g. Mattila *et al.*, 2006), current relationship status was not related to alexithymia or its subscales. However, these previous studies looked at adults and as such the nature of their relationships may be different to those that the young people in the current study were involved in. For example, Mattila *et al.* (2006) compared individuals who were married, single and divorced, whereas the range of relationships in the current study was limited to 'single' or 'in a relationship', with a small number of people cohabiting. The nature of relationships and the implications of being single may also be different at this younger age compared to later in life.

There was however a significant effect of relationship status on attachment related anxiety and psychological distress. This may be a direct effect of relationship status on wellbeing and feelings of attachment-related anxiety, or these variables may influence the desire and ability to initiate and maintain relationships. A third possible explanation is that this association is confounded by other factors.

4.3 Alexithymia

4.3.1 Prevalence

The prevalence of clinically significant alexithymia, as measured by a score of 61 or higher on the TAS-20, for care-leavers (46.5%) and non-care-leavers (34.9%) is higher than the 17.92% reported in a study with British undergraduates (Mason *et al.*, 2005), and notably higher than that found in young adults in Finland (8.2%) (Karukivi *et al.*, 2010), Italy (8.3%) (Montebarocci *et al.*, 2004) and New Zealand (8.8%) (Garisch & Wilson, 2010) despite similar age ranges being examined. The prevalence rates found in the current study were closer to those found in previous studies with clinical samples, for example, 36% in army recruits with depression and/or anxiety symptoms (Triosi *et al.*, 2001), 32.4% in alcohol dependent outpatients (Thorberg *et al.*, 2011) and 47.2% in young offenders (Zimmerman, 2006).

The mean alexithymia scores for both care-leavers and the comparison group were also significantly higher than those found in a previous study with British undergraduates (Meins *et al.*, 2008) and in the TAS-20 adult normative data (Parker *et al.*, 2003). Again, the mean scores in the current study were closer to those reported in studies with clinical populations (e.g. Deborde *et al.*, 2012).

Together these findings may indicate that young people in Britain report more difficulties identifying and regulating their emotions than young people in other countries. This may be due to cultural norms regarding the management or expression of emotions. For example, the clichéd ‘stiff upper lip’ of British culture may mean that infants and young people are exposed to less emotion focussed language and behaviour that is essential for successful development of emotional regulation skills (Taylor *et al.*, 1997). These findings lend support to the need for locally based research and for a consideration of cultural norms.

However, participants in the current sample reported greater difficulties regulating their emotions than were found in the previous British studies (Mason *et al.*, 2005; Meins *et al.*, 2008) and in the adult normative data for the TAS-20 measure (Parker *et al.*, 2003). For care-leavers this appeared to be the case for all components of alexithymia in that they reported significantly more difficulties identifying and describing feelings and a higher level of externally oriented thinking style. For the comparison group in the present sample, the most notable difference between them and undergraduate students (Meins *et al.*, 2008) lay with a more significant externally oriented thinking style. However, as EOT scores are thought to be negatively associated with age through adolescence (Oskis *et al.*, 2008), the relative elevation of the scores on this specific subscale for the comparison group may reflect their relatively younger age compared to undergraduates.

Understanding why the two groups report higher levels of alexithymia than other groups in the general population is complex and there may be several explanations. Firstly, the sample in the Meins *et al.* (2008) study consisted of undergraduates and this represents a different demographic to care-leavers and young people at a community college. For example, they are likely to have come from different socio-economic backgrounds with different learning opportunities and psychological and social environments in the home, and they will have differing levels of education, all of which is likely to impact on their ability to regulate emotions. Little is known about the socioeconomic demographics of the adult normative sample used in Parker *et al.*'s study (2003) but it may be that, as previously suggested (Lane & Schwartz, 1987), alexithymia represents a less mature stage of development and that as such individuals in their late adolescence/early adulthood would be likely to score higher than adults. The findings of the current study may also represent a cohort finding, in that individuals currently in young adulthood are reporting more difficulties regulating emotions than young people in Britain in the past. In line with this idea, as socioeconomic factors are linked to the experience of alexithymia, the fact that Britain is currently experiencing a recession may inflate scores on the TAS-20.

4.3.2 Group differences

As predicted by hypothesis one, care-leavers reported significantly greater levels of alexithymia than the comparison group although this should be interpreted with caution given that it only reached the 95% confidence level in the context of multiple comparisons. With a 95% confidence level, one would expect to find a significant effect in every twenty

comparisons made simply by chance. The fact that multiple comparisons were carried out in the current study therefore increases the likelihood that this finding is a type 1 error and the null hypothesis was incorrectly rejected. However, several factors may explain this significant finding. Firstly, although age and relationship status did not have a significant statistical impact on alexithymia or its subcomponents, it may be that the differences between the groups with respect to these variables impacted on their reports of alexithymia. However, evidence suggests that, for the case of age at least, the younger age of the comparison group is likely to have elevated, not decreased, their reports of alexithymia.

Another possible explanation for the difference between groups is that the relational experiences of care-leavers, both early in their life with caregivers and throughout childhood as they transitioned through the care system, may have impacted on the development of their capacity to regulate emotions. This would be in line with findings that alexithymia in later life is associated with inadequate care-giving as a child (Kooiman *et al.*, 2004; Taylor *et al.*, 1997), childhood neglect and abuse (Kapeleris & Paivio, 2011) and being an unwanted baby (Joukamaa *et al.*, 2003), all factors that are associated with becoming a child in care.

Traumatic early experiences and the disruption of primary care-giving relationships may also have required the young people to become self-reliant in terms of emotional regulation at an early age to manage intense emotions, and this may have led them to strategies such as shutting off from or playing down feelings.

At the subscale level, the difference between care-leavers and the comparison group was significant for the ‘difficulty describing feelings’ subscale, with care-leavers reporting significantly more difficulties. This subscale has been found to be linked to retrospective reports of maternal care (Fukunishi *et al.*, 1997) so that, again, early relational experiences may account for some of the differences between the groups. The disrupted path that care-leavers have through the care-system may also impact on their skills or desires to discuss their feelings with other people. It has been reported that very few young people in care have a consistent positive relationship with an individual throughout their development (Holland *et al.*, 2010). This, paired with neglect, abuse or inadequate care as a child, may mean that care-leavers are less likely to have had the opportunity to develop skills in finding and using words to verbalise their feelings in a trusted relationship.

Previous research has suggested that insecure attachment mediates the relationship between childhood trauma and alexithymia later in life (Carpenter & Chung, 2011). The nature of early experiences may thus have caused the care-leavers in the present study to develop insecure attachment which in turn has impacted on their ability to identify and regulate emotions. This idea fits with the finding that the care-leaver group reported greater attachment related avoidance, although this was not significant. It may be that attachment related avoidance, which is construed as a negative internal working model of others or a down-playing of attachment related emotional reactions (Ravitz *et al.*, 2010), may go some way to explaining why care-leavers report more difficulties describing their emotions in words.

Another possible explanation of why care-leavers reported greater alexithymia is the specific nature of what it is like to be a care-leaver. This cohort of individuals often experience a time of uncertainty as they age-out of care and face the prospect of living independently. Furthermore, this is often associated with transitions from child to adult services and further disruptions to caring relationships as they leave foster homes and are given back the responsibility of managing their own contact with birth families. This may therefore represent a time when early experiences of uncertainty and aloneness are replicated and reinforced and as such emotional responses are heightened. This overall increase in psychological distress may increase the difficulties that young people have with identifying and regulating their emotions.

These findings build on the existing evidence base that demonstrates that children in care display more difficulties in regulating emotions (Barone & Lionetti, 2011; Klee *et al.*, 1997; Pears & Fisher, 2005). This is the first study to replicate these findings in a sample of individuals at the age at which they leave Local Authority care whilst comparing them to a similarly aged group that grew up with birth families with similar demographic backgrounds. This builds on our understanding of the impact that the specific experiences of care-leavers can have on their reports of alexithymia as opposed to comparing them to normative samples that differ on a greater number of variables.

4.4 Attachment

Contrary to hypothesis two, the care-leaver group did not report significantly more attachment related anxiety or avoidance than the young people in the comparison group.

There was also no significant difference between the groups in terms of attachment types. This is in contrast to studies that found that younger children in care were more likely to be insecurely attached (Barone & Lionetti, 2011). However, this previous study compared children in care to a normative sample.

Despite the lack of differences between care-leavers and the comparison group with respect to attachment, both groups reported significantly greater attachment related anxiety and avoidance than that found by Bosmans *et al.* (2010) who carried out research with a group of young adult undergraduate students, also using the ECR-R. Several variables may play a role in explaining why there was no significant difference between the groups in the current study but both report more attachment related anxiety and avoidance than undergraduate students. Firstly, as described above, socio-economic status is thought to determine social values and the psychological environment in which one develops (Salminen *et al.*, 1999) and economic deprivation may impact on the cognitive and behavioural development of children (Duncan *et al.*, 1994). The nature of familial environments is also thought to impact on relationships with caregivers which are known to determine the development of attachment style (Bowlby, 1973). As individuals in care are more likely to come from deprived backgrounds, it may be that these socioeconomic and early relational factors go some way to explaining why this group of people present with greater attachment insecurity than groups of normative data. If this is the case, the lack of difference in the current study may be due to a much smaller variation between groups with respect to these socio-economic variables. This may imply that variables associated with being taken into care (e.g. coming from a more socially deprived background) have greater impact on the relative insecurity of attachments than the experience of being taken into care per se.

Secondly, the age of the current sample may explain why the findings of studies with younger children in care have not been replicated. Adolescence and young adulthood together represent a time of transition from attachment to primary caregivers to attachment to a wider variety of individuals including peers and romantic partners. Also, more instability may be associated with romantic relationships at this time compared to later in life. These factors may inflate reports of attachment insecurity and therefore may mask any differences between the groups.

Exploration of the study data demonstrates that, although not significant, there was a small to medium effect size difference between the care-leaver group and the comparison group in terms of attachment related avoidance (this approached significance with $p = 0.055$). The attachment related avoidance reported by the comparison group lay in between the higher level reported by the care-leaver group and the lower level reported by the undergraduates in Bosmans *et al.* (2010) study. With respect to attachment related anxiety, however, both the care-leaver and comparison group report a similar level, both scoring significantly higher than the undergraduates in Bosmans *et al.*'s (2010) study. Factors specifically associated with being taken into care may therefore be linked to the development of attachment related avoidance in particular. For example, early experiences typified by abuse and neglect, the early disruption of the care-giving relationship and a lack of consistent attachment figure throughout development may be associated with higher attachment related avoidance.

4.5 Psychological distress

In contrast to hypothesis three, care-leavers did not report significantly more psychological distress than the comparison group. This is unlike numerous studies that have found that individuals in and leaving care have poorer psychological wellbeing than those who grew up with their birth families (e.g. Ford *et al.*, 2007; Stein, 2006a). However, both groups in the current study reported significantly higher distress than the normative adult sample of the SCL-90-R (Derogatis, 1994). When the findings were compared to the adolescent normative sample, however, (who represent a younger age range than that used in the study), the differences were smaller and retained a small effect size for the care-leaver group only but did not reach significance.

These findings suggest that reported psychological distress is in part determined by age, with adolescents and young adults reporting more than adults, and this could provide some explanation for why there was no significant difference between the two groups as would be expected, given that the comparison group is younger. However, an ANCOVA was carried out, entering age as a covariate, and the difference between the groups remained non-significant.

As discussed above with reference to attachment security, if the relatively poor psychological wellbeing of care-leavers is a result of socio-economic variables associated with their early and current lives, comparing them to a group of young people from similar backgrounds is

likely to reduce the group differences. This may offer some explanation as to why the current study does not replicate the research comparing care-leavers to normative samples.

These findings therefore suggest that the relative negative outcomes for care-leavers in terms of psychological wellbeing may in part be accounted for by socio-economic factors as opposed to the specific experience of being taken into care. However, it may be that the care-leavers, who have higher levels of attachment related avoidance, are more likely to under report or to not report accurately their level of psychological distress. This may mask differences between the groups.

Socio-economic factors such as early developmental experiences, education and relative economic deprivation may explain why the current sample reported more distress than the general population. This may also represent a generational effect, where the current cohort of young adults is experiencing greater distress than previously. This suggestion is in line with research demonstrating that current adolescents are experiencing more emotional and behavioural problems than those reported in previous generations (Collishaw *et al.*, 2004) and the fact that there has been an increase in suicides amongst late adolescents and young adults, with this now representing one of the most common forms of deaths for this age group (Wasserman *et al.*, 2005). Estimates of the proportion of young people who had ever thought about killing themselves range from 15.8% (Kidger *et al.*, 2012) to 29.9% (Evans *et al.*, 2005) and this topic has become particularly relevant in south Wales recently with the publicised increased suicide rates amongst teens in the area. In the current sample, 17.6% of participants disclosed that they had had thoughts of taking their own lives in the 7 days prior to filling in the questionnaire. However, these figures do not provide an accurate comparison, as previous studies present data about individuals who have ever thought about suicide whilst the measure used in the current study limits it to having had such thoughts ‘in the last week’.

4.6 Impact of care –leaver variables

Due to the incomplete nature of the information provided for care-leavers, limited conclusions can be drawn regarding the impact of care-related variables. However, age at entering care was not associated with alexithymia and its subscales, attachment related anxiety and avoidance or psychological distress. The care-leavers in the current sample represented a group of people who entered care at a much older age than those included in previous studies that found a relationship between age and attachment (Dozier *et al.*, 2002).

4.7 Relationships between variables

As there were a small number of significant differences between the groups with respect to alexithymia, attachment and psychological distress, the data from the sample as a whole was explored when determining the relationships between these psychological constructs.

4.7.1 Alexithymia and attachment

In support of hypothesis four, alexithymia was found to be positively correlated with attachment related anxiety and attachment related avoidance. This is in line with studies that have found links between attachment and emotion regulation in children (e.g. Sroufe, 2005; Steele *et al.*, 1999) and between alexithymia and concurrent attachment security in adults (e.g. Montebanocci *et al.*, 2004; Weardon *et al.*, 2003).

This may reflect a developmental progression from the finding that young children who are securely attached are more able to identify and regulate sensations of emotions than those who are insecurely attached, with insecurely attached individuals more likely to inhibit or magnify emotional reactions (Crittenden, 2006). It may be that the associations in the current findings are partly due to the influence that early relational experiences have on both attachment style and capacity to regulate emotions. In terms of adult relationships, this suggests that those who feel insecure in their romantic relationships are less likely to be able to regulate emotions effectively and as such are more likely to experience difficulties such as alexithymia. It may be that the young adults in the current study who feel less secure in their attachment relationships are less able to use introspection to effectively self-regulate emotions, as is proposed in infants (Liotti & Gilbert, 2011).

In terms of alexithymia components, the pattern of associations was concordant with that found in British undergraduates (Mein *et al.*, 2008) in that attachment related anxiety was significantly positively correlated with difficulties identifying feelings and difficulties describing feelings. An understanding of the concept of attachment related anxiety may offer some explanation for this association. For example, this type of insecure attachment is thought to be associated with heightened emotional reactions and extreme emotional behaviours (Mikulincer *et al.*, 2003) and it is thought that this may be detrimental to the identification of physical sensations as emotions and the differentiation between emotions (Meins *et al.*, 2008; Oskis *et al.*, 2013). Furthermore, as attachment related anxiety is thought to reflect an internal working model of oneself as someone who is likely to be rejected or

abandoned, the opportunities in which one would feel comfortable to practice verbalising feelings to others may be reduced. This is in line with Feeney's (1999) suggestion that individuals with anxious-ambivalent type attachment may be less likely to express feelings in romantic relationships through fear that they will be rejected. Furthermore, the type of early environment that is likely to create or enhance anxious styles of attachment is often one in which the parent is scary or unpredictable but who can, on occasion, respond to the child. In this environment, therefore, the infant's emotions are likely to be noticed, but the responses of the caregiver are not likely to be consistent in a way that would enable the infant to identify, describe and make sense of them.

Attachment related avoidance was significantly positively correlated with all three components of alexithymia but was most closely associated with difficulties describing feelings and externally oriented thinking style. Again, an understanding of what attachment related avoidance represents may help to explain this association. For example, it is thought that this type of insecure attachment includes having a negative internal model of others (Bartholomew & Horowitz, 1991), feeling generally uncomfortable about being close to others and a deactivation of attachment behaviours (Ravitz *et al.*, 2010). It is therefore understandable that individuals who report high levels of attachment related avoidance are less likely to feel comfortable or be practised at verbalising their feelings to others. In line with the deactivation of attachment behaviour, attachment related avoidance is also thought to represent a purposeful avoidance of attachment related threat and the suppression of emotions associated with it. This may make differentiation between emotions more difficult. It also may be intuitive that individuals who report high levels of attachment related avoidance are more likely to engage in a thinking style that focuses on the outside operational world rather than the internal subjective world as an attempt to avoid feelings altogether. Furthermore, individuals with avoidant style attachment tend to be hypervigilant to the outside world to monitor for threats because caregivers may have been a source of threat or unpredictability in the past. Therefore, the external world is a more potent reinforcer as it is associated with significant consequences such as hurt, pain and punishment.

Alternatively, the association between alexithymia and attachment may be due to the fact that individuals who have difficulties regulating their emotions find it more difficult to develop secure attachments. This idea fits with the proposal that the communication and co-regulation of emotions in relationships is part of the procedure for developing secure attachment

(Scheidt & Waller, 2002). Additionally, identifying and describing felt attachment requires introspection (Oskis *et al.*, 2013) and as such those with externally oriented thinking styles may be less able to report this.

With respect to attachment type, it was found that those who were identified as having fearful avoidant style attachment reported significantly higher levels of alexithymia than those who were identified as being securely attached. In particular, those identified as having fearful avoidant style attachment reported significantly greater difficulties identifying and describing feelings than securely attached individuals. It may be that individuals who have developed secure styles of attachment are more able to identify and communicate emotions because they have had more positive social experiences through which they developed skills both in co-regulation, and autonomous regulation of affect. It is thought that fearful avoidant individuals have negative internal working models of themselves with a hyperactivation of emotional reactions, as well as negative internal models of others. Together this may lead individuals to have more difficulties in differentiating emotions whilst also being less practiced in verbalising their feelings to others.

The pattern with respect to the externally oriented thinking style subscale was different in that individuals identified as having preoccupied styles of attachment reported the lowest mean score and one which was significantly lower than those who were identified as having fearful/avoidant style attachment. As preoccupied attachment style is thought to represent a negative model of self, a preoccupation of the self in relation to others and a hyperactivation of emotional responses (Ravitz *et al.*, 2010), these individuals may be more focussed on internal subjective worlds, and therefore would be less likely to have an externally oriented, operational style of thinking. Those with dismissive and fearful style attachments reported the greatest externally oriented thinking styles and this may be due to the higher level of attachment related avoidant behaviours.

Although only approaching significance, there was a pattern such that individuals identified as having preoccupied or fearful avoidant type attachment were more likely to report clinically significant levels of alexithymia ($TAS-20 \geq 61$) than those who were identified as having secure or dismissive style attachment. This pattern was similar to that found by Triosi *et al.* (2001) with respect to alexithymia and attachment in young adult men. This finding may indicate that attachment related anxiety is particularly significant in predicting clinically

high levels of alexithymia. This is in line with Oskis *et al.*'s suggestion (2013) that those who fear separation, as in the case of those with preoccupied and fearful avoidant style attachments, may be less autonomous and less likely to have developed skills in self-regulation. Also, maintaining this reliance on others for emotional regulation is a form of proximity seeking in that it may serve the function of keeping others close.

This finding may also suggest that, for individuals who do not have secure attachment, a dismissive style may in fact protect against the experience of clinically high levels of alexithymia. However, the literature review suggested that the social and psychological outcomes for people with this type of attachment remain significantly poorer than for those with secure attachment (e.g. Stein *et al.*, 2002). It may be, therefore, that the current finding reflects a propensity of individuals with dismissive style attachment to underreport indices of distress or difficulty because they see sharing feelings with others, or proximity seeking, as a threat associated with punishment or negative consequences. To get a greater understanding of the role of a dismissive style of attachment it may be useful to use implicit association methodology in future research to negate the possible impact of underreporting.

4.7.2 Alexithymia and psychological wellbeing

As predicted by hypothesis five, total alexithymia score was correlated with psychological distress: higher alexithymia scores were associated with greater psychological distress. This is in line with the findings of previous research that used the TAS-20 and the SCL-90-R with general population samples (Grabe *et al.*, 2004; Guttman & Laporte, 2002). In terms of the subscales of alexithymia, only DIF and DDF scores were significantly correlated with psychological distress; there was no significant relationship with EOT scores. In regression analyses, when all variables that correlated with psychological distress (TAS-20, DIF, DDF, attachment related anxiety and attachment related avoidance) were added as predictor variables, only DIF emerged as a significant predictor of psychological distress and this is similar to the findings of Grabe *et al.* (2004). This suggests that the ability to identify and differentiate between feelings plays a key role in maintaining psychological wellbeing.

These findings are in accord with the suggestion that emotions provide information that is important for the maintenance of physical and psychological wellbeing (Leahy *et al.*, 2011). Individuals who are unable to correctly identify, interpret and communicate feelings may be

less able to successfully manipulate their surroundings, and themselves in the context of their surroundings, for their own benefit.

An alternative explanation of this association is that experiencing greater psychological distress makes regulation of emotions more difficult.

In terms of suicidal ideation, in line with previous research (Hintikka *et al.*, 2004), individuals who identified thoughts of taking their own lives in the seven days prior to completing the questionnaires scored significantly higher on the TAS-20 and all of its subscales. This suggests that supporting individuals to develop effective strategies to regulate emotions may be one way to reduce the likelihood that young people will contemplate taking their own lives.

4.7.3 Attachment and psychological wellbeing

In line with hypothesis six, the results suggest that attachment security is significantly associated with feelings of psychological distress. The findings are in line with previous research that found positive correlations between attachment security and psychological wellbeing (Stein *et al.*, 2002) and positive correlations between both attachment –related anxiety and attachment related avoidance with psychological distress (Bosmans *et al.*, 2010). In terms of attachment type, the results showed that those who were identified as having fearful/avoidant style attachment reported significantly greater psychological distress than those who were identified as securely attached.

Together these findings suggest that having both negative internal working models of oneself and of other people may be especially detrimental to one's psychological wellbeing or, alternatively, that those with poorer psychological health find it harder to develop secure attachments whilst in romantic relationships. Stein *et al.* (2002) suggest that those with fearful avoidant type attachment styles are unlike dismissive and preoccupied individuals in that they do not have a coherent strategy to manage their feelings of insecurity and, whilst they avoid closeness, they still long for it. This may explain why these individuals report the highest degree of psychological distress.

The developmental stage of the sample in the study may also account for some of the relationship found between attachment and distress. Adolescence/early adulthood is a time

when the focus of attachment behaviour transfers from parents to peers and romantic partners. It may therefore be the case that, for individuals with unresolved attachment issues, the increased relationship instability associated with this stage of life may especially cause more distress. The constant worrying associated with attachment related anxiety may cause more distress whilst the avoidance of emotions may prevent their successful regulation and the solving of problems.

Previous research has found that individuals with dismissive type attachment may be less likely to report psychological distress than those identified as having preoccupied type attachment (Scott-Brown & Wright, 2003). It was thought that this may be associated with the deactivating strategy of downplaying affective experience. However, in the current study there was no significant difference between these two attachment types with respect to reported distress. These findings are similar to that of Stein *et al.* (2002) who found that people with both dismissing and preoccupied type attachments reported more psychological distress than secure individuals, although these findings were not significant in the current study. It is suggested that the ‘extreme independence’ associated with a dismissive style of attachment may protect individuals from the experience of interpersonal threat but may, however, be detrimental to more general psychological wellbeing (Stein *et al.*, 2002). The findings in the current study may have been influenced by the use of a median split to determine the attachment classification of participants. If participants had been compared to the general population they may have fallen into different categories.

When alexithymia was controlled for using an ANCOVA, the association between attachment type and psychological wellbeing was no longer significant. This suggests that the ability to regulate emotions may moderate or mediate the relationship between attachment insecurity and psychological distress.

4.7.4 Mediation analyses

The mediational analyses demonstrated that alexithymia partially mediated the relationship between attachment related anxiety and psychological distress and the relationship between attachment related avoidance and psychological distress. In particular, difficulties identifying feelings was found to be a significant mediator of both relationships.

This suggests that a reduced capacity to identify and differentiate emotions may partially explain why individuals with insecure attachment report more psychological difficulties. These findings may be a developmental continuation of early relationships in which attachment insecurity with the caregiver may impede the successful development of capacity to identify emotions. Alternatively, insecurity in current adult relationships may be detrimental for emotional regulation through its impact on the ability to use introspection for emotional awareness. Whether they represent a longitudinal transactional relationship or a more short term impact, these findings suggest that the difficulties identifying emotions that are associated with insecure attachment may make the experience of psychological distress more likely and more severe. For example, it appears that both the hyperactivation of emotional responses associated with attachment related anxiety and the deactivation associated with attachment related avoidance, may both make successful identification of feelings more difficult and that this in turn may restrict one's ability to regulate the emotion appropriately or to solve the problem that the emotion is associated with, hence causing psychological distress to remain or develop. These findings are consistent with others that suggest that secure individuals are less likely to experience distress because they are more able to use introspection to identify and manage emotions (Deborde, 2012).

Although mediational analyses offer greater exploration of relationships between variables, they do not establish a direction of causality. It may therefore be that those with higher distress are less able to develop secure attachments because they find it more difficult to regulate emotions.

4.8 Limitations

4.8.1 Methodology

As the study was cross-sectional in nature, the causal relationships between the variables measured can only be hypothesised. It appears that alexithymia and attachment dynamically influence each other throughout the life course and this idea is concordant with transactional models of the development of emotional dysregulation. For example, Linehan (1993) suggests that individual vulnerabilities that may be due to underlying biology or early experiences transact with the social environment in the development of emotion regulation skills. Linehan (1993) suggests that if individual vulnerabilities interact with an 'invalidating' social environment, difficulties with emotion regulation are more likely. Similarly, Kokkonen *et al.* (2003) suggests that the development of alexithymia in particular is a transactional

process between emotional regulation and relational environment. More longitudinal research is needed to explore how these transactional processes occur throughout development and how and when interventions may be beneficial.

4.8.2 Removal of outliers

The outlying data points were removed to prevent distortion of the mean scores. However, the key analyses were also carried out with these data points included to assess the impact that the removal had. In terms of the differences between the groups, one-tailed analyses remained significant with respect to overall alexithymia (TAS-20) and difficulties describing feelings (DDF) with care-leavers scoring higher on both. However, the difference between the groups with respect to externally oriented thinking style (EOT) also became significant, again with care-leavers scoring significantly higher than the comparison group. The differences between the groups with respect to attachment related anxiety and psychological distress remained non-significant in these analyses. However, attachment related avoidance became significant, with care-leavers reporting significantly more than the comparison group. The understanding of this difference between the groups with respect to attachment related avoidance has been discussed above. Including outliers in the bivariate correlational analyses between the variables did not have a noteworthy effect on the findings.

4.8.3 Constructs

The literature appears to be unclear about what the term ‘alexithymia’ represents. Some authors conceptualise it as a personality construct normally distributed in the population (Parker *et al.*, 2008) whilst others use the term to denote a cognitive-affective disorder (Salminen *et al.*, 1999). Similarly with attachment, researchers and clinicians are divided on whether this is best conceptualised along dimensions or as attachment types. There also appears to be a degree of conceptual overlap between attachment and alexithymia, in particular the ‘difficulties describing feelings’ component, in that they both consider the ability to co-regulate feelings of affect in relationships with other people. A relative strength of the current study was that it examined alexithymia and attachment both dimensionally and categorically and explored the hypothesised subscales of alexithymia separately. However, this lack of theoretical consensus on the latent content of these psychological phenomena causes difficulties in determining the true nature of their inter-relationship.

4.8.4 Population

As the young people who took part in the study were those who were willing to give up their time to complete the questionnaires, this may not accurately represent the populations they were sampled from. Although it is noted that few young people, both at the college and as care-leavers, refused to take part in the study, for the care-leavers in particular it may have been the case that those approached by the care-leaver teams were those deemed more likely to take part.

Reading the information sheet and completing the questionnaires required a certain level of cognitive functioning and as such placed a restriction on those who could take part. Young people who did not have a sufficient level of understanding to be able to provide informed consent and fill out the questionnaires accurately were unable to participate. The results therefore may only represent findings for care-leavers and other young people above a certain level of functioning; the findings for those with a lower level of functioning may be different.

A further limitation of the study was a lack of an explicit measure of socioeconomic status. This tends to rely on either measures of parental income for children or participant employment in adults, neither of which are applicable for care-leavers. The current study used educational achievement as a marker of socioeconomic status but, given the apparent significance of socio-economic variables and their associations with the psychological outcomes measured, future research should use alternative methodology to more accurately estimate socioeconomic variables. In terms of diversity, ethnic origins other than 'White British' were underrepresented in the sample so generalisation of the findings across a more diverse population may not be possible.

Although individuals could not take part in the comparison group if they had spent any time in care whilst growing up, no more information was collected about their childhood. Therefore, the nature of the early experiences of these young people is unknown. Furthermore, although social services hold some information regarding young people's time in care, the current study was unable to attain sufficient accurate data to allow for statistical analyses. Research employing longitudinal methodology would allow for greater understanding of the impact of variables associated with care such as age of entering the care system, reason for being in care and number of placements.

The ECR-R is a measure of romantic attachment and, as such, young people who had not been in an intimate relationship were unable to complete it. Although these participants were not excluded from the study altogether, this means that the findings concerning attachment only represent young people who have been in at least one relationship that they considered close. These individuals may not be representative of the young adult population in general. Although it is suggested that measures of general attachment across different types of relationships may not be suitable (Ravitz *et al.*, 2010), a measure of peer-relationship attachment may have enabled all participants to provide information about attachment security.

4.8.5 Measures

The study is limited by its use of self-report measures. Although the measures selected are widely used in peer reviewed literature, it is suggested by some that the use of multiple methods including observer rating scales for both alexithymia and attachment would provide more reliable results (Taylor *et al.*, 2000). By definition, alexithymia represents difficulties in introspection and identification and description of feelings. Therefore, individuals with high levels of alexithymia may be limited in their ability to complete self-report measures reliably (Lane *et al.*, 1998). Furthermore, individuals who are typically avoidant in attachment relationships may be less likely to identify and report psychological and social difficulties in line with the ‘deactivating strategy’ theory (Scott Brown & Wright, 2003).

The ECR-R has been criticised for the awkward syntax of some questions (Ravitz *et al.*, 2010). Interpreting items such as “I do not often worry about being abandoned” may cause some difficulty for young people, especially those with lower academic abilities. Similarly, it was observed that some items on the TAS-20 were cognitively challenging, especially for younger participants or for those at a lower educational level. For example “looking for hidden meaning in movies or plays distracts from their enjoyment” and “I prefer to analyse problems rather than just describe them”. Although the researcher was able to help participants to interpret these questions, this may have led to some inconsistency in the data. The EOT subscale of the TAS-20 has also been criticised for having less robust psychometric properties (Kooiman *et al.*, 2002).

As the ECR-R does not have any standardised recommendations for transforming dimensional scores into attachment ‘types’, in the current study this was carried out by

dividing the data into ‘high’ and ‘low’ groups using the median value. This method allows comparison between the participants in the study but is not an accurate depiction of how a participant’s attachment security may compare to others in the general population.

4.9 Conclusions and implications

4.9.1 Summary of findings

Based on previous findings it was expected that a group of care-leavers would present with higher levels of alexithymia, attachment insecurity and general psychological distress than a group of college students who had grown up with their birth families. Although a significant difference was found with respect to alexithymia and the difficulties describing feelings subscale in particular, there was no significant difference between these groups in terms of psychological distress and attachment related anxiety, and the difference in attachment related avoidance only approached significance. However, both groups presented with greater alexithymia, attachment insecurity and psychological distress than normative samples or undergraduate university students. Several reasons may account for this such as socio-economic background and concomitants (e.g., educational achievements, early psychological environment in the home and/or learning opportunities), generational effects and the impact of current socio/economic pressures.

The experience of being in care, or the trauma often experienced beforehand, may account for the differences between the groups with respect to alexithymia, in particular difficulties describing feelings, and attachment related avoidance. However, other factors such as age, relationship status or variables not measured in the study may also contribute to these group differences.

In terms of the relationships between the variables, this study builds on the existing evidence for an association between attachment security and alexithymia. In particular, it seems that attachment related anxiety is associated with greater difficulties identifying and describing feelings whilst attachment related avoidance is more associated with difficulties describing feelings and a more significant externally oriented thinking style. With respect to psychological wellbeing, the results suggest that this is significantly predicted by difficulties identifying feelings. The mediational analyses suggest that alexithymia may account for some of the relationship between attachment related anxiety and avoidance and psychological

distress. Difficulties identifying feelings in particular may have a significant mediational role in the effect of attachment insecurity on psychological distress.

4.9.2 Implications for clinical practice

With respect to the specialist services that focus on the mental health of care-leavers, these results suggest that working with individuals to alleviate alexithymia and to develop more secure attachments may have positive effects on their psychological wellbeing.

In terms of attachment, care-leavers may find it especially difficult to engage with and trust a therapist as they are more likely to have higher levels of attachment related avoidance and an associated deactivating response to emotions. It would be important therefore that individuals working with care-leavers do this in the context of a trusting therapeutic relationship that attempts to challenge the young person's negative internal models of themselves and of others. It is thought that a focus of attachment-based therapy should be the provision of a secure base, in the form of the therapist, which allows the person to connect with and understand their internal world (Kobak & Madsen, 2008). This type of therapy may reduce the negative outcomes experienced by care-leavers that are known to be associated with insecure attachment, including conduct disorders (Sroufe, 2005), mental health difficulties and interpersonal difficulties (Scott-Brown & Wright, 2003).

In terms of helping the development of a secure attachment, it has been suggested that early preventative interventions may be most effective. However, due to economic and political pressures, reactive individualised interventions are the predominant model for work with young people in care (Scott, 2011). Mallinckrodt and Wei (2005) suggest that the mediators of the link between attachment and wellbeing may be appropriate foci for these types of therapeutic interventions. The results of the current study suggest that supporting care-leavers to develop skills in emotional awareness and regulation may have beneficial effects in terms of their general psychological wellbeing. Previous research has also shown that therapy that focuses on improving emotional awareness and imagination is beneficial for those with high alexithymia. Care-leavers, who appear to have higher levels of alexithymia than the general population, may therefore receive greater benefits from this type of 'skills building' intervention than from a more interpretative style of therapy.

As it has been demonstrated that foster parents play an important role in the psychological and social wellbeing of young people in care, indirect therapeutic interventions that target their ability to provide a secure base and promote emotional awareness in these young people may also be beneficial.

The results of the current study suggest, however, that these types of intervention may not only be beneficial for young people in care and leaving care. The findings suggest that other groups of young people, such as those from socially deprived areas or with lower educational achievements, may experience more difficulties than young people in the general population with respect to alexithymia, attachment and overall psychological wellbeing. This suggests that all young people from these backgrounds may benefit from support to develop their capacity to regulate emotions and to develop more secure attachments. A better understanding of which specific factors associated with relative socioeconomic deprivation have the greatest effect on these psychological constructs may allow the development of more general preventative interventions as well as effective individualised therapy.

4.9.3 Implications for theory

The results of the current study suggest that the theoretical frameworks of alexithymia and attachment may offer some understanding of the relatively poor social outcomes of young people who have grown up in care. The difficulties that these individuals have verbalising feelings and their propensity towards attachment related avoidance are known to be linked to early traumatic experiences. Specifically, childhood abuse and neglect, social deprivation and the interruption of the attachment relationship with the primary caregiver may impact upon the attachment security and capacity to regulate emotion of young people in care. This may then be reinforced by the often disrupted journey through the care system and the inconsistent relationships that the young people have with those around them whilst growing up. These difficulties in regulating emotions are known to be associated with problems in mental health, interpersonal relationships and academic achievement. Furthermore, individuals with these difficulties are more likely to attempt to regulate feelings of affect through external means such as alcohol misuse and self-harm. These psychological phenomena therefore may represent a pathway through which the early negative experiences of care-leavers continue to have detrimental effects throughout their lives.

These findings contribute to the existing understanding of the importance of attachment and emotional regulation in psychological wellbeing. In terms of the effect of attachment, the results suggest that both attachment related avoidance and attachment related anxiety can be detrimental to mental health. Furthermore, it appears that these may combine with an additive effect in young adults, so that a fearful/avoidant style of attachment, which includes high attachment related anxiety and avoidance, is especially predictive of psychological distress. In particular, the results of the mediational analyses provide one interpretation of how attachment insecurity may be detrimental to psychological well-being. These findings suggest that individuals with insecure attachments may have more difficulties identifying and differentiating feelings of affect, and that this is detrimental to psychological wellbeing.

The findings also build on the understanding of the impact of demographic variables on alexithymia in young adults.

4.10 Future research

More research is needed to explore the specific psychological needs of care-leavers and how these may underpin their relatively poor social outcomes. There is a growing body of research exploring the wellbeing of younger children in care, but there is little that specifically looks at this older age group despite evidence that this is a time of increased risk. In particular, more research is needed to compare this cohort to individuals from more socially deprived backgrounds as opposed to normative samples or undergraduate students. This will allow greater understanding of the specific impact that early trauma and a childhood in care can have on wellbeing and development as opposed to the impact of more general deprivation.

Given the limitations of the study it may be beneficial for future studies to explore similar concepts using different methodological approaches. For example, longitudinal studies could map the development of attachment and emotion regulation throughout childhood and how these impact on psychological wellbeing in later life. Such studies require high levels of resources but would be able to capture in more detail the nature of participants' early experiences and explore their subsequent influence. Similarly, future research may benefit from using observational assessments of alexithymia and attachment to triangulate with the findings of self-report measures.

As described above, some aspects of the current sample may imply that they are not representative of the care-leaver population or young people in general. Future research is needed to replicate these findings in more ethnically diverse groups of young people, in those that have not had romantic relationships and in those with lower cognitive functioning.

Further research would also do well to continue to explore how different types of interventions may work to reduce alexithymia and insecure attachment experienced by young people and in turn how this may help to alleviate psychological distress. For example, therapeutic interventions that focus on attachment related principles have produced positive outcomes for young people in foster care (Scott, 2011). However, the results of this study indicate that these types of interventions may also be helpful in targeting distress experienced by all young people from more deprived areas, not just those who have grown up in care. The findings of the current study outline a need for further research to guide policy and service developers on how they can best support the psychological needs of all young people.

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Appendix A

Search terms and databases used for the review of the literature.

Attachment related search terms:

Attachment, parental bonding, parenting style, mother Child relations (expanded), early childhood development (expanded), inner working models, parent child relations (expanded), family relations (expanded), family relationships, parental bonding, parenting style (expanded).

Alexithymia related search terms:

Affect regulation, affect dysregulation, alexithymia (expanded), emotion\$ intelligence, emotion\$ literacy, emotion\$ regulation, emotion\$ dysregulation, emotion\$ understanding, emotion\$ development.

Care-leaver related search terms:

adoption breakdown, adopted children (expanded), aging out of care, care leaver\$, childhood in care, children leaving care, child welfare, experiences of leaving care, foster care, foster children (expanded), looked after children, social care, social services, young people leaving care,

Databases:

Cardiff University Full Text Journals, Embase, AMED, Ovid MEDLINE, PsycINFO and PsycArticles.

Appendix B

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

| | Item No | Recommendation |
|------------------------------|---------|---|
| Title and abstract | 1 | (a) Indicate the study's design with a commonly used term in the title or the abstract. (b) Provide in the abstract an informative and balanced summary of what was done and what was found. |
| Introduction | | |
| Background/rationale | 2 | Explain the scientific background and rationale for the investigation being reported. |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses. |
| Methods | | |
| Study design | 4 | Present key elements of study design early in the paper. |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection. |
| Participants | 6 | (a) Give the eligibility criteria, and the sources and methods of selection of participants. |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable. |
| Data sources/ Measurement | 8* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. |
| Bias | 9 | Describe any efforts to address potential sources of bias. |
| Study size | 10 | Explain how the study size was arrived at. |
| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why. |
| Statistical methods | 12 | (a) Describe all statistical methods, including those used to control for confounding. (b) Describe any methods used to examine subgroups and interactions. (c) Explain how missing data were addressed. (d) If applicable, describe analytical methods taking account of sampling strategy. |

(e) Describe any sensitivity analyses.

Results

| | | |
|------------------|-----|--|
| Participants | 13* | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed. (b) Give reasons for non-participation at each stage. (c) Consider use of a flow diagram. |
| Descriptive data | 14* | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders. (b) Indicate number of participants with missing data for each variable of interest. |
| Outcome data | 15* | Report numbers of outcome events or summary measures. |
| Main results | 16 | (a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included. (b) Report category boundaries when continuous variables were categorized. (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period. |
| Other analyses | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses. |

Discussion

| | | |
|------------------|----|---|
| Key results | 18 | Summarise key results with reference to study objectives. |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias. |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence. |
| Generalisability | 21 | Discuss the generalisability (external validity) of the study results. |

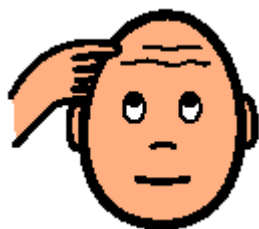
Other information

| | | |
|---------|----|---|
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based |
|---------|----|---|

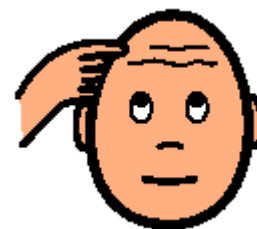
*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

Appendix C



Would you like to take part in some psychology research?



For your time you will be entered into a prize draw with the chance to win £20 worth of high-street vouchers

- ✚ We would like to recruit people between the age of 16 and 22 to take part in our research.
- ✚ We will ask you to fill out some questionnaires about your thoughts, feelings and relationships.
- ✚ All the answers will be kept confidential.
- ✚ It will take no more than 1 hour.
- ✚ We will be recruiting two groups of young people – those who have spent time in care whilst growing up, and those who have not.
- ✚ We hope the results will help us understand how services can best support young adults leaving care.
- ✚ As well as being entered into the prize draw we will refund any travel expenses for taking part in the study.
- ✚ If you are interested we can give you an information sheet with more details or you can contact the researcher directly kellypaul@hotmai.com

Thank you!

Appendix D



SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY **CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL**

PARTICIPANT INFORMATION SHEET

Version 4 14/08/2012

Alexithymia, attachment and psychological well-being in young adults leaving care

Researcher: Kelly Paull, Trainee Clinical Psychologist, Postgraduate Student.

Supervisors: Dr. Liz Andrew, Consultant Clinical Psychologist.

Professor Neil Frude, Consultant Clinical Psychologist.

Contact: South Wales Doctoral Programme in Clinical Psychology
11th Floor, School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff,
CF10 3AT *removed for confidentiality*

kellypaull@hotmail.com; Kelly.paull@wales.nhs.uk

We would like to invite you to take part in our research study. Before you decide if you want to take part we would like you to understand why the research is being done and what it would involve for you. This information sheet provides a description of the study, please read it carefully and feel free to discuss it with others. Those aged between 16 and 18 may like to discuss taking part in the study with their parents, carers or guardians. Please ask questions about anything that is unclear or if you would like to know more about the study.

What is the purpose of the study?

For professionals to provide useful services to young people leaving the care system, they need to know more about what these people want and need. Being in care can have positive and negative effects on a person's life and this study aims to investigate these. It will explore whether young people leaving care score differently on measures of emotional and psychological well-being to young people who have not spent time in care.

Why have I been invited?

You have been invited to take part in the study because you are aged between 16 and 22. If you have spent time in care we are asking you to participate as part of the care group. If you have not spent time in care then we are asking you to participate as part of a comparison group. Both groups will be asked to answer the same questionnaires. We are hoping to invite about 50 young people who are leaving care, and 50 young people who have not spent time in care but are of a similar age, to take part in the study.

Do I have to take part?

It is up to you if you decide to take part in the research; you do not have to take part if you do not want to. If you would like to take part we will ask you to sign a consent form to say that you have read and understood this information sheet and that you agree to take part. If you choose not to take part or want to stop at any time you will not need to give a reason – this will not affect any of the services that you receive.

What will I be asked to do?

If you decide you do want to take part we will invite you to complete four questionnaires. One questionnaire will ask some questions about yourself, like your age and gender. The other questionnaires will ask about your thoughts and feelings about relationships and your life in general. You do not need to answer a question if you do not want to. Filling out these questionnaires should not take more than one hour.

If you have spent time in care whilst growing up, we will also ask you to give us the name of your social worker or personal advisor so that we can ask them some questions about your care records. These questions will be about:

- Your age when you went into care.
- How long you have spent in care.
- For what reason you were taken into care.
- How many placements you have had in care.
- Whether you have returned to live with your family for any amount of time.

Will I get paid for taking part?

We are able to pay you for any money you may spend on travelling to take part in the research. You will also be entered into a prize draw to win 20 pounds worth of high-street vouchers. Two winners will be selected at random, one from each group.

What are the possible disadvantages and risks of taking part?

We hope that taking part in the study should not cause you any distress. However, we will have some 'debrief' time in which you can talk to the researcher if you do feel worried or unhappy about anything. We will also give you some phone numbers that you can ring for support if you are concerned.

What are the possible benefits of taking part?

We do not think that taking part will provide you with any direct benefit. However, we hope that the research will give us more information about how to develop services that are useful for young people leaving care.

Will my taking part in the study be kept confidential?

Yes. We will follow ethical and legal guidelines to make sure that any information you give us is kept confidential and protected. Information that you give us will have your name and address removed so that you can not be identified. This will happen immediately for those who have not spent time in care and, for those who are care-leavers, the information will be anonymised by removing your name immediately after your social worker/personal advisor has answered their questions. Information that is kept on paper will be kept in a locked cabinet in an NHS building.

The only time in which we may need to share information with other professionals is if you tell us anything that makes us significantly worried about you, or somebody else's safety. For example, if you told us that you were planning on harming yourself or another person we would need to talk to other professionals.

What will happen to the results of the research study?

The results of the research are going to be written up and submitted as part of Kelly Paull's training to be a clinical psychologist. It may be that the findings are published in academic journals or presented at meetings or conferences. In all of these cases it will be impossible to identify you as all personal identifiers will be removed and individual results will not be shown.

If you would like to know more about the findings of the research you can request a summary of the outcomes from the researcher.

What if there is a problem?

If you have a concern about any aspect of the research, you should ask to speak to the researchers who will do their best to answer your questions. If you remain unhappy and wish to complain formally, you can do this through standard National Health Service complaints procedures.

Who has reviewed the study?

The study has been reviewed and approved by the NHS Research and Development Committee and the Cardiff School of Psychology Ethics committee.

Further information and contact details

If you would like more information about the study please contact:

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kellypaull@hotmail.com; Kelly.paull@wales.nhs.uk

or

Liz Andrew

Skills for Living, The Woodlands, Mamhillad Park Estate, Pontypool,
NP4 0HZ
01495 767220 lizandrew77@gmail.com

Appendix E



SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL

CONSENT FORM - CARE-LEAVER GROUP

Version 4 28/08/2012

Alexithymia, attachment and psychological well-being in young adults leaving care

Researcher: Kelly Paull, Trainee Clinical Psychologist, Postgraduate Student

Please put your initials in the boxes if you agree with each statement:

I confirm that I have read and understood the information sheet for this study and have had the opportunity to ask questions.

I understand that taking part in the study is voluntary and that I can withdraw at any time without needing to give a reason.

I understand that the information I provide will be anonymised immediately after the full data set is complete; until then, it will remain confidential and secure. In accordance with the Data Protection Act, the anonymised data may be held indefinitely.

I agree to take part in this research.

I give permission for the researcher to contact my personal advisor/social worker to ask them for information about my time in care.

Participant name

Signature

Date

Name of personal advisor/social worker

Researcher name

Signature
Participant identification number

Date

Appendix F



SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL

CONSENT FORM - NON-CARE-LEAVER GROUP

Version 4 28/08/2012

Alexithymia, attachment and psychological well-being in young adults leaving care

Researcher: Kelly Paull, Trainee Clinical Psychologist, Postgraduate Student.

Please put your initials in the boxes if you agree with each statement:

I confirm that I have read and understood the information
sheet for this study and have had the opportunity to ask questions.

I understand that taking part in the study is voluntary and that I
can withdraw at any time without needing to give a reason.

I understand that the information I provide will be anonymised immediately
after the full data set is complete; until then, it will remain confidential and
secure. In accordance with the Data Protection Act, the anonymised data may
be held indefinitely.

I agree to take part in this research.

Participant name

Signature

Date

Researcher name

Signature

Date

Participant identification number

Appendix G

Demographics questionnaire

1) How old are you? _____ Years

2) Are you ☐ Male ☐ Female

3) What is your ethnic group? A) White

Tick one ☐ English/Welsh/Scottish/Northern Irish/ British

☐ Irish

☐ Gypsy or Irish Traveller

☐ Any other white background _____

B) Mixed/multiple ethnic groups

☐ White and Black Caribbean

☐ White and Black African

☐ White and Asian

☐ Any other mixed/multiple ethnic background_

C) Asian/Asian British

☐ Indian

☐ Pakistani

☐ Bangladeshi

☐ Chinese

☐ Any other Asian background _____

D) Black/African/Caribbean/Black British

☐ African

☐ Caribbean

☐ Any other Black/African/Caribbean/Black British

E) Other Ethnic Group

☐ Arab

☐ Any other ethnic group _____

4) Which of these qualifications do you have?

*Tick every box that applies if you have **any** of the qualifications listed.*

If your UK qualification is not listed, tick the box that contains its nearest equivalent.

If you have qualifications gained outside the UK, tick the 'Foreign Qualifications' box and the nearest UK equivalents (if known).

- ☐ 1-4 GCSEs (any grades), Entry Level, Foundation Diploma
- ☐ NVQ level 1, Foundation GNVQ, Basic Skills
- ☐ 5+ GCSEs (grades A*-C), School certificate, 1 A-level/2-3 AS levels/VCEs, Higher Diploma
- ☐ NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma
- ☐ Apprenticeship
- ☐ 2+ A levels, 4+ AS levels, Higher School Certificate, Progression/Advanced Diploma
- ☐ NVQ Level 3, Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma
- ☐ Degree (for example BA, BSc), Higher degree (for example MA, PhD, PGCE)
- ☐ NVQ Level 4 - 5, HNC, HND, RSA Higher Diploma, BTEC Higher Level
- ☐ Professional qualifications (for example teaching, nursing, accountancy)
- ☐ Other vocational / work-related qualifications
- ☐ Foreign qualifications
- ☐ No qualifications

5) Last week were you

Tick all that apply

- ☐ A student
- ☐ Working as an employee
- ☐ On a government sponsored training scheme
- ☐ Self-employed or freelance
- ☐ Working paid or unpaid for your own or your family's business
- ☐ Away from work ill, on maternity leave, on holiday or temporarily laid off
- ☐ Doing any other kind of paid work
- ☐ None of the above

6) What is your relationship status?

- ☐ Single
- ☐ In a relationship but not living together

- ☐ Living with a partner
- ☐ Married
- ☐ Divorced
- ☐ In a registered civil partnership

7) Have you ever been in a relationship that you considered close with a girlfriend, boyfriend or partner? ☐ Yes ☐ No

8) Have you ever spent time in care whilst growing up? ☐ Yes ☐ No

9) Have you ever spoken to anyone professionally or attended counselling/therapy to talk about your thoughts and feelings? ☐ Yes ☐ No

If you answered 'Yes' to question 9 who was it that you spoke to or what was their professional role?

Appendix H

Scoring procedure for educational qualifications:

- 0 = No qualifications
- 1 = 1-4GCSEs (any grade), Entry Level, Foundation Diploma, NVQ level1, Foundation GNVQ, Basic skills
- 2 = 5+ GCSEs (A*-C), School certificate, 1 A- level/2-3 AS levels/VCEs, Higher Diploma, NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma, Apprenticeship.
- 3 = 2+ A levels, 4+ AS levels, Higher School Certificate, Progression/Advanced Diploma, NVQ Level 3, Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma
- 4 = G.C.S.E.s + work related qualifications.

Appendix I

TORONTO ALEXITHYMIA SCALE (TAS-20)

| 1 | 2 | 3 | 4 | 5 |
|-------------------|----------|----------------------------|-------|----------------|
| Strongly Disagree | Disagree | Neither Disagree nor Agree | Agree | Strongly Agree |

- _____ 1. I am often confused about what emotion I am feeling.
- _____ 2. It is difficult for me to find the right words for my feelings.
- _____ 3. I have physical sensations that even doctors don't understand.
- _____ 4. I am able to describe my feelings easily
- _____ 5. I prefer to analyze problems rather than just describe them.
- _____ 6. When I am upset, I don't know if I am sad, frightened, or angry
- _____ 7. I find it hard to describe how I feel about people.
- _____ 8. I prefer to just let things happen rather than to understand why they turned out that way.
- _____ 9. I have feelings that I can't quite identify.
- _____ 10. Being in touch with emotions is essential.
- _____ 11. I am often puzzled by sensations in my body.
- _____ 12. People tell me to describe my feelings more.
- _____ 13. I don't know what's going on inside me.
- _____ 14. I often don't know why I am angry.
- _____ 15. I prefer talking to people about their daily activities rather than their feelings.
- _____ 16. I prefer to watch "light" entertainment shows rather than psychological dramas.
- _____ 17. It is difficult for me to reveal my innermost feelings, even to close friends.
- _____ 18. I can feel close to someone, even in moments of silence.
- _____ 19. I find examination of my feelings useful in solving personal problems
- _____ 20. Looking for hidden meanings in movies or plays distracts from their enjoyment.

Appendix J



GIG
CYMRU
NHS
WALES

Bwrdd Iechyd Prifysgol
Caerdydd a'r Fro
Cardiff and Vale
University Health Board

Ysbyty Athrofaol Cymru
University Hospital of Wales

Heath Park,
Cardiff, CF14 4XW
Phone 029 2074 7747
Fax 029 2074 3838
Minicom 029 2074 3632

Parc Y Mynydd By
Caerdydd, CF14 4
Ffôn 029 2074 77
Ffacs 029 2074 38
Minicom 029 207

cyf/Your ref
yf/Our ref
ih Health Telephone Network 1872
ct line/Llinell uniongyrchol

Tel: 029 20746986
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From: Professor JI Bisson
R&D Director
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Cardiff
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04 September 2012
(re-issued 17 September 2012)

Miss Kelly Paul
Trainee Clinical Psychologist
South Wales Doctoral Programme in Clinical Psychology
11th Floor
Tower Building
70 Park Place
Cardiff
CF10 3AT

Dear Miss Paul

**Cardiff and Vale UHB Ref : 12/MEH/5398 : A Quantitative Exploration Of
Alexithymia, Attachment And Psychological Well-Being In Young Adults
Leaving Care.**

NISCHR PCU Ref: 101878

The above project was forwarded to Cardiff and Vale University Health Board R&D Office by the NISCHR Permissions Coordinating Unit. A Governance Review has now been completed on the project.

Documents approved for use in this study are:

| Document | Version | Date |
|---------------------------|---------|----------------|
| NHS R&D Form | 3.4 | 23/7/12 |
| SSI Form | 3.4 | 23/7/12 |
| Protocol | 2.0 | 18/6/12 |
| Patient Information Sheet | 4.0 | 14/8/12 |
| Research Flyer | - | Rec'd 23/7/12 |
| Questionnaire | - | Rec'd 23/7/12 |
| Questionnaire: SCL-90-R | | Rec'd 13/09/12 |
| Alexithymia Scale Test | - | Rec'd 23/7/12 |
| Debrief Form | 2.0 | 14/8/12 |

| | | |
|--------------------------------------|-----|---------------|
| Consent Form – Care Leaver Group | 4.0 | 28/8/12 |
| Consent Form – Non Care Leaver Group | 4.0 | 28/8/12 |
| Demographics Questionnaire | - | Rec'd 23/7/12 |

I am pleased to inform you that the UHB has no objection to your proposal. Please accept this letter as confirmation of sponsorship by Cardiff and Vale University Local Health Board under the Research Governance Framework for Health and Social Care, and permission for the project to begin within this UHB.

May I take this opportunity to wish you success with the project and remind you that as Principal Investigator you are required to:

- Inform the R&D Office if this project has not opened within 12 months of the date of this letter. Failure to do so may invalidate R&D approval.
- Inform NISCHR PCU and the UHB R&D Office if any external or additional funding is awarded for this project in the future
- Contact the R&D Office for Sponsor representative's signature prior to submission of any substantial amendments to NISCHR PCU
- Ensure that all study amendments are favourably reviewed by the R&D Office prior to implementation
- Ensure NISCHR PCU is notified of the study's closure
- Ensure that the study is conducted in accordance with all relevant policies, procedures and legislation
- Provide information on the project to the UHB R&D Office as requested from time to time, to include participant recruitment figures

Yours sincerely,



Professor Jonathan I Bisson
R&D Director

CC R&D Lead Prof Nick Craddock
Professor Neil Frude, Academic Supervisor, School of Psychology, Park Place, Cardiff

Appendix K

Ethics Feedback - EC.12.08.07.3172RR

From: **psychethics** (psychethics@Cardiff.ac.uk)

Sent: 11 September 2012 07:41:27

To: kellypaul@hotmai.com

Cc: neil.frude@ntlworld.com

Dear Kelly,

The Ethics Committee has considered your revised postgraduate project proposal: Alexithymia, attachment and psychological well-being in young adults leaving care (EC.12.08.07.3172RR).

The project has been approved.

Please note that if any further changes are made to this project then you must inform the Ethics Committee.

Best wishes,

Natalie Moran

School of Psychology Research Ethics Committee
Tower Building
Park Place
CARDIFF
CF10 3AT

Ffôn /Telephone: +44 (0) 29 2087 0360

Ffacs/Fax: +44 (0) 29 2087 4858

<http://psych.cf.ac.uk/aboutus/ethics.html>



SOUTH WALES DOCTORAL PROGRAMME IN CLINICAL PSYCHOLOGY
CWRS DOCTORIAETH DE CYMRU MEWN SEICOLEG CLINIGOL

DEBRIEF FORM

Version 2 14/08/2012

**Alexithymia, attachment and psychological
well-being in young adults leaving care**

Thank you for taking the time to take part in this research. We hope that the information you have provided will help us to gain a better understanding of how young people think and feel about relationships and their life in general. In particular we hope to better understand how early experiences and spending time in the care system can affect how people think and feel. Hopefully this information will help us to provide services that are useful for young people who have spent time in care.

The information you have given will be kept confidential and secure. If you would like to withdraw this information at any time you are free to do so and can contact the researcher. The only time in which we would need to break this confidentiality is if you told us something that made us significantly concerned about you or someone else's safety. In the event of this we will need to share this information with other professionals. We will inform you if this needs to happen.

We have attached the contact details of people and organisations you may like to contact if you would like some support with different areas of your life.

Thank you again for taking part in this research. Please let the researcher know if you would like a summary of the findings of the study.

Researcher: Kelly Paull, Trainee Clinical Psychologist, Postgraduate Student.

South Wales Doctoral Programme in Clinical Psychology

11th Floor, School of Psychology, Cardiff University, Tower Building, 70 Park Place, Cardiff,
CF10 3AT

02920 206464

Supervisor: Dr Liz Andrew

Skills for Living, The Woodlands, Mamhillad Park Estate, Pontypool,
NP4 0HZ

01495 767220

If you are feeling distressed by the things you have thought about today you may like to contact Dr Liz Andrew to discuss your concerns. She is a qualified clinical psychologist who works with young people leaving care and is supervising this research project. She can be contacted at the Skills for Living project or by e-mailing lizandrew77@gmail.com.

Alternatively, below are the contact details for organisations that may be able to offer some help.

The researchers do not accept responsibility for the contents of advice obtained via the contacts below. Contacts sourced via CLIC online and www.dynwales.org.

Support services and help lines

- **Samaritans**

Samaritans provide support for people who are experiencing feelings of distress or despair including those which could lead to suicide.

National 0845 790 90 90 (24 hour).

- **MIND**

Mind is the leading mental health charity in England and Wales. They aim to create a better life for everyone experiencing mental distress.

MIND Rhymni Valley 01443 816 945.

MIND Torfaen 01495 757 393.

- **Community Advice and Listening Line**

CALL is the free mental health telephone helpline for Wales.

0800 132 737 (Mon-Friday 7am – 11pm, Sat – Sun, noon – midnight) or, you can text ‘help’ to 81066.

www.callhelpline.org.uk/

- **Papyrus**

Papyrus is a UK charity for those dealing with issues such as suicide, depression or emotional distress. There is a free helpline offering practical advice on suicide prevention.

0800 068 41 41.

www.papyrus-uk.org/

- **CLIC online**

An online channel and a quarterly magazine offering information, news and advice for all young people aged 11-to-25 in Wales. This offers information on a wide range of subjects and issues and where to get support in your local area. The online channel allows young people and the organisations that work with them to upload articles, pictures, videos, designs and publicise events and activities.

<http://www.cliconline.co.uk/en/info/health/mental-health/>

Drug and alcohol problems

- **GAP (Gwent Alcohol Project)**

GAP offers a range of services for people who are concerned about their own or someone else's drinking.

01633 252 045 (Monday - Thursday 9am - 1pm & 2pm - 5pm, Friday 9am - 1pm & 2pm - 4pm).

- **DAN 24/7 (All Wales Drugs and Alcohol Helpline)**

This is a bilingual telephone helpline that provides a single point of contact for anyone in Wales wanting further information and help relating to drugs and alcohol. The helpline will assist individuals, their families, carers, and support workers within the drug and alcohol field to access appropriate local and regional services.

0800 633 55 88.

- **Drug and Alcohol Family Support (DAFS)**

This service offers support and information to individuals and families affected by substance misuse.

01495 240 824.

- **Fusion**

Fusion offers counselling and information to young people who are concerned about their own or someone else's alcohol or drug use.

0800 731 46 49.

- **Drugaid**

This service provides help and support for people suffering from drug or alcohol addiction. Blaenau Gwent 08700 600310.

- **Alcoholics Anonymous**

Alcoholics Anonymous provides 24 hour support for people with alcohol problems.

0845 769 75 55.

- **Frank National Drugs Helpline**

This is a 24 hour helpline for drug users, solvent users, their friends, families and carers.

0800 776 600.

Housing

- **Blaenau Gwent County Borough Council's Homelessness Service**

If you are homeless or fear you may be in the near future, even if you are not entitled to accommodation, they can answer your questions and give you helpful information and advice.

Housing Hotline 01495 354 600 (Monday - Friday between 8.50am and 5.00pm).

Out of hours / emergency 0845 201 08 28.

- **Shelter Cymru**

Free national helpline for advice on any housing-related problem.

0845 075 50 05 (24hr housing helpline).

Domestic violence and crime

- **Blaenau Gwent Domestic Abuse Services**

This service provides safety measures, advice, advocacy and support.

01495 291 202.

- **The Wales Domestic Abuse Line**

National free support and information service for people in Wales who are experiencing or who have experienced abuse at the hands of someone close to them.

0808 801 08 00.

- **Victim Support**

Victim Support is the independent charity which helps people to cope with the effects of crime.

National Line 0845 303 09 00.

Finance

- **Job Centre**

The Job Centre Provides help and advice on jobs and training for people who can work and financial help for those who cannot.

Job information 0845 606 02 34.

Benefits 0800 055 66 88.

- **Citizen's Advice Bureau**

The Citizens Advice service helps people resolve their legal, money and other problems by providing free information and advice.

01495 292 659.

- **Speak Easy Advice Centre**

Speak Easy offer free legal advice in the areas of debt and welfare benefits by solicitors and caseworkers.

029 20 453 111.

- **National Debt Line**

This helpline offers information and advice on debt. They also provide self help information packs and a range of fact sheets.

0808 808 40 00.

Police & Legal Services

- **Gwent Police Domestic Violence Unit**

Gwent Police has specialist police personnel on each division who are aware of the difficulties that you may be facing. They are available for you to speak to about how to stop domestic abuse, either for yourself or another.

Call 01633 838 111 and ask for Domestic Abuse Unit.

- **Community Legal Service Direct**

Community Legal Advice is a free and confidential service paid for by legal aid to help with legal problems.

0845 345 43 45.

Children & Families

- **Children's Information Service**

This service provides information about childcare and children's services in your area.

0800 032 33 39.

- **Parent Line Plus**

This is a UK wide helpline for anyone caring for children and young people.

0808 800 22 22.

- **NSPCC**

This organisation aims to give children the help, support and environment they need to stay safe from cruelty.

National helpline 0808 800 5000.

Wales 029 20 267 000.

Health & Counselling

- **NHS Direct**

NHS Direct delivers telephone and internet information and advice about health, illness and health services day and night direct to the public, enabling patients to make decisions about their healthcare and that of their families.

0845 46 47.

- **C.A.L.L (Community Advice and Listening Line)**

This service provides support for anyone coping with mental illness, including sufferers' relatives and friends.

0800 132 737.

- **Relate**

Relate offers a wide range of services for couples, families and individuals. They provide support throughout all stages of people's relationships.

Pontypool 07866 382 489. Brecon 01792 480 088.



Appendix M

South Wales Doctoral Training
in Clinical Psychology,
11th Floor, Tower Building,
Park Place
Cardiff
CF10 3AT
15.01.2013

To the School of Psychology Ethics Committee,

**Re: Alexithymia, attachment and psychological well-being in young adults leaving care
(EC.12.08.07.3172RR)**

Following initiation of collection of data for the above research project, this letter intends to inform you of an additional protocol that is being followed for young people who indicate that they have had thoughts of ending their life. The initial samples of young people that data has been collected from for the comparison group in the study (recruited through Coleg Gwent) have indicated the presence of these thoughts more frequently than had been anticipated. Therefore a protocol has been formalised for assessment and management of risk.

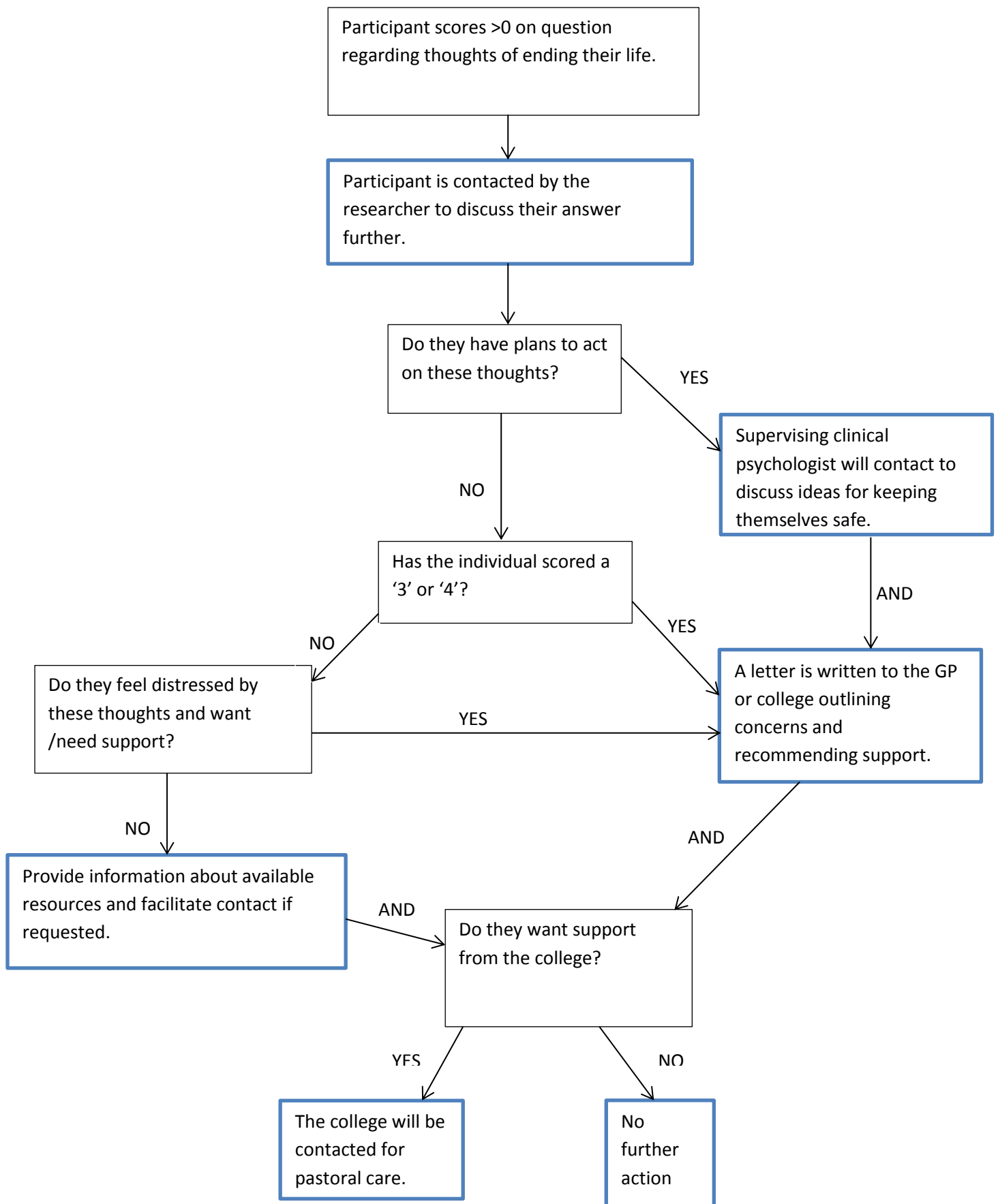
Individuals indicate whether they have had thoughts of ending their lives in the 7 days prior to completing the questionnaires on a 5 point scale: 0 – Not at all; 1 – A little bit; 2- Moderately; 3 – Quite a bit; 4 – Extremely. This is question 15 on the SCL-90-R. If individuals indicate anything other than 0, the researcher will attempt to contact them within 24 hours to discuss their answer further. The individuals will be asked about any plans they have to act on these thoughts as well as the availability of means.

If the individual indicates that they do have plans and/or the means to end their own life then they will be told that, as stated in the research information sheet, any information that causes the researcher to be worried about their safety needs to be passed on to other professionals, and as such other services will need to be contacted. A letter will be written to the individual's GP within 5 working days to inform them of the concerns and to recommend the provision of support. The clinical psychologist supervising the research will attempt to contact them within 48 hours to discuss ideas for keeping themselves safe and will communicate to them the provision of mental health support available from public and third sector services. Furthermore, if the individual wants support from the college that they attend, the researcher will facilitate this.

If individuals indicate that they have no plans to act on the thoughts, have answered a '1' or '2' on the questionnaire and indicate that they are not distressed by the thoughts, the availability of support services will be discussed, in particular highlighting the services detailed in the debrief pack. The researcher will facilitate contact with support services if the individual indicates that this would be helpful.

If individuals indicate that they have no plans to act on the thoughts but have indicated a '3' or a '4' on the questionnaire they will be told that, as stated in the research information sheet, any information that causes the researcher to be worried about their safety needs to be passed on to other professionals. A letter will be written to the GP, the college or another health/social care professional if the individual is already involved with services, outlining the concerns.

This protocol is outlined in the following flow chart.



If any further information is required please use the following contacts:

Researcher: Kelly Paull
kellypaul@hotmail.com

Removed for confidentiality

Clinical supervisor: Dr Liz Andrew
Lizandrew77@gmail.com

Academic supervisor: Prof. Neil Frude
Neil.frude@ntlworld.com

Yours sincerely,

Kelly Paull
Trainee Clinical Psychologist

Appendix N

Data collection risk assessment protocol:

