

Adolescent Psychopathology and Alexithymia: A Systematic Review of the Literature¹

Psicopatología de la Adolescencia y Alexitimia: Una revisión sistemática de la literatura²

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Abstract

Adolescence is a critical developmental period characterised by emotional, social and physical changes which can leave young people vulnerable to mental health difficulties. A wide body of research suggests that emotion regulation may be one of the central transdiagnostic constructs of adolescent psychopathology. Similarly, alexithymia, the term used to describe those who have difficulty expressing and identifying their own and others' emotions, has been cited as a developmental construct that emerges in adolescence. Although extensively researched in adulthood there has been less focus on the potential link between adolescent psychopathology and alexithymia. This review aims to address the gap in the literature by exploring this link. A systematic review was conducted according to the PRISMA guidelines. Eighteen studies were identified through a literature search of PubMed, Cochrane Trials Library, Sociological Abstracts and Google Scholar. All included studies investigated adolescent psychopathology and alexithymia. Specifically, seven studies reported on eating disorders, three on self-harm, two on post-traumatic stress disorder and two on borderline personality disorder. Of the remaining four studies one each investigated the link with depression, psychological distress, trauma and psychosis. The association between alexithymia and multiple psychopathologies in adolescence suggests that screening for alexithymia when treating these disorders may have important implications for both clinical practice and mental health intervention in this vulnerable population. Results are interpreted in the discussion. Future directions for research on adolescent psychopathology and alexithymia are also discussed.

Keywords: psychopathology, alexithymia, adolescence, emotion regulation, mental health intervention

Resumen

La adolescencia es un periodo crítico del desarrollo caracterizado por diversos cambios emocionales, sociales y físicos. Dichos cambios se convierten en factores de vulnerabilidad para la aparición de problemas de salud mental. Un gran abanico de estudios empíricos destaca la regulación emocional como uno de los factores transdiagnósticos centrales de la psicopatología en la adolescencia. Asimismo, la alexitimia, el término utilizado a fin de describir a aquellas personas que tienen dificultades para expresar e identificar sus propias emociones y las de los demás, se ha citado como una característica del desarrollo que surge en la adolescencia. Aunque se investigó este vínculo de manera extensa en la población adulta, hay una carencia de literatura sobre este tema en la población adolescente. Por consiguiente, la presente revisión aborda esta brecha en la literatura al explorar dicho vínculo. Se realizó una revisión sistemática de acuerdo con las pautas de PRISMA. Dieciocho estudios fueron identificados mediante una búsqueda bibliográfica en PubMed, Cochrane Trials Library, Sociological Abstracts y Google Scholar. Todos los estudios incluidos en esta revisión investigaron la psicopatología en la adolescencia y alexitimia. Específicamente, siete estudios informaron sobre trastornos alimentarios, tres sobre autolesiones, dos sobre el trastorno de estrés postraumático y dos sobre el trastorno límite de la personalidad. Los últimos cuatro estudios investigaron el vínculo con depresión, angustia psicológica, trauma y psicosis. La asociación entre la alexitimia y múltiples psicopatologías en la adolescencia sugiere que la detección de alexitimia al tratar estos trastornos puede tener implicaciones importantes tanto para la práctica clínica como para la intervención de salud mental en esta población vulnerable. Se interpretan los resultados en la discusión. Es más, se proponen algunas futuras líneas de investigación relacionadas con la psicopatología adolescente y alexitimia.

Palabras clave: psicopatología, alexitimia, adolescencia, regulación emocional, intervención de salud mental

Adolescent Psychopathology and Alexithymia: A Systematic Review of the Literature

Research has consistently acknowledged the relationship between adolescence and the development of psychopathological difficulties. Adolescence is cited as a particularly vulnerable time for the development of said difficulties given the substantial changes in biological, social, cognitive, and emotional domains (Sechi et al., 2020). To date, adolescent psychopathology is generally understood according to the following four basic principles: (1) the role and stage of development, (2) disordered developmental disruptions (as opposed to typical changes in the developmental trajectory), (3) predictors of later disordered behaviour, and (4) the multiple pathways (genetic, environmental, and experiential) which interact, characteristic of psychopathology (Jones, 2012). Potential risk and vulnerability factors have also been identified, including peer pressure, sexual exploration, increased use of technologies, discrimination, exclusion, lack of access to necessary support and services, and risk-taking behaviours (WHO, 2019). Globally, it is estimated that up to 20% of young people experience some form of mental disorder, with over 50% of these developing by age 14 (WHO, 2018). Moreover, mental health conditions are estimated to account for up to 16% of the global burden of disease and injury in young people (WHO, 2019). Therefore, further understanding of psychopathology in adolescence is both a public health concern and challenge (Kern et al., 2016). Research in this area is fundamental for the development of strategies to promote mental health and wellbeing in this age group. In turn, this could reduce the risk and vulnerability factors which may negatively impact physical and mental health in adolescence and later on in adulthood (WHO, 2019).

In terms of disorders in adolescence, high prevalence rates have been found for depression (Curry, 2014), anxiety (Barker et al., 2019), post-traumatic stress disorder (PTSD; Selwyn et al., 2019), eating disorders (Galmiche et al., 2019), suicidal tendencies (Nock et al., 2013), and personality disorders (Johnson et al., 2008). Comorbidity of these disorders is common, e.g. between depression and suicidal tendencies (Rohde et al., 2016). Depression has been reported as one of the most prevalent illnesses associated with adolescent psychopathology and suicide is the third leading cause of death in this age group (WHO, 2019). These disorders have also been studied along the developmental trajectory with evidence for origins in childhood which continue into adolescence, and from adolescence into adulthood (McDonough-Caplan et al., 2018; Rohde et al., 2012). When left untreated these disorders often develop into chronic conditions (Cerutti et al., 2020) which in turn are linked to poorer life satisfaction and overall psychological wellbeing (WHO, 2019). Nevertheless, the treatment of these disorders is complex and many mental health difficulties in youth are often unreported (Nearchou et al., 2018). This lack of reporting may be explained via the research highlighting that adolescents are often apprehensive about seeking help for their problems due to stigma regarding mental health (Dunne et al., 2017). For those who do access the necessary services, high dropout rates are often reported due to a combination of feeling misunderstood in the therapeutic context and a lack of information about what to expect throughout the course of the intervention (Weitkamp et al., 2017). This element of feeling misunderstood has been echoed by the literature suggesting that adolescents' views on the therapeutic process are often overlooked, with a tendency for the research to focus on the adult population (Gibson et al., 2016). This is clearly problematic as adolescents and adults have very different and specific demands when attending psychotherapy given the developmental differences between them (Dunne et al., 2017). For example, the expression of psychopathologies differs in terms of symptomatology between adolescents and adults (Jones, 2012). Clearly then, understanding both adolescent psychopathology and specific adolescent needs could have clinical implications for improving access to services and treatment outcomes, and reducing the overall impact of the initial mental health difficulty itself (Oetzel & Scherer, 2003).

Emotion Regulation and Adolescent Psychopathology

How do we further understand adolescent psychopathology and promote behaviours which may act as protective factors? While many underlying causes and theories have been proposed in the extant literature, it is beyond the scope of this project to discuss them all (for a comprehensive review see: Chen et al., 2013; LaBuda et al., 1993; Waldman et al., 2016). As such, this paper will focus on one of the potentially transdiagnostic constructs of adolescent psychopathology: emotion regulation (Kring & Sloan, 2010). Emotion regulation has been described as “the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially intensive and temporal features, to accomplish one’s goals” (Thompson, 1994, p.28). The ability to effectively regulate emotions in adolescence promotes psychological wellbeing and resilience (Morish et al., 2018). Moreover, emotion regulation plays a key role in maintaining positive mental health (Gross & Muñoz, 1995). A recent meta-analysis of 212 studies totalling 80,850 participants by Compas et al. (2017) found further support for this relationship as effective emotion regulation strategies were associated with lower levels of psychopathology in adolescence. Conversely, at the opposite end of the spectrum to emotion regulation is emotion dysregulation, which is commonly cited as a core underlying factor of psychopathology (Sloan et al., 2017). Emotion dysregulation is common in adolescence and tends to be observed alongside the emergence and maintenance of mental health difficulties during this developmental period (Lavik et al., 2018). However, researching this dysregulation is complicated as there is a lack of understanding and definition of emotion dysregulation in adolescence (Villata et al., 2018). In this paper, it will be interpreted according to the general consensus that it is the “oscillations in affect, mood or emotion that are noteworthy because of their rapidity, intensity frequency or difficulty in being controlled” (Vilalta et al., 2018, p. 528).

Thus far, emotion dysregulation has been linked to various psychopathologies in adolescence including depression (Schäfer et al., 2016), anxiety (Schafer et al., 2016), PTSD (Vilalta et al., 2018), suicidal ideation (Miller et al., 2018), eating disorders (Weinbach et al., 2018), and personality disorders (Sloan et al., 2017). Therefore, it appears that emotional dysregulation is a shared characteristic of these disorders. Research investigating emotion dysregulation as a common denominator in adolescent psychopathology has provided many important results relevant for this review. In one study, McLaughlin et al. (2011) used structural equation modelling to examine the relationship between emotion dysregulation and psychopathologic symptomatology in adolescence over a seven month period. The authors found that emotion dysregulation predicted increases in symptoms of anxiety, aggressive behaviour, and eating pathology but not depressive symptoms. They also found that none of the four types of psychopathology predicted increases in emotion dysregulation. These results suggest that emotion regulation is a transdiagnostic risk factor for adolescent psychopathology. However, as this was one of the first longitudinal studies to address this topic in adolescence, caution is advised when interpreting the results. As the study only included self-report measures which are susceptible to bias the authors suggest the need to include DSM-V diagnoses using structured interviews to improve the overall methodology (McLaughlin et al., 2011). Despite these limitations, these results were further supported in a follow-up systematic review conducted by Sloan et al. (2017) investigating emotion regulation as a central construct for the maintenance of psychopathology. The authors examined 67 studies investigating the effects of psychological interventions on emotion regulation and psychopathology symptoms in anxiety, depression, substance use, eating pathology or borderline personality disorder. They hypothesised that if emotion regulation is a transdiagnostic construct effective treatment should reduce emotion dysregulation across disorders (Sloan et al., 2017). Results found both reduced emotion dysregulation and psychopathology symptoms following treatment regardless of the type of intervention, further supporting the evidence that emotion regulation is a transdiagnostic construct of psychopathology (Sloan et al., 2017). It is important to note however that only five studies (7.5%) included an adolescent sample. Therefore, although promising results have so far been found,

understanding this conceptualisation of emotion (dys)regulation as a transdiagnostic construct in adolescent psychopathology is of clinical importance and further research is required.

Another field of research which has been crucial in our understanding of the theoretical underpinnings of emotion dysregulation and adolescent psychopathology is neuroscience. Schweizer et al. (2019) highlighted that differences in the maturation of affective control in prefrontal brain regions may explain psychopathological behaviours such as rumination in adolescence. Rumination is defined as a cognitive process characterised by repeatedly focusing on negative emotions (Hilt et al., 2015) and is common in eating disorders (Smith et al., 2018) as well as anxiety and depression in adolescence (Wilkinson et al., 2013). The authors postulate that affective control develops in adolescence and that the capacity to attend and respond to distracting affective stimuli may be reduced during this developmental period as higher levels of affective control were negatively associated with ruminative tendencies (Schweizer et al., 2019). Overall, this provides supporting evidence for cognitive impairment in emotion regulation in adolescence. This impairment may be linked to recent research from Ahmed et al. (2015) who identified adolescent developmental differences in brain regions such as the limbic system and prefrontal cortex, which are associated with emotion regulation, and therefore appear to be related to adolescent psychopathology. This raises two important questions: (1) does adolescent psychopathology impede the development of brain regions causing a lack of affective control? or (2) do developmental disruptions to the brain structure in adolescence reduce affective control leading to the emergence of adolescent psychopathologies at clinical level? Regardless of the direction of the relationship, this research highlights a potential neural basis of psychopathology and emotion dysregulation in adolescence. Further research is warranted to explore this relationship in greater detail.

Alexithymia and Psychopathology

Closely linked to the concept of emotion dysregulation is alexithymia. Alexithymia (Greek for: a = lack, lexis = word, and thymos = mood or emotion) or ‘no words for emotions’ is the term used to describe individuals who have difficulty expressing as well as identifying their own and others’ emotions (Sifneos, 1973). Alexithymia is said to be comprised of five central features; “(i) difficulty in identifying one’s emotions (ii) difficulty in describing self-feelings verbally (iii) reduction or incapability to experience emotions (iv) an externally oriented cognitive style and, (v) poor capacity for fantasizing or symbolic thought” (Hemming et al., 2019a, p. 2). It is most commonly measured using the Toronto Alexithymia Scale (TAS-20, Bagby et al., 1994a) which is made up of the following three subscales: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). This scale has been translated and validated in over thirty different languages (Taylor et al., 2020) and has shown reliable convergent, discriminant, and concurrent validity (Bagby et al., 1994b). Other scales have been developed such as the Bermond-Vorst Alexithymia Questionnaire (BVAQ, Vorst & Bermond, 2001) which distinguishes between cognitive and affective alexithymia but as of yet has not been as widely distributed despite its initial promise and concurrent validity (Vroege et al., 2018; Zech et al., 1999). Despite these advances, there has been an ongoing debate surrounding this topic in terms of whether or not to consider it as a personality construct (Saarijarvi et al., 2006) or a form of emotion regulation (Taylor, 2000). An alternative to this debate is to consider alexithymia as a “unique, valuable, transdiagnostic explanatory construct” (Luminet et al., 2018, p. 7). Luminet and Zamariola further support the latter stating that a continuous approach to understanding alexithymia is preferred as it better captures the actual behavioural and cognitive differences between participants rather than a cut-off approach which runs the risk of losing valuable data (as cited in Luminet et al., 2018). This has found support in the literature that alexithymia is a dimensional construct rather than a dichotomous one, meaning that it is found in the general population at different degrees with an estimated prevalence rate of between 10 and 19% (Hemming et al., 2019; Ogrodniczuk et al. 2005). However, given the prevalence in both the general and clinical populations, there may be concerns about whether or not

labelling someone as alexithymic is helpful or detrimental. Some researchers argue against labelling given the stigma and potential discrimination which people face when labelled with a specific diagnosis (Corrigan, 2006), whereas others argue that labelling is a useful tool in promoting help-seeking behaviours (Wright et al., 2011). While a discussion of this is beyond the scope of this paper, it is worth noting that the existing literature describes those individuals who score highly on alexithymia questionnaires as ‘individuals with high/low alexithymia’ and ‘high/low alexithymics’ (Luminet et al., 2018). In this article, these terms will be used interchangeably in order to maintain consistency with the extant literature.

Relevant for this study is the research describing alexithymia as a developmental construct that emerges between childhood and adolescence (Hemming et al., 2019b). However, this research is far from conclusive as some evidence has found that alexithymia can also emerge as a response to traumatic events and the related stress of these events (Zeitlin et al., 1993). Regardless of its aetiology, authors such as Moriarty et al. (2001) argue that alexithymia may be “characteristic of adolescence” as they found high alexithymia scores in both adolescent sex offenders and their control group counterparts (p. 749). Therefore, given that adolescence appears to be a vulnerable developmental period characterised by (a) the emergence of psychopathological disorders associated with emotion dysregulation and (b) alexithymia, it seems plausible to explore their co-occurrence. Like emotional dysregulation, alexithymia has been linked to various mental health disorders including depression (Terock et al., 2017), anxiety (Karukivi et al., 2010), suicide (Hemming et al., 2019a), and eating disorders (Gramaglia et al., 2020; Shank et al., 2019). Additionally, alexithymia may impact the treatment of these disorders as it has been associated with poorer psychotherapy outcomes with further research required to understand the nature of this relationship (Luminet et al., 2018). In a recent meta-analysis, Xu et al. (2018) identified a reduced volume in brain regions central to the processing of emotion, such as the orbital frontal cortex and left insula, in adults scoring high in alexithymia. Although this study solely focused on an adult population, it mirrors similar findings to the neuroscience research on emotion dysregulation in both adults and adolescents, and ergo, underlines the need to assess this relationship in the adolescent population. These findings are important given their similarity to the aforementioned research of Ahmed et al. (2015) that identified impairments in brain regions associated with emotion dysregulation in adolescence. Are these regions impaired in both alexithymia and emotion dysregulation in adolescence? Further research is needed to explore this potential relationship but presently these studies highlight a potential link between emotion dysregulation and alexithymia in adolescent psychopathology. This literature also serves as a reminder that to date research investigating alexithymia and psychopathology has been disproportionately focused on the adult population, highlighting a gap in the literature in our understanding of how this construct may impact adolescent psychopathology (Sechi et al., 2020).

Aims, Objectives and Hypotheses

There are potential links to be explored in adolescent psychopathology, characteristic of emotion (dys)regulation, and alexithymia, a deficit in overall emotional experience. Despite these links, to the best of my knowledge, no current study has systematically reviewed the literature on adolescent psychopathology and alexithymia. Consequently, the overarching aim of this study is to conduct a systematic review of the current literature on alexithymia and adolescent psychopathology. Exploring this relationship could have important clinical implications in terms of promoting and preventing mental health difficulties in this vulnerable population, which currently sees high attrition rates in psychotherapy interventions and stigma regarding mental health issues (Dunne et al., 2017; Lavik et al., 2018a). Specifically, addressing these areas is relevant as (a) emotion (dys)regulation has been identified as a potential transdiagnostic risk factor for adolescent psychopathology, (b) at the core of alexithymia lies emotion processing deficits similar to that seen in emotion (dys)regulation and adolescent psychopathology, (c) given that therapies addressing emotional difficulties have

proved effective and popular among adolescents it may improve psychotherapy interventions as therapists could explore both emotion regulation difficulties and alexithymia in their clients and adapt the therapeutic focus as necessary (Lavik et al., 2018a, 2018b), (d) the current research independently highlights poor therapeutic outcomes for both individuals who score highly on alexithymia scales (Hemming et al., 2019a) and adolescents (O’Keefe et al., 2018), and finally, (e) it will add to the existing literature on these concepts which in turn could be used to devise strategies and objectives for mental health literacy (promotion and prevention) programmes aimed at adolescents.

Specifically, it is hypothesised that:

1. There will be a relationship between alexithymia and its subcomponents and psychopathology in adolescence
2. That adolescents who score higher in alexithymia will also demonstrate higher scores in their respective psychopathology

Materials and Methods

Study Design and Search Strategy

This review was conducted according to the Preferred Reporting Items of Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). The following databases were searched: PubMed, Cochrane Trials Library, Sociological Abstracts, and Google Scholar. Google Scholar has received criticism for its limited recall capabilities (Bramer et al., 2016) and lack of quality control (Halevi et al., 2017) but research suggests that combining it with other databases increases coverage for systematic reviews (Gehanno et al., 2013; Howland et al., 2009). Therefore, Google Scholar will be implemented to expand the search using ‘citation chaining’ which operationalises the ‘cited-by’ function in order to screen the references lists and identify studies that have not yet been included, making the search as inclusive as possible (Hemming et al., 2019a).

The systematic search began using the term alexithymia. This search term was chosen for its specificity to the concept of alexithymia as the objective of this review is to focus on the presence of alexithymia in adolescent psychopathology. Given that alexithymia is linked to broader constructs like emotional dysregulation, it is important to adopt this approach to narrow the search, thus ensuring that the literature being reviewed focuses solely on the concept of alexithymia (Hemming et al., 2019a).

Using the Boolean operator ‘AND’ the alexithymia search term was linked to search terms related to adolescence and psychopathology including “adolescence” OR “adolescent psychopathology” OR “adolescent mental health” or “adolescent mental health difficulties” OR “adolescent mental health problems”. The full database search was conducted during the months of April and May 2020 and given that this is the first study of its kind there was no limit on the year of publication as recommended by the Cochrane Handbook for Systematic Reviews (Higgins et al., 2019).

Eligibility Criteria

Studies were included according to the following criteria: (1) is an empirical study in the English language; (2) implements a validated measure of alexithymia; (3) includes a validated measure of psychopathology; (4) reports the relationship between alexithymia and related psychopathology; and (5) includes an adolescent population between 13 - 19 years of age. Conversely, studies were

excluded according to the following criteria: (1) does not report original findings; (2) only uses qualitative methods; (3) is a systematic review; and (4) only includes an adult sample.

Procedure

Firstly, the title and abstract of each paper were screened according to the established criteria for inclusion/exclusion using Rayyan, a programme that uses semi-automation techniques to conduct the initial screening of study titles and abstracts (Ouzzani et al., 2016). This program was chosen based on the empirical research highlighting its suitability in the screening process as a more advanced tool in comparison to programmes such as EndNote and/or Excel (Kellermeyer et al., 2018). Any studies which did not meet the criteria were excluded in this first phase screening process. The remaining eligible studies were evaluated at full study level to decipher their suitability for this systematic review. Data extraction was conducted at this phase using the following information: study title, author and year of publication, measures used, analyses conducted and results of the analysis, the total number of participants, sample characteristics and demographic information.

Results

Papers which reported on the relationship between alexithymia and adolescent psychopathology but did not include a statistical analysis were excluded from this review. A flow diagram for each stage of the database was produced according to PRISMA guidelines (Moher et al., 2009) and is available in Appendix A. The search returned a total of 913 studies for potential inclusion.

Study characteristics and measures used

A total of 18 studies were included in this review which included data from 16,515 participants (see Table 1). All 18 studies were published in peer-review journals. A wide range of designs was used; eight were case-control studies, seven cross-sectional and three longitudinal. The studies were conducted in various different countries including four in Italy, three in Germany, three in France, two in Finland and one each in Austria, Canada, China, USA, Holland, and Turkey. 94% of the studies were carried out within the last ten years. Furthermore, 67% included clinical samples and only six studies focused solely on the general population. 17 of the studies implemented the Toronto Alexithymia Scale (TAS) to measure alexithymia. 16 studies used the TAS-20 scale (Bagby et al., 1994) with one study using the TAS-26 scale (Taylor et al., 1985). Only one study used the Bermond-Vorst Alexithymia Scale (BVAQ, Vorst & Vermond, 2001). Table 1 details all other scales used in the studies.

Table 1

Characteristics of included studies

Author/Year	Research Design	N	Sample Characteristics	Age (mean, SD)	Alexithymia Measure	Other Measure
Berger et al., 2013	Cross Sectional	56	Female adolescents at high risk for excessive weight gain and BED	14.21, 1.55	TAS-20	BDI-II EDE

Bomba et al., 2014	Case Control	63	21 Patients with Functional hypothalamic amenorrhea (FHA)/21 Patients with AN/21 healthy adolescents	FHA (16.2, 0.9) AN (15.9, 1.1) HC (16.2, 1.1)	TAS-20	CDI EDI-2
Carriere et al., 2019	Cross Sectional	115	Adolescents enrolled at a clinical care unit for their overweight or obesity	14.9, 1.9	TAS-20	BES BDI BAI JTCI BIS
Cerutti et al., 2014	Cross Sectional	10	Adolescents in the therapeutic community receiving treatment for NSSI	16.1, 1.1	TAS-20	DSHI R-NSSI-Q Swap-20 O-A
Chen et al., 2016	Cross Sectional	326	General population	15.25, 0.54	TAS-20	PSDS GHQ-28
Deborde et al., 2012	Case control	105	54 BPD 51 matched controls	BPD (16.52, 1.18) MC (16.35, 1.04)	TAS-20	DSM-IV Kiddle-S ADS RSQ
Guzzo et al., 2013	Cross Sectional	488	General population	16.59, 0.49	TAS-20	TSCC-A OWQ
Hebert et al., 2018	Short-term longitudinal	653 1	General population	15.35, 0.11	TAS-20	KPDS
Honkalampi et al., 2009	Short-term longitudinal	393 6	General school population aged 13 to 18 years old	not reported	TAS-20	BDI YSR AUDIT
Laukkanen et al., 2013	Short-term longitudinal	401 9	General school population aged 13 to 18 years old	not reported	TAS-20	BDI YSR A-DES
Loas et al., 2012	Case control	170	85 = BPD 85 = HC	16.3, 1.4	TAS-20	K-SADS BDI-II STAI

Ludtke et al., 2016	Case control	72	Female patients 46 with NSSI and 26 with DSM-IV diagnosis other than NSSI	16.08, 1.29	TAS-26	Kinder-D IPS FDS-20
Lulé et al., 2014	Case control	30	Patients with Anorexia Nervosa (AN)	16.2, 1.26	TAS-20	EDQ EDI YSR BDI-II STAI
Nalbant et al., 2019	Case control	64	32 AN patients 32 healthy controls	AN (15.2, 1.6) HC (15.2, 1.7)	TAS-20	EAT-40 DERS RMET KAET SCARED CTQ
Ohmann et al., 2013	Cross Sectional	29	Adolescent girls with restrictive (n = 22) or binge/purging (n = 7) AN	14.3, not reported	TAS-20	YSR JTCI BDI SPS SIAS
Schimmenti et al., 2017	Cross-Sectional	358	General school population	18.36, 0.48	TAS-20	IAT TEC
Sfarlea et al., 2019	Case-control	86	26 AN patients 25 MD patients 35 healthy controls	AN (15.2, 1.7) MD (14.7, 1.6) HC (15.2, 1.8)	TAS-20	BDI-II FEEL-KJ Kinder-D IPS
van Rijn et al., 2011	Case control	57	34 ultra high risk (UHR) patients for psychosis 23 non-clinical controls	UHR (15.5, 2.1) NCC (15.7, 1.4)	BVAQ	SPQ DPQ SIPS BSABS-P GAF

A-DES = Adolescent Dissociative Experience Scale, AUDIT = Alcohol Use Disorders Identification Test, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, BES = Binge Eating Scale, BIS = Barratt's Impulsiveness Scale, BSABS = Bonn Scale for the Assessment of Basic Symptoms-Prediction List, CBCL = Child Behavior Checklist, CDI = Children's Depression Inventory, CECA-Q = Childhood experiences of Care and Abuse Questionnaire, CTQ = Childhood Trauma Questionnaire, DERS = Difficulties in Emotion Regulation Scale, DHSI = The Deliberate Self-Harm Inventory, DPQ = Dutch Personality Questionnaire, DSM-IV = Diagnostic and Statistical Manual of Mental Disorders IV, EDE = Eating Disorder Examination, EDI = Eating Disorder Inventory, FDS-20 = Short version of the German Dissociative Experience Scale, FEEL-KJ = Emotion Regulation in Children and Adolescents, GAF = Global Assessment of Functioning, GFQ-28 = The General Health Questionnaire-28, IAT = Internet Addiction Test, JTCI = Junior Temperament and Character Inventory, KA-SI = KA-SI

Empathic Tendency Scale, Kiddie-SADS = Kiddie Schedule for Affective Disorder and Schizophrenia, Kinder-DIPS = Diagnostisches Interview psychischer Störungen im Kindes- und Jugendalter, KPDS = Kessler Psychological Distress Scale, OWQ = Olweus Anonymous Questionnaire, PDS = The Posttraumatic Stress Diagnostic Scale, RMET = Reading the Mind in the Eyes Test, R-NSSI-Q = The Repetitive Non-Suicidal Self-Injury Questionnaire, RSQ = The Relationship Styles Questionnaire, SCARED = Screen for Child Anxiety and Related Disorders, SIAS = Social Interaction Anxiety Scale, SIPS = Structured Interview for Prodromal Symptoms, SPS = Social Phobia Scale, SPQ = Schizotypal Personality Questionnaire, STAI = State-Trait Anxiety Inventory, SWAP- 200A = Shedler, Westen Assessment Procedure for Adolescent Swap-200-A, TAS = Toronto Alexithymia Scale, TEC = Traumatic Experiences Checklist, TSCC-A = Trauma Symptom Checklist for Children - Alternate Version, YSR = Youth Self-Report.

Alexithymia and eating disorders in adolescence

A total of seven studies investigated the relationship between alexithymia and eating disorders in adolescence. Berger et al. (2013) examined the link between alexithymia and 56 adolescent girls at risk for binge eating disorder. Overall, girls categorised as high risk for eating disorders had higher alexithymia scores ($t(54) = 1.043, p = 0.3$). Specifically, there was a link between eating disorders and DIF as well as EOT, but not DDF. A second study explored the links between alexithymia, AN and functional hypothalamic amenorrhea, a form of anovulation (Bomba et al., 2013). Participants were divided into three groups; 21 FHA, 21 AN, and 21 healthy controls (HC) and completed a battery of self-administered psychological tests. Results showed higher alexithymia scores for AN participants ($M = 59.2$) in comparison to HC ($M = 40.6$). This was consistent across all subscales; DDF (AN $M = 20.4$, HC $M = 12.0$), DIF (AN $M = 18.8$, HC $M = 11.7$), and EOT (AN $M = 20.5$, HC $M = 16.9$). The third study by Carriere et al. (2019) investigated the relationship between binge eating disorder (BED) and alexithymia. The sample consisted of 115 adolescents (68.7% females, 31.3% males) with 25.2% defined as having moderate BED and 16.5% severe BED (58.3% did not meet clinical requirements for BED). Overall there was no statistical significance found for BED and total higher alexithymia scores ($p = 0.686$). Nevertheless, a significant result was between BED and the subscale DIF ($p = 0.014$) at the univariate analysis stage of the research.

Lulé et al. (2014) studied the relationship between AN and alexithymia in a sample of 15 female in- and outpatients for AN and 15 healthy controls. Higher scores for alexithymia were found for AN patients ($M = 51.6, SD = 13.6$) in comparison to their control counterparts ($M = 39.6, SD = 6.8$) and reached statistical significance ($p = 0.02$). Alexithymia subscales were not reported. The fifth study from Nalbant et al. (2019) also investigated AN and alexithymia among female adolescents split evenly between AN ($n = 32$) and HC ($n = 32$). AN participants had higher total alexithymia scores ($M = 59.9, SD = 11.3$) in comparison to the HC group ($M = 42.3, SD = 8.4$) which was statistically significant at $p < 0.001$. The same direction of results was found for AN vs. HC in the subscale DIF ($M = 18.6, SD = 6.8$ vs. $M = 12.5, SD = 3.7, p < 0.001$), and DDF ($M = 14.1, SD = 3.8$ vs. $M = 10.4, SD = 3.1, p < 0.001$) but not for the subscale EOT ($p > 0.05$). The sixth study also reported the relationship between alexithymia in female AN patients ($N = 29$) in cognitive behavioural group therapy treatment (Ohmann et al., 2013). At pretreatment level, the highest global alexithymia scores were associated with those patients who dropped out of the treatment programme ($M = 81.0, SD = 5.8$). For those who were categorized as having good therapeutic outcomes alexithymia scores dropped from pretreatment stage ($M = 73.6, SD = 12.6$) to those recorded at month 9 of treatment phase ($M = 66.6, SD = 3.1$). For this same group, alexithymia scores rose at the 1-year follow up ($M = 71.3, SD = 6.6$). For those patients in the poor outcome group alexithymia scores at pretreatment phase ($M = 79.0, SD = 4.9$) worsened by the 9 month phase ($M = 86.3, SD = 1.9$), but slightly reduced at 1-year follow up ($M = 74.5, SD = 2.1$). The seventh study by Sfarlea et al. (2019) investigated alexithymia and AN and major depression (MD). Three groups were formed depending on diagnosis; AN ($n = 26$),

HC ($n = 35$) and MD ($n = 25$). AN patients reported higher alexithymia ($M = 54.7$, $SD = 8.1$) than the HC group ($M = 40.4$, $SD = 6.2$). Upon conducting a hierarchical regression for maladaptive emotion strategies age and depression accounted for 35% of the total variance. When the authors added alexithymia to the model there was a significant increase with 44% of the variance explained.

Alexithymia and NSSI/self-harm in adolescence

A total of three studies investigated the relationship between alexithymia and NSSI/self-harm. In the first study by Cerutti et al. (2014), NSSI and alexithymia were explored among 10 female adolescents. The authors reported high levels of alexithymia in AN participants ($M = 67.7$, $SD = 10.6$). They also demonstrated a positive and significant correlation between NSSI and alexithymia ($r = .784$, $p < .001$). In the second study by Laukkanen et al. (2013) self-harm and alexithymia in a sample of adolescents (males = 10.7%, females = 89.3%) were examined. Two groups were formed based on the location of their self-cutting: (1) self-cutting on the arms and (2) self-cutting on other areas of the body. Equal number control groups were included for both groups, matched on age and sex. Overall, alexithymia scores were higher in the target group than controls: group 1 (study subjects $M = 50.3$, $SD = 10.5$ versus controls $M = 46.6$, $SD = 8.7$) and group 2 (study subjects $M = 53.1$, $SD = 10.7$ versus controls $M = 47.6$, $SD = 10.3$). In the third study, alexithymia was explored in a sample of female adolescents diagnosed with NSSI and a second group of participants ($n = 26$) who met DSM-IV clinical diagnosis for disorders other than NSSI. The NSSI group scored higher overall alexithymia scores in comparison to the clinical control group (69.6% vs. 34.6%, $p < .01$). These results were also seen in the two subscales: DIF ($M = 21.8$, $SD = 5.8$, vs. $M = 17.2$, $SD = 6.8$, $p < .01$), DDF ($M = 17.5$, $SD = 4.08$ vs. $M = 14.2$, $SD = 3.8$, $p < .01$). Although NSSI participants scored higher for the third subscale EOR, this did not reach statistical significance ($p = .35$).

Alexithymia and PTSD in adolescence

The literature search returned two studies that investigated the relationship between PTSD and alexithymia in adolescence. The first by Chen et al. (2016) examined the mediation effects of alexithymia in PTSD among a sample of 320 Chinese adolescents (males = 141, females = 185). Participants were divided into the following four groups: Full-PTSD (males = 14, females = 19, Partial-PTSD (males = 32, females = 37), No-PTSD (males = 22, females = 28) and No-trauma control group (males = 73, females = 101). Results showed that across all groups those assigned to the Full-PTSD group demonstrated higher alexithymia in the subscale DIF ($M = 19.6$, $SD = 6.2$, $p < .01$). Both subscales DDF and EOT did not reach statistical significance. Equally, only the subscale DIF was a significant mediator of the effect of PTSD on psychiatric comorbidity ($t = 5.83$, $p < .001$). The second study by Guzzo et al. (2013) examined the mediating role of alexithymia in PTSD and bully-victims in a sample of 488 adolescents (males = 254, females = 234). Participants who reported having been victims of bullying recorded both higher PTSD and higher overall alexithymia scores. Specifically, medium to high correlations were found for the subscales DIF and DDF (range: $r = .3$ to $r = .50$, $p < .001$). Finally, overall alexithymia scores were found to mediate the effects of bullying victimization on PTSD symptoms ($\beta = .04$, $p = .03$).

Alexithymia and Borderline Personality Disorder in adolescence

Two studies assessed the relationship between alexithymia and Borderline Personality Disorder (BPD) in adolescence. The first, by Deborde et al. (2012), examined the mediating effects of alexithymia between attachment and the development of BPD in a sample of 105 female participants: 54 diagnosed with BPD according to DSM-IV criteria and 51 controls. BPD participants

scored higher overall TAS-20 scores ($M = 57.8$, $SD = 11.2$) in comparison to the control counterparts ($M = 49.8$, $SD = 9.28$). The authors reported a full mediation effect of alexithymia between fearful attachment style and BPD severity. The second study conducted by Loas et al. (2012) investigated the relationship between alexithymia and 85 adolescents (males = 11, females = 74) diagnosed with BPD and 85 age and gender-matched control participants. BPD participants showed overall higher TAS-20 scores in comparison to the control group ($M = 59.6$, $SD = 10.44$ vs. $M = 49.1$, $SD = 9.83$ at $p = .05$). Moreover, they scored higher in both subscales DIF ($M = 22.7$, $SD = 5.89$ vs. $M = 15.5$, $SD = 5.42$) and DDF ($M = 17.4$, $SD = 4.43$ vs. $M = 14.1$, $SD = 4.24$ both at $p = .05$). The subscale EOT was non-significant.

Alexithymia and other psychopathologies in adolescence

This final section summarises the results found for those studies investigating alexithymia with psychopathology in adolescence. The first study, by Honkalampi et al. (2009) examined the relationship between alexithymia and depression in a sample of 3936 adolescents (males = 1801, females = 2135) and found medium to strong correlations for overall TAS-20 scores and two of its subscales with depression (TAS-20 $r = .475$, DDF $r = .465$, DIF $r = .567$) at $p < .01$. The subscale EOT was weakly and negatively correlated $r = -.05$, $p < .01$. Herbert et al. (2018) conducted a study investigating alexithymia as a mediator between child sexual abuse and psychological distress in a group of 6531 adolescents (males = 2755, females = 3776). Alexithymia was higher in victims of sexual abuse (males $M = 11.5$, $SD = 0.5$; females $M = 12.2$, $SD = 0.3$) in comparison to non-victims (males $M = 8.5$, $SD = 0.1$; females $M = 10.8$, $SD = 0.08$). Furthermore, an indirect effect through alexithymia was found in the relationship between childhood sexual abuse and psychological distress ($b = -1.65$, $p < .01$). The third study by Schimmenti et al. (2017) involved a moderated mediation analysis on the relationship between trauma, alexithymia and internet addiction symptoms in a sample of 358 adolescents (females = 57%). Correlations were explored and overall alexithymia scores were related to childhood trauma ($r = .14$, $p < .01$). Also, alexithymia partially mediated the traumatic experiences and internet addiction symptoms. The final study chosen for inclusion investigated the relationship between alexithymia and psychosis in adolescence (van Rijn et al., 2011). The sample consisted of 34 adolescents at ultra high risk (UHR) for psychosis and 23 non-clinical controls. Results showed that UHR participants scored higher in the alexithymia subscales of the BVAQ alexithymia measure verbalizing ($M = .25$, $p < .01$) and identifying ($M = .20$, $p < .01$). The remaining subscales fantasising, emotionalising and analysing did not reach statistical significance.

Discussion

The aim of this review was to (1) systematically review the literature on alexithymia and adolescent psychopathology and (2) identify the relationship between alexithymia and psychopathology in adolescence. Overall, findings suggest that there is a link between alexithymia and various different forms of psychopathology in the adolescent population but that this relationship is poorly understood. In the studies included in this review higher levels of alexithymia were more frequently associated with the psychopathology groups than the control groups echoing results found in adult populations (Sechi et al., 2020). These results justify the importance of this review by underlining the need to further understand the relationship of alexithymia and adolescent psychopathology and any impact it may have in the development and maintenance of later chronic conditions in adulthood (Cerutti et al., 2020). Therefore, the results support the hypotheses of this review.

Over a third of the studies (38.8%) included in this review focused on the relationship between eating disorders and alexithymia in adolescence. Across all studies (except for Carriere et al., 2019) higher alexithymia scores were associated with eating disorders independent of eating disorder diagnosis. Given the high prevalence rate of eating disorders in adolescence (Galmiche et al., 2019) and their association with maladaptive emotion regulation strategies (Westwood et al., 2017) it is plausible to suggest further research to explore the role of alexithymia in these conditions. If those living with eating disorders are struggling to understand their emotions (high alexithymia) they may be employing behavioural strategies (eating behaviours) in order to regulate their discomfort (maladaptive emotion regulation strategy) which in turn may act as a maintenance factor for the disorder itself (Luminet et al., 2018). Understanding the potential link with alexithymia may help to uncover the specific problem areas that those with eating disorders have with emotion regulation (i.e. DDF, DIF, EOT) allowing clinicians to include an emotion regulation specific component in therapy based on the patient's individual needs. An example of this includes emotion-focused therapy which has shown promising results in psychological interventions (Greenberg, 2017). The study included in this review by Ohmann et al. (2013) supports this viewpoint as overall alexithymia scores dropped during treatment for AN but increased at follow up. On another note, it is important to draw attention to the fact that six of these seven studies included female-only samples. This may reflect the ongoing underrepresentation of males in the study of eating disorders as women are more likely to seek treatment than men (Lewinsohn et al., 2002). Moreover, in the study that did include males (Carriere et al., 2019), the authors did not report the gender differences for alexithymia which may have aided in further understanding this complex relationship. Nevertheless, recent studies suggest that eating disorders are increasing in men showing a shift in the research (Sweeting et al., 2015). Therefore, extending this research to the adolescent population is necessary to further understand alexithymia and eating disorders, both of which are common in this age-group (Luminet et al., 2018).

A similar outlook was observed for the relationship between alexithymia and NSSI in adolescence in line with research in the adult population which has found positive correlations between alexithymia and increased suicide risk (Luminet et al., 2018). Higher alexithymia scores were found in all three of the included studies, with one study by Cerutti et al. (2014) reporting a significantly strong correlation. However, as the sample of this study was low, $N = 10$, this should be interpreted with caution as small sample sizes are linked to reduced power and effect size as they potentially exert 'undue influence over the fit of the data to the regression line' (Lemons, 2009, p.2). Regardless, correlation does not establish causation and so this should be explored further in order to better understand the nature of this relationship (Field, 2013). These findings are in line with previous research from Hemming et al. (2019a) who found large effect sizes between alexithymia and suicide ideation (0.54) and suicide behaviour (0.25) in adults. The results of this may act as a link between suicidal behaviours and how they progress into adulthood. That is, there may be an association between increased alexithymia and worsening suicidal ideation from adolescence to adulthood (Luminet et al., 2018). Furthermore the results from this review highlight the urgency to understand the links between alexithymia and suicide as it may help further understand one of the most prominent leading causes of death in adolescents (WHO, 2019). Perhaps disorders of severe emotional dysregulation coupled with alexithymia increase feelings of hopelessness in suicidal individuals. This remains unclear but as a protective factor clinicians could screen for alexithymia in suicidal adolescents in order to adapt the therapy accordingly (Hemming et al., 2019a). Finally, two of the three selected studies included female-only samples. This underrepresentation of male

participants may be explained by the gender differences between suicide attempt and suicide death. Females are more commonly associated with suicide attempt whereas males are more likely to die from suicide, which sheds light on why suicidal males appear to be unrepresented in the research (Miranda-Mendizabal et al., 2019). There is sufficient evidence to warrant further study in the field.

In both studies which investigated the relationship between PTSD and alexithymia, mixed results were reported. In the study by Chen et al. (2016) only the DIF subscale of the TAS-20 was found to be significant and higher in the trauma group than the control group. Conversely, Guzzo et al. (2013) found significant DIF and DDF correlations with PTSD. In both studies, EOT did not reach significance. As such, these results do not clarify the already contrasting research as to whether or not alexithymia is a developmental construct (Hemming et al., 2019b) or is a result of traumatic experiences in childhood (Zeitlin et al., 1993). However, they may reflect the argument that EOT has low internal consistency which suggests that this subscale may not be a valid measurement of alexithymia (Hemming et al., 2019a). Both studies coincide in that they signal a difficulty in describing and/or identifying emotions as the core element between alexithymia and PTSD which is in line with previous research highlighting that traumatic experiences are linked to increased emotion dysregulation (Luminet et al., 2018). However, the study of trauma tends to focus on adult samples rather than adolescent samples highlighting a gap in the literature that needs to be addressed before conclusive results can be drawn (Luminet et al., 2018). Therefore, this review highlights the fact that there is limited research available on this topic within this population that needs to be addressed.

Similarly, two studies investigated the link between alexithymia and BPD in adolescence. Both studies identified an association between higher alexithymia scores and BPD. In one study (Loas et al., 2012) alexithymia subscales were examined and the authors found that only DIF and DDF were associated with BPD. This is in line with previous research within the adult population that highlights the poor emotional regulation and processing characteristics of BPD with alexithymia (Luminet et al., 2018). However, the results from this review echo an ongoing complication in the research on BPD and adolescence as clinicians are reported to be reluctant to label youth with this disorder (Paris, 2013). This suggests that there may be a lack of literature on this topic, limiting the generalisability of results from this review and providing one possible explanation as to why so few studies were recovered. However, a recent systematic review and meta-analysis of 61 studies by Winsper et al. (2016) found support for the diagnostic validity of youth BPD and the authors suggest the need for further clinical recognition in this population. As such, until the presence of BPD in adolescence has been further explored, the research of its association with alexithymia will remain unclear as has been found in this review.

Finally, there were four studies which were not grouped in the aforementioned categories as they were the only study found to investigate the respective psychopathology and its links to alexithymia in adolescence. All studies reported an association between higher overall alexithymia scores and the psychopathology explored in the study. This is in line with the general consensus that there is a relationship between alexithymia and psychopathology that requires further exploration (Luminet et al., 2018). Only one study was found investigating alexithymia and depression (Honkalampi et al., 2009) despite the fact that there is a large body of research suggesting a comorbid relationship between them (Parker et al., 1991). This may be due to the arguments that that depression and alexithymia are merely overlapping constructs (Hemming et al., 2019a). Counterarguments suggest

that the prevalence of alexithymia in depression cannot be explained solely by the shared diagnostic variance given the number of meta-analytic studies suggesting that they are in fact separate constructs (Luminet et al., 2018). The study from Herbert et al. (2018) investigated child sexual abuse and psychological distress which is commonly linked to PTSD, but they did not investigate this disorder meaning that it could not be categorised in this group. The findings that victims of sexual abuse exhibiting increased psychological distress score higher overall alexithymia scores are similar to those results found in adult samples with regards to childhood trauma (Güleç et al., 2013). This suggests that research on sexual abuse could look to include child and adolescent participants in order to understand it directly from these populations, although this raises important ethical questions and also risks putting youth in uncomfortable positions to talk about sensitive topics (Priebe et al., 2010). Finally, only one study investigated patients at risk for psychosis and the presence of alexithymia (van Rijn et al., 2011). Although results suggested a link between the constructs, there is currently very little research on the relationships between these concepts in both adult and adolescent samples (Luminet et al., 2018). Therefore, further investigation is needed to interpret the strength of this relationship.

Strengths, limitations and future directions

This review involved an extensive search of the literature on the relationship between alexithymia and adolescent psychopathology. A variety of sources was consulted, and all those studies included in the review were published in peer-review journals which has been linked to reducing publication bias in the results (Hemming et al., 2019a). Also, to the best of my knowledge, this is the first systematic review to address alexithymia and adolescent psychopathology which addresses a gap in the extant literature. It is hoped that in doing so the results will spark debate and reflection and provide insight into the relationship explored thus far as well as identify areas for further investigation.

Nevertheless, there are some limitations which must be taken into account when interpreting the results of this review. Firstly, in terms of methodology, this paper fails to incorporate more than one author. According to the Cochrane Handbook for Systematic Reviews of Interventions (Higgins et al., 2019) it is necessary to have a minimum of two authors in any systematic review in order to reduce the risk of bias. As such, the present review may include evidence of bias in the results. However, it is important to note that this review was submitted in partial fulfilment of the MSc in Child and Adolescent Psychology at the Universitat Oberta de Catalunya and therefore only one author was permitted to conduct the study. Secondly, this study only included papers in the English language which may limit the generalisability of the findings to non-Western cultures (Hemming et al., 2019a). To alleviate the impact of this exclusion criteria, papers from a diverse number of non-English speaking countries were included. Thirdly, this research focused on adolescents and therefore excluded any studies which looked at the relationship between alexithymia and psychopathology across the developmental trajectory i.e. childhood to adolescence to adulthood. Given the research suggesting that alexithymia is a developmental construct, future reviews could investigate these populations more explicitly to understand how alexithymia develops across the lifespan alongside psychopathology. Doing this may help to further knowledge about early intervention in the field which could then be implemented as a preventative measure in child and youth psychotherapy with the aim to reduce attrition rates (Lavik et al., 2018a, 2018b). Finally, no meta-analysis was conducted in this review which is an important statistical tool to include in order to estimate the effect size as well as the “mean and variance of underlying population effects from a collection of empirical

studies addressing ostensibly the same research question” (Field & Gillett, 2010, p. 665). It is suggested that future studies in the field include these analyses to strengthen the validity of findings and provide more specific insight into the results.

Another limitation to take into account is that half of the studies included a sample size of fewer than 100 participants. This suggests that caution should be taken as studies of this size may have reduced power and be prone to Type 2 error (Field, 2013). Also, the number of studies included per psychopathology represents a limitation of this study. The maximum number of studies found per psychopathology was in eating disorders with a total of 7. On one hand, this complicated the current research as it meant a broad approach to alexithymia and adolescent psychopathology had to be taken in order to conduct a systematic review to meet the requirements for this Master's Thesis (minimum 10 papers). Therefore, rather than conduct a review on one specific area of psychopathology many were included which could be seen as a limitation of this paper as it appears to lack a specific focus in the field. On the other hand, this suggests that there are (a) very few studies investigating psychopathology and alexithymia in order to draw robust conclusions and (b) that there is a lack of understanding of alexithymia and its relationship with adolescent psychopathology. However, this lack of literature may be explained by those who argue that the TAS-20 cannot be used to effectively measure alexithymia in adolescence (Parker et al., 2010). As such, perhaps the most pressing area to understand is how to effectively measure alexithymia in this population before measuring it in relation to specific psychopathologies (Luminet et al., 2018). Loas et al. (2017) have already begun researching this by investigating the TAS-20 without the EOT items, highlighting that using the two subscales DDF and DIF is an effective way to utilise the TAS-20 to measure alexithymia in adolescence. This highlights another limitation related to the heterogeneity of measurement scales used for the different psychopathologies across the included studies which can reduce the accuracy, validity and reliability of results (Hemming et al., 2019a). This was also evident within disorder categories i.e. in eating disorders many different measurements were used. Further research should aim to implement validated measurement tools to rectify this limitation (Field, 2013). Moreover, all of the studies included were based on self-report measures of alexithymia. This may point to a significant limitation. How do you ask someone to self-report on the ability to identify and describe emotions when the factor being measured is a reduced ability to do so? Future research could include a multi-method approach to account for this (Luminet et al., 2018) or experimental designs to further explore cause and effect (Hemming et al., 2019a).

Conclusions

This research paper has reviewed the results of 18 studies which investigated alexithymia and adolescent psychopathology. The review found evidence for alexithymia, particularly DDF and DIF in a variety of disorders which are also characterized by emotional dysregulation. This suggests that patients diagnosed with these disorders may benefit from a screening phase for alexithymia when assisting therapy and/or treatment programs given that common therapeutic outcomes independent of disorder include helping people “recollect, explore, and understand their emotions” (Luminet et al., 2018, p. 190). This is an important consideration for clinical practice as screening for alexithymia may help identify best treatment options for patients (Hemming et al., 2019a) for those who struggle with emotional clarity (Kennedy & Franklin, 2002). This review is the first study to systematically explore both alexithymia and adolescent psychopathology and the various limitations suggest caution upon interpreting results. Despite this, this review successfully shows an area

warranting further study which could have important implications for clinical practice and mental health treatment in adolescence.

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Conflict of interest

There are no known conflicts of interest to declare.

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Appendix A

