

**ALEXITHYMIA AND MENTAL HEALTH IN ADOLESCENTS:  
A SCOPING REVIEW**

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**Abstract**

The aim of the study was to review alexithymia in adolescents-related studies (AARS) published between 2004 (since the first public archive volume is available) and 2022 in the International Journal of Environmental Research and Public Health. The present paper attempts to explain the increasing interest in alexithymia as shown by the large number of alexithymia-related studies (ARS) on this disorder, published in this journal, in the last six years, as well as by the forthcoming special issue ‘Alexithymia and Mental Health in Adolescents: Theory, Research and Clinical Practice’ of the same journal, with a scoping review approach. The participants were adolescents from 13 counties and 2 continents. Only two interventions were subjected to the study. The systematic literature review conducted observed the Preferred Reporting Items for Systematic Literature Reviews and the Meta-Analyses (PRISMA) method. Twenty-nine ARS were selected, of which 17 are AARS. Results indicate that there is a great research interest in studying alexithymia, although IJERPH does not cover all research topics in the field.

**Keywords:** alexithymia; mental health; adolescents; review.

**1. Introduction**

Considered, in psychiatry, a ‘difficulty in experiencing, expressing, and describing emotional responses’ and, in medicine, an inability to describe emotions in a verbal manner’ (The Random House Dictionary of the English Language, 2022), alexithymia is, defined as ‘deficits in cognitive processing of emotions’ [1] and not as a mental disorder. The most likely source of alexithymia is considered to be a mix of biology and environment. In other words, some individuals may be predisposed to alexithymia from birth, and then encounter traumatic events or relationships deterioration that act as ultimate triggers.

Teenagers may have a specific need to control their emotions in reaction to stresses because of the increased independence and unique demands they face throughout adolescence compared to childhood. Failure to do so might increase the chance of mental health issues.

Researchers have studied alexithymia in adolescents from various perspectives: behavioral [2], biological [3], epistemological [4], legal, medical [2,5-8], neurobiological [9,10], psychiatric [11-17], psychological [7,18-22], and psychosomatic [23].

Scoping reviews are first and rapid exploratory evaluations of the evidence that is already accessible. This kind of investigation is necessary for having a preview over a phenomenon, such as alexithymia. The aim of a scoping review is to map a phenomenon, and it is more an exploratory project, which is focused to map different elements such as correlates, instruments or other significant information available, in a specific research field. The main purpose of the study was not to draw clear-cut conclusions about alexithymia as it happens in meta-analyses investigations or in classical systematic reviews, but to map the phenomenon, regarding several more obvious elements. This specific purpose allowed us to limit our research to only one journal, The International Journal of Environmental Research and Public Health.

## **2. Literature Review**

### *2.1. Definition and Features of Alexithymia*

Researchers defined alexithymia in different ways. Alexithymia is considered ‘not a diagnosis’ [24] but rather an idea or a theory formed of multiple concepts, which is related to individuals’ subjective world and it is not founded on empirical evidence [24], a ‘clinical construct’ [19, p.152] useful for describing patients [24, p.1], ‘a cognitive and affective disturbance’ [25, p.287], a similar to animals kind of ‘stress induced analgesia’ [26, p.30] or a ‘multidimensional construct’ [27, p.9, 28-29]. It is also considered a ‘difficulty’ [25, p.287, 27, p.12], ‘a deficit’ [30, p.156, 31], a ‘lack’ of qualities [32, p.158], or a cognitive or emotional deficit, emotional numbness, emotional indifference or emotional impairment [9], or a decrease of altruism [29] or a ‘poor ability’ [19, p.152]. It can be also viewed as a difficulty emotionalizing [27]. Alexithymia is also described as a intergenerational transmissibility (from both parents) [29] or as a decrease of altruism in social decisions [17,33].

Generally, alexithymia refers to the way individuals experience and express their emotions [27]. Alexithymia refers mainly to a reduced emotional ability to prefer inner experiences or understand, name, identify, distinguish, analyze and describe in words emotions [19, 27, 26]. It can be referred to as a diminished cognitive processing and a low ability to regulate emotional

states [30]. Other researchers define alexithymia in the social context referring to it as an inability to build and maintain relationships [31].

More often researchers refer to a number of features observed in individuals with alexithymia. These individuals have 'poor interoceptive awareness' [19, p.152], and manifest obstacles in fantasizing or emotionalizing [25] and are not fully aware of the emotions they are obviously experiencing, and they do not find words to describe the experiences they have towards other people [24]. They find it difficult to dissociate between bodily sensations and feelings [25] and they prefer to focus rather on external events and actions than on internal experiences [25]. They prefer to describe events in detail than doing the same with their inner world [9]. Individuals with alexithymia have an 'externally oriented thinking' [27, p.12], find it difficult to introspect or even socially conform [32]. They have a difficult time communicating with others, using symbols in conversations or even identifying vocal or facial signs of emotion [9]. They live an 'impoverished fantasy life' [25, p.287] as their fantasies are reduced [27] or they have a decreased capacity for fantasy [9] and their dream recall are poor [32]. Their emotional experiences are rather blunting [9].

## *2.2. Alexithymia in Adolescents*

Researchers have associated alexithymia in adolescents with antisocial behavior (including ADHD) [34], anxiety [7,13,34]), delinquency [18], depression [7,13,19,34-36], dissociation [12] or eating disorders [8,13,37]. Alexithymia is also associated with generalized anxiety disorder [21], other mental disorders [13,34], with psychiatric symptoms [17], with somatic symptom disorder [13] or even suicide risk [36].

According to researchers, alexithymia in adolescents may contribute to aggressive behavior in teenage violent psychiatric outpatients [5]. It can facilitate deliberate self-harm in bullied adolescents [17], it can lead to a higher risk of problematic Internet use in female adolescents with low affective regulation [2,7]. It can make it difficult to generate cognitive reappraisal strategies in autism spectrum disorder [16,38], or it can be a mediator in the relationship between attachment and the incidence of borderline personality disorder [15]. Alexithymia can be associated with anxiety and depression in anorexia nervosa female adolescents [8].

The present progress in research indicates that it is paramount to identify alexithymia early, as it can be a risk factor for suicide, especially when adolescents suffer from depression and in the context in which there are signs of maladaptive early schemata [36]. Studies indicate that there are a number of predictors of alexithymia. Fear of separation found in anxious attachment style was a predictor of alexithymia and also the low ability to identify feelings. In addition, con-

straints on closeness found in avoidant attachment was a significant predictor of difficulties expressing feelings verbally. Individuals who have a predominant exterior-oriented way of thinking reported also a low attachment to the primary figure of attachment [20]. Alexithymia can be also predicted by other variables such as: children's perception of a neglectful parenting style [17,39-43], a speech development deficit in childhood [13,44], a lower cognitive ability to evaluate, naming and expressing in words the emotional states experienced [2], a low self-control of emotions [45,46] or parents' alexithymic traits [17].

### 3. Materials and Methods

#### 3.1. Study Design

This research represents a single journal scoping review of literature, taking into account the Preferred Reporting Items for Systematic Literature Reviews and the Meta-Analyses (PRISMA) method [17,47,48]. This research method was chosen due to its relevance for academic studies [49-55].

The main research questions that this scoping review is addressing are:

- (1) What topics have been recently studied to address alexithymia in adolescents?
- (2) What research progress has been made in the publications disseminated by International Journal of Environmental Research and Public Health?

#### 3.2. Conducting the Scoping Review

The systematic literature review was conducted in the *International Journal of Environmental Research and Public Health*. The database was searched between the 3<sup>rd</sup> of September and the 23<sup>rd</sup> of September, 2022, for studies published from 2004 up to the 1<sup>st</sup> of September, 2022. Although the time interval for this scoping review was large, about 15 years, and included hundreds of articles, actually, the first published article on alexithymia, in this journal, which we found, was in 2009. But the first volume available in the IJERPH public archive database was found starting with 2004.

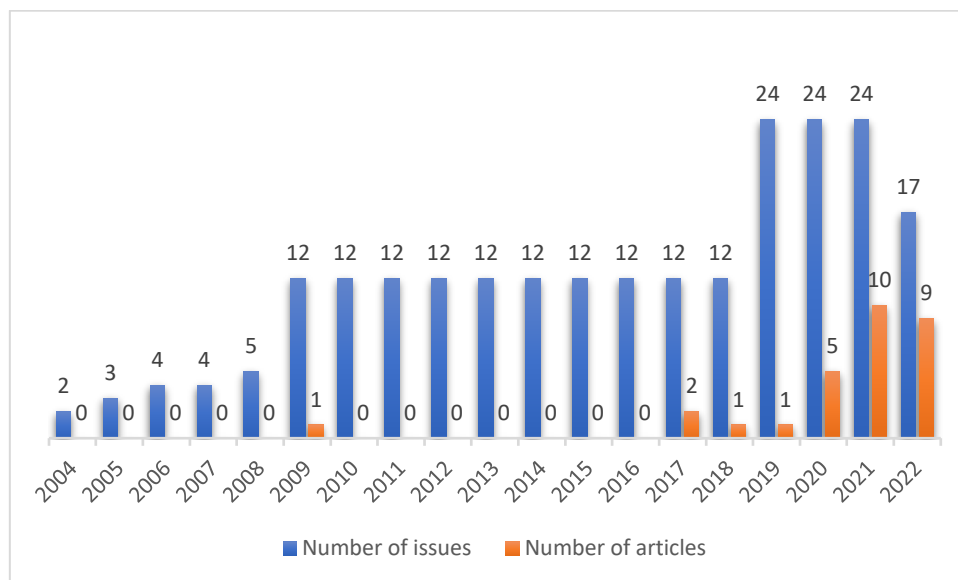
Only studies containing the search term 'alexithymia' in the title, abstract and/or keywords were included in the study in the first phase (see Table 1, Figure 1, Table 2). The search term 'adolescents' in the title, abstract and/or keywords was included in the study, in the second phase (see Table 3).

**Table 1.** ARS between 2004 and the 1<sup>st</sup> of September, 2022.

Year	Number	Issues	Studies	Year	Number	Issues	Studies
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2004	1	2	absent	2014	11	12	absent
2005	2	3	absent	2015	12	12	absent
2006	3	4	absent	2016	13	12	absent
2007	4	4	absent	2017	14	12	2
2008	5	5	absent	2018	15	12	1
2009	6	12	1	2019	16	24	1
2010	7	12	absent	2020	17	24	5
2011	8	12	absent	2021	18	24	10
2012	9	12	absent	2022	19	17	9
2013	10	12	absent				

Source: Table created with Microsoft Word.



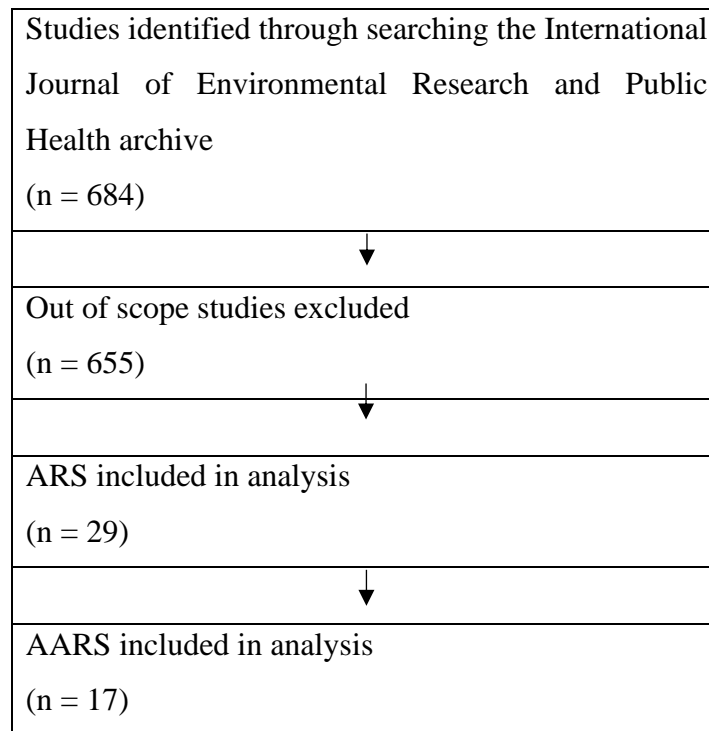
**Figure 1.** ARS between 2004 and the 1<sup>st</sup> of September, 2022. Blue bars refer to issues from IJERPH published every year. Orange bars refer to the number of articles published on alexithymia.

Source: Table created with Microsoft Word

### 3.3. Search Strategy

A single search strategy was applied: TITLE – ABS – KEY (alexithymia AND adolescents). Any research design, whether it used methodology, qualitative or quantitative approaches, or guideline reporting, was eligible. Our inclusion criteria were centered on approaches for research in the area of alexithymia in adolescents, thus the only selection criteria was a targeted on age demographic approach.

As a result of searching the IJERPH database, we identified a number of 17 articles on alexithymia in adolescents. The process of identification, screening, assessment of eligibility, and inclusion of studies is show in Figure 2.



**Figure 2.** Procedure of identification, screening, assessment of eligibility, and inclusion of AARS within the systematic literature review.

Source: Table created with Microsoft Word.

### 3.4. Data Presentation

A first set of data extracted from the studies selected consisted in the name of the first author, the year the study was published, the type of research, the country where the study was conducted, the sample, the age of the respondents, and the research method. A second set of data was extracted from ARS and referred to the name of the first author, the year the study was published, the aim of research, and the findings of research.

## 4. Results

Of the 684 studies published between 2004 and the first of September, 2022 only 29 (4.24%) tackle alexithymia – directly or indirectly – and only 17 tackle alexithymia in adolescents. If, between 2004 and 2017, there was a single study on alexithymia, between 2017 and September 2022 there were published 28 new studies (see Table 1, Figure 1). These numbers suggest that

the interest for such studies grew considerably. Future studies should find evidence whether this may be due to an increase of the incidence of alexithymia among adolescents in developed countries, or to the increasing sophistication of the measurement tools.

The description of the 29 ARS included in the systematic literature review presented in this Section is divided into two sub-sections: (1) Section 4.1 – Details of ARS, and (2) Section 4.2 – Key/main findings of ARS.

#### 4.1. Details of ARS Included in the Systematic Literature Review

Table 2 presents the general details of the ARS included in the systematic survey.

**Table 2.** General details of the ARS included in the systematic survey.

Author & Year	Research Method	Country	Sample	Age	Method
Celikel et al., 2009 [56]	quantitative	Turkey	1870 late adolescents	21.2 ± 2.0 years old	questionnaire (ASI, BDI, BHS, TAS-20)
Popa-Velea et al., 2017 [57]	quantitative	Romania	299 late adolescents	19.23 years old	questionnaire (FSSQ, MBI, PSS, TAS-20)
Wachs et al., 2017 [58]	quantitative	Germany, Thailand	1549 adolescents	12-18 years old	questionnaire (MQS, TAS-20)
Cimino et al., 2018 [59]	quantitative	Italy	226 adolescents	14-17 years old	questionnaire (BiES, BIS-11, TAS-20, YSR)
Romero-Martínez et al., 2019 [60]	quantitative	Spain	118 intimate partner violence against women perpetrators	41.47 years old	questionnaire (AUDIT, MCMI-III, PIS, SCL-90-R, TAS-20)
Testoni et al., 2020 [61]	quantitative	Italy	150 adolescents	12-14 years old	questionnaire (AQC, HSC, READ, SCWBS, TAS-20)
Song et al., 2020 [62]	quantitative	China	1062 adolescents	11.92–19.58 years old	questionnaire (CAIHLQ, SDS, TAS-20)
Paricio et al., 2020 [63]	quantitative	Spain	176 adolescents	11-15 years old	questionnaire (BaHS, BES, GSES, LSDSA, RSE, SSoS, SVPAD,

						TAS-20, TGIS)
Lin, 2020 [64]	quantitative	Taiwan	1060 adolescents	adolescents	14.66 years old	questionnaire (BIS, CHI, CIAS, DASS, FVI, RSE, SSuS, TAS-20, VSSS)
Casagrande et al., 2020 [65]	quantitative	Italy	210 medical patients	medical patients	40-75 years old	questionnaire (TAS-20)
Tomaszek et al., 2021 [66]	quantitative	Poland	91 patients	patients	18+ years old	questionnaire (PTGI-R, SPP25, TAS-20)
Barchetta et al., 2021 [67]	quantitative	Italy	142 subjects including late adolescents	subjects including late adolescents	19-39 years old	questionnaire (TAS-20, ZTPI)
Hobson et al., 2021 [68]	quantitative	UK	289 children & adolescents	children & adolescents	9.17-16.33 years old	questionnaire (CAM, CCC, EAQ, TAS-20, WISC)
Tambelli et al., 2021 [69]	quantitative	Italy	454 late adolescents	late adolescents	18-25 years old	questionnaire (CPDI, IPPA, TAS-20)
Ballarotto et al., 2021 [70]	quantitative	Italy	400 late adolescents	late adolescents	18-25 years old	questionnaire (BIAS, CPDI, IAT, TAS-20)
Gong et al., 2021 [71]	quantitative	China	895 males with substance use disorder	males with substance use disorder	37.87 years old	questionnaire (BIS, BWAQ, CPIC, DCS, FES, ITS, LES, PPQ, SQ, TAS-20)
Wojciechowska et al., 2021 [72]	quantitative	Poland	66 emergency operators	emergency call operators	31.09 years old	questionnaire (IES, TAS-20, WPSQ)
Mancinelli et al., 2021 [73]	quantitative	Italy	453 adolescents	adolescents	15-19 years old	questionnaire (IPPA, RPQ, TAS-20)
Topino et al., 2021 [74]	quantitative	Italy	193 online gamblers	online gamblers	28.8 years old	questionnaire (DES-II, FACES-IV, SOGS, TAS-20)
Ikarashi et al., 2021 [75]	quantitative	Japan	80 late adolescents	late adolescents	21 ± 0.5 years old	questionnaire (PVAQ, TAS-20)
Maiorana et al., 2022 [76]	quantitative	Italy	31 males	males	21-58	questionnaire (TAS-20)



Quinto et al., 2022 [77]	quantitative	Italy	150 patients with psoriasis	≥ 18 years old	questionnaire (HAS, SF-12, PASI, TAS-20)
Tsiori et al., 2022 [78]	quantitative	Greece	104 patients with psoriasis	No mention about the age of the respondents	questionnaire (BDI, SCL-90, TAS-20)
Manfredi, 2022 [79]	quantitative	Italy	396 late adolescents	18-25 years old	questionnaire (EDS, SHS, SWLS, TAS-20)
Rossi et al., 2022 [80]	quantitative	Italy	187 female patients	18-56	questionnaire (FSFI, MPQ, PANAS, QCSASC, SCL-90-R, SDBQ, SDS, SMQ, TAS-20)
La Grutta et al., 2022 [81]	quantitative	Italy	229 children	7-8 years old	Techniques (Classroom Drawing, Coloured Progressive Matrices, DANVA-2 POS, Drawn Stories, Picture of Facial Affects)
Liu et al., 2022 [82]	quantitative	China	344 late adolescents	19-22 years old	questionnaire (BPS, TAS-20, UINAQ)
Giustiniani et al., 2022 [83]	quantitative	France	83 gamers, 47 former heroin addicts	No mention about the age of the respondents	questionnaire (BDHI, BIS, DAS, SSS, TAS-20)
Di Vito et al., 2022 [84]	quantitative	Italy	150 adolescents	14-17 years old	questionnaire (PCFS, REM-71, TAS-20, YSR)

Source: Table created with Microsoft Word.

#### 4.2. Key/Main Findings of ARS Included in the Systematic Literature Review

The key/main findings of the 29 ARS included in the systematic literature review are shown in Table 3.

**Table 3.** Main findings of the 29 ARS included in the systematic literature review.

<b>Author(s)</b>	<b>Aim of research</b>	<b>Findings</b>
Celikel et al., 2009 [56]	identify a possible correlation between smoking habits and alexithymia	smoking is not related to alexithymia
Popa-Velea et al., 2017 [57]	examine the impact of alexithymia on burnout	alexithymia may play a significant role in the development of burnout syndrome
Wachs et al., 2017 [58]	research the direct and indirect associations between cyberbullying victimization and perpetration, mediated by alexithymia	the effects of cyberbullying victimization on cyberbullying perpetration are partially mediated by alexithymia
Cimino et al., 2018 [59]	identify specific clusters of maladaptive emotional-behavioral symptoms in adolescent victims of motorbike collisions considering their scores on alexithymia	adolescents' motor collisions could be associated with their difficulties in emotion regulation
Romero-Martínez et al., 2019 [60]	assess whether alexithymia is a good predictor of the discontinuation of treatment and the risk of recidivism during the initial stages of intervention in a sample of men convicted of IPVAVW perpetration	high alexithymic traits lead to discontinuation of treatment and a high risk of recidivism during the initial stages of treatment
Testoni et al., 2020 [61]	investigate the psychological effects of participation in Death Education	Death Education improves the students' ability to recognize emotions and communicate them verbally
Song et al., 2020 [62]	explore the relation among alexithymia, depressive symptoms and health literacy	alexithymia and health literacy influence depressive symptoms and health literacy has a moderating role on the association between alexithymia and depressive symptoms
Paricio et al., 2020 [63]	implement a psychosocial intervention pilot program in the	significant improvements are observed in alexithymia, among

	school environment in a rural setting and evaluate its effects	other variables
Lin, 2020 [64]	examine the prevalence of Internet addiction and identify the psychosocial risk factors during the COVID-19 outbreak	high alexithymia is predictive of Internet addiction
Casagrande et al., 2020 [65]	investigate the relationship between alexithymia and dipping status in adults	alterations in the circadian pattern of blood pressure can be linked to emotional dysregulation
Tomaszek et al., 2021 [66]	determine the role of alexithymia in the post-traumatic growth as a response to extreme stress in patients	alexithymia correlates negatively with some aspects of post-traumatic growth on kidney recipients from cadaveric donors
Barchetta et al., 2021 [67]	explore the relationship between alexithymia and time perspective	alexithymia is associated with a negative bias for past and present events
Hobson et al., 2021 [68]	examine parent and child report measures of alexithymia in children with Developmental Language Disorder, and their association to children's communication skills	children with Developmental Language Disorder score higher on parental measures of alexithymia
Tambelli et al., 2021 [69]	assess alexithymia, attachment to parents and peers, and peritraumatic distress due to COVID-19	attachment to fathers and peers, but not to mothers, and alexithymia significantly predict levels of peritraumatic distress
Ballarotto et al., 2021 [70]	verify whether peritraumatic distress due to the COVID-19 pandemic mediated the relationship between emerging adults' alexithymia and their Internet/Instagram addiction	emerging adults' levels of alexithymia significantly predicts the levels of Internet and Instagram addiction and peritraumatic distress due to the COVID-19 pandemic mediated this relationship
Gong et al., 2021 [71]	explore which factors had a greater impact on substance craving in	alexithymia positively predicts substance cravings

	people with substance use	
Wojciechowska et al., 2021 [72]	investigate the relationship between alexithymia, stress at work, and post-traumatic stress disorder in impact emergency call center operators	alexithymic individuals have a higher risk of developing post-traumatic stress disorder
Mancinelli et al., 2021 [73]	understanding the interplay between adolescents' perceived attachment to parents, alexithymia, and reactive/proactive aggression behaviors	lower alexithymia has direct and indirect effects on reactive aggression behavior
Topino et al., 2021 [74]	investigate the relationship between alexithymia, dissociation, and family functioning in contributing to online gambling problems	higher levels of alexithymia are personal risk factors for online gambling problems
Ikarashi et al., 2021 [75]	investigate whether the correlation between alexithymia and hypervigilance to pain is influenced by catechol-O-methyltransferase polymorphism	the correlation between alexithymia and hypervigilance to pain is influenced by catechol-O-methyltransferase polymorphism
Maiorana et al., 2022 [76]	assess the effect of surgical masks on configural and featural processing of faces and subsequent effects on emotion perception	in subjects with low levels of alexithymia, the sight of a masked face can lead to the maladaptive activation of configural face processing
Quinto et al., 2022 [77]	examine the mediating role of anxiety and depression in the relationship between alexithymia and mental health in psoriasis patients	assessing alexithymia and psychological distress in clinical practice is important in identifying vulnerable patients
Tsiori et al., 2022 [78]	evaluate the relationship between depression, psychopathology symptoms, and alexithymia in psoriasis patients	alexithymia is a significant factor in the development of psychopathology in psoriasis patients
Manfredi, 2022 [79]	investigate if symptomatic and	increased levels of alexithymia

	at-risk subjects have higher values of alexithymia	can increase the risk of exercise dependence
Rossi et al., 2022 [80]	assess the psycho-emotional profile of women with endometriosis and with alexithymia	alexithymia seems to be implicated in the low sexual functioning of women with endometriosis
La Grutta et al., 2022 [81]	evaluate the effectiveness of implementing a psycho-educational group intervention aimed at improving children's emotional competence	psycho-educational programs in school for promotion of emotional health prevent the development of clinical conditions linked to alexithymia
Liu et al., 2022 [82]	explore the relationship between alexithymia, boredom proneness, and internet novel addiction	alexithymia may directly and indirectly predict internet novel addiction through boredom proneness
Giustiniani et al., 2022 [83]	compare individuals with Internet gaming disorder and former heroin addicts with regard to alexithymia	alexithymia could influence the orientation towards massively multiplayer online role-playing games
Di Vito et al., 2022 [84]	explore the emotional-behavioral functioning in adolescents that have experienced more than three motor vehicle collisions in a year	alexithymia represents a crucial risk factor for adolescents' motor vehicle collisions

Source: Table created with Microsoft Word.

## 5. Discussion

As this is a scoping review investigation, the discussion section presents a mapping perspective, meant to group and categorize the existing articles published in *International Journal of Environmental Research and Public Health*, from the point of view of nature, features or volume.

### 5.1. Details of ARS Included in the Systematic Literature Review

In this scoping review, 29 ARS published between 2009 and 2022 were included. Most studies were published in 2021 [66-75] – ten studies in 2022 [76-84]. Five publications were published in 2020 [61-65], two in 2017 [57,58], and three publications were each published in 2009 [56], 2018 [59], and 2019 [60], respectively (see Table 2).

The ARS were conducted in different countries: China [62,71,82], France [83], Germany [58], Greece [78], Italy [59,61,65,67,69,70,73,74,76,77,79-81,84], Japan [75], Poland [66,72], Romania [57], Spain [60,63], Taiwan [64], Thailand [58], Turkey [56], and United Kingdom [68]. It is worth noticing that most research respondents are from developed European countries, where Italy leads with 14 studies. Future studies might clarify whether these studies are the effect of multifaceted social development or they were published in the attempt to better understand and find solutions for alexithymia.

The number of respondents varied significantly and ranged between up to 100 people in each of the four studies [66,72,75,76], 101-250 people in each of the thirteen studies [59-61,63,65,67,74,77,78,80,81,83,84], 251-500 people in each of the seven studies [57,68-70,73,79,82], and over 501 people in each of the five studies [56,58,62,64,71].

Various methods of statistical analysis were used, including: analysis of variance [61,63,65,70,74,81,84], binary/binomial logistic regression analysis [62,78], chi-squared analysis [62], correlation analysis [67,69-71,73-75,77,84], descriptive analysis [57,64,70,80,81], factor analysis [58,64,68,79], hierarchical cluster analysis [59], hierarchical regression analysis [68], linear regression analysis [60,66,83], logistic regression analysis [56,60,64], mediation analysis [58,69,70,72-74,77,82], moderation analysis [61], multi-group analysis [79], multiple regression analysis [69], multivariate analysis of variance [59,80,83], path analysis [77] post hoc power analysis [58,74], simple effects analysis [63], statistical analysis [65,67,69,70,73,74,76,78,79,81-83], and stepwise backward regression analysis [57]. Alexithymia is a relatively new research topic which allows researchers to explore and find associations between this phenomenon and other psycho-social realities. Our review indicated that seventy-five measurement tools were used to assess alexithymia and related concepts. These measurement tools were labelled as checklists, indexes, inventories, measures, questionnaires, scales, screens, self-reports, surveys, or tests (see **Table 3**).

**Table 3.** Measurement tools used in the articles identified, which refer to alexithymia or dimensions which are associated with alexithymia.

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AQC - Alexithymia Questionnaire for Children,	PANAS - Positive and Negative Affects Scale,
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BaES - Basic Empathy Scale,	PASI - Psoriasis Area Severity Index,
BDHI - Buss-Durkee Hostility Inventory,	PCFS - Perceived Collective Family Scale,
BDI - Beck Depression Inventory,	PPQ - Positive Psychological Capital,
BFFQ - Brief Family Function Questionnaire,	PTGI-R - Post Traumatic Growth Inventory Questionnaire,
BIAS - Bergen Instagram Addiction Scale,	PVAQ – Pain Vigilance and Awareness Questionnaire,
BiES - Binge Eating Scale,	QCSASC - Questionnaire of Cognitive Schema Activation in Sexual Context,
BIS - Barratt Impulsiveness Scale,	READ - Resilience Scale for Adolescents,
BIS-11 - Barratt Impulsiveness Scale-11,	REM-71 - Response Evaluation Measure for Youth,
BPS - Boredom Proneness Scale for College Students,	RPQ - Reactive–Proactive Aggression Questionnaire,
BWAQ - Buss-Warren Aggression Questionnaire,	RSE - Rosenberg Self-Esteem Scale,
CAIHLQ - Chinese Adolescent Interactive Health Literacy Questionnaire,	SCL-90 - Symptom Checklist-90,
CAM - Children’s Alexithymia Measure,	SCL-90-R - Symptoms Checklist,
CCC - Children’s Communication Checklist,	SCWBS - Stirling Children’s Well-being Scale,
CHI - Chinese Happiness Inventory,	SDBQ - Sexual Dysfunctional Belief Questionnaire,
CIAS - Chen Internet Addiction Scale,	SDS - Self-Rating Depression Scale,
CPDI - COVID-19 Peritraumatic Distress Index,	SDS - Sexual Distress Scale,
CPIC - Children’s Perception of Inter-parental Conflict Scale,	SF-12 - Short Form Health Survey,
DAS - Substance Dependence Adapted Scale,	SHS - Subjective Happiness Scale,
DASS - Depression Anxiety Stress Scale,	SMQ - Sexual Modes Questionnaire,
DCS - Drug Craving Scale,	SOGS - South Oaks Gambling Screen,
DES-II - Dissociative Experience Scale-II,	SPP25 - Resilience Coping Scale Questionnaire,
EAQ - Emotional Awareness Questionnaire,	SQ - Security Questionnaire,
EDS - Exercise Dependence Scale,	SSoS - Scale of Social Skills,
	SSS - Sensation Seeking Scale,
	SSuS - Social Support Scale,
	SVPAD - Scale of Values for Positive

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FACES-IV - Family Adaptability and Cohesion Evaluation Scales-IV,	Adolescent Development,
FES - Family Environment Scale,	SWLS - Satisfaction with Life Scale,
FSFI - Female Sexual Functioning Index,	TAS-20 - Toronto Alexithymia Scale,
FVI - Five-Factor Inventory,	TGIS - Tarrant's Group Identification Scale,
GSES - General Self-Efficacy Scale,	UINAQ - Undergraduates' Internet Novel Addiction Questionnaire,
HADS - Hospital Anxiety and Depression Scale,	VSSS - Virtual Social Support Scale,
HSC - Hopelessness Scale for Children,	WISC - Wechsler Intelligence Scale for Children,
IAT - Internet Addiction Test,	WPSQ - Workplace Perceived Stress Questionnaire,
IES - Impact of Event Scale,	YSR - Youth Self-Report, and
IPPA - Inventory of Parent and Peer Attachment,	ZTPI - Zimbardo Time Perspective Inventory.
ITS - Interpersonal Trust Scale,	
LES - Life Event Scale,	
LSDSA - Life Skills Development Scale for Adolescents,	
MPQ - McGill Pain Questionnaire,	
MQS - Mobbing Questionnaire for Students,	

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Source: Table created with Microsoft Word.

### *5.2. Key/Main Findings of AARS Included in the Systematic Literature Review*

Only 17 of the ARS are AARS [5-58,60-63,66-69,72,74,78,81,83].

These AARS were conducted in China [62,82], Germany [58], Italy [59,61,67,69,70,73,79,84], Japan [75], Romania [57], Spain [63], Taiwan [64], Thailand [58], Turkey [56], United Kingdom [73].

Of the 17 AARS, eight studies [58,59,61-64,73,84] were conducted on samples of adolescents aged between 11 and 19), seven studies [56,57,69,70,75,79,82] were conducted on samples of late adolescents (aged between 18 and 25), and two studies [67,68], were conducted on mixed samples (adults and adolescents, and children and adolescents).

The author(s) of the AARS focused on alexithymia and mental health from the following perspectives: alexithymia and burnout syndrome [57], alexithymia and cyberbullying victim-



ization/perpetration [58], alexithymia and depressive symptoms (a risk factor in anxiety, substance use disorders, and suicide) [62], alexithymia and Developmental Language Disorder (a communication disorder from the group of neurodevelopmental disorders) [68], alexithymia and emotional-behavioral functioning/symptoms [58,83], alexithymia and hypervigilance (accompanied by increased anxiety) to pain [75]), alexithymia and Internet/Instagram addiction (an excessive behavioral pattern) [64,70,78,82], alexithymia and peritraumatic distress (anxiety, great pain, sorrow) [69], alexithymia and reactive/proactive aggression behaviors [73], alexithymia and smoking (a risk factor for conduct disorder, erectile disorder, major or mild Vascular Neurocognitive Disorder, panic attacks, panic disorder, tobacco use disorder correlated with ADHD and COPD) [56], alexithymia and symptomatic and at-risk subjects [79], or alexithymia and time perspective [67]. This review indicated that the number of studies on most associations between alexithymia and its correlates, in the present journal is low. In addition, although the IJERPH is related to health, the association between alexithymia and health issues refers both to DSM disorders, such as addictions, or to health related issues, such psychological functioning, for example.

Two studies have focused on possible interventions in alexithymic adolescents: a study focused on alexithymia and psychosocial intervention pilot programs [63] and another one on alexithymia and participation in Death Education [61].

### *5.3. Difficulties and Limitations*

A difficulty we faced is that we noticed an inconsistency of the age range of adolescent participants in two cases, which refer to children [68], and adults [67]. These two articles were also included in the analysis. In addition, several studies provided only the mean age of the participants [56,57,62,64,75], which made it difficult to draw accurate conclusions.

One limitation of the present study is that the present review focused only on one journal. Researching other journals might reveal new insights into the alexithymia phenomenon.

## **6. Conclusions**

Several conclusions can be drawn from the analysis of the AARS presented in Table 3.

On the one hand, the present review indicates that alexithymia is related to a number of health issues: it can increase the risk of exercise dependence [79], it correlates with hypervigilance to pain [75], it has effects on reactive aggression behavior [73], it influences depressive symptoms [62], it is a crucial risk factor for adolescents' motor vehicle collisions [84], it is associated with a negative bias for past and present events [67], and with Developmental Language

Disorder [68]. Alexithymia predicts Internet/Instagram addiction [64,70], and peritraumatic distress [69,70], while our review indicates that alexithymia is not related to smoking habits [56]. On the other hand, other studies from the journal indicate that alexithymia partially mediates the effects of cyberbullying victimization on cyberbullying perpetration [58], it could be associated with adolescents' motor collisions [59], and it may play a significant role in the development of burnout syndrome [57]. In addition, it might predict Internet novel addiction [82].

Judging the content of the published articles in this journal, the conclusions are related to the number of articles selected for publication. Although it is less important that the articles on alexithymia are not exhaustive regarding their aim and correlates, it is more important to mention that there is a growing interest to publish articles on the topic. Although the studies published in this journal indicate that there is a growing interest in this topic, future study should refine scientific investigation by advancing more intervention models. From a therapeutic standpoint, the scoping review indicates that at least in this journal there were published less articles referring to therapies and psychological interventions, which aim to address adolescents who are highly alexithymic. Strong emotional regulation abilities may improve long-term wellness, career performance, personal relationships, and even general health in addition to the more obvious advantages like feeling better immediately. Yet, a limit of this scoping review is that it indicates that in the present journal, at present, articles on psychological interventions are lacking, either as a result of the article selection by editors or owing to a lower interest in such articles in general, as research in the field is somehow at the beginning. Future investigations should go beyond the scope of the present investigation and address alexithymia topic in all important journals. The present scoping review also focused only on the term 'adolescents', in searching for articles, which might have limited the number of articles selected. Future research might broaden the aim of such investigations.

**CONFLICT OF INTEREST:** The authors declare that they have no conflict of interest.

**DATA AVAILABILITY STATEMENT:** The data used in the meta-analysis were taken from published studies. In a few cases, additional data were obtained from authors - these are listed in the results section. No new data were collected for this review study.

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