



Review

Evaluation of self-regulation in children and adolescents: a systematic review of the literature (2015-2020)

Registration protocol

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Patents: This section is not mandatory but may be added if there are patents resulting from the work reported in this manuscript.

Author Contributions: For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "Conceptualization, J.L.; methodology, J.L and F.M.; formal analysis, J.L and F.M.; writing—original draft preparation, J.L.; writing—review and editing, E.A., L.K.; visualization, J.L and F.M.; project administration, J.L. All authors have read and agreed to the published version of the manuscript.

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Data Availability Statement: In this section, please provide details regarding where data supporting reported results can be found, including links to publicly archived datasets analyzed or generated during the study. Please refer to suggested Data Availability Statements in section "MDPI Research Data Policies" at https://www.mdpi.com/ethics. You might choose to exclude this statement if the study did not report any data.

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PROTOCOL FOR ANALYSIS TABLE N°1

<i>Execution steps for the systematic review of the literature</i> This protocol is associated with the excel spreadsheet		
Number	Step	Description
1	Collections of articles	For the collection of the articles, filters were used within the searches, these are: - The article must present the abstract as available text. - The publication of the articles was between the dates 01/01/2015 to 12/31/2020. - The language used for the article is in English.
2	Articles collected from search terms.	self-regulation[Title/Abstract] AND Brain[Title/Abstract] = 227 self-regulation[Title/Abstract] AND cognition[Title/Abstract]=83 self-regulation[Title/Abstract] AND neuroscience[Title/Abstract]=28 <b>338 articles were retrieved from the PUBMED</b>
3	Elimination of repeated articles	35 articles are removed. Therefore, there are 303 items left for the next step.
4	Elimination of reviews or meta-analyzes	Elimination of reviews or meta-analyzes presented a total of 113 articles. When discounting the previous ones, they were 200 articles.
5	First elimination by criteria.	Elimination because the age requirement was not met or the age of the sample was not specified. Furthermore, articles were excluded when self-regulation was not a variable within the study. Information extracted only by abstract (eliminated n = 146). Remaining articles (n = 44).
6	Second Elimination of articles due to exclusion criteria	Elimination of articles due to exclusion criteria when analyzing the study in greater depth, in which there were inconsistencies associated with the approach to the concept of self-regulation (n = 15). 29 articles remained for analysis.
7	Final selection	29 articles were selected for information extraction according to the previously established inclusion criteria. To ensure greater organization of systematic review, a review matrix was created in an Excel spreadsheet. A separate sheet was created for each of the steps in the article selection and data collection process for this review, which can be reviewed in supplementary material. Figure 1 shows the summary of the information acquisition process and Table 2 shows all the selected articles with their general identification for subsequent extraction linked to the categories of analysis.

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*CLASSIFICATION OF ARTICLES ACCORDING TO CONCEPTS TABLE N°2*

Explicit and / or detailed definition of self-regulation	Implicit, ambiguous or brief definition	Use the concept but do not define
Bell (2019)	Fosco( 2018)	Anokhin (2017)
Chavez (2020)	Grabell (2017)	Bowling (2017)
Hanson (2019)	Lopez (2016)	Densing (2018)
Kaldoja (2015)	Lopez (2017)	Edginton (2016)
Lackner (2018)	Nash (2015)	Gabriels (2015)
Lim (2016)	O'Connor (2015)	Goldschmidt (2018)
Malanchini (2019)	Rohr (2020)	Lakes (2019)
Miller (2015)	Tiego (2020)	Marsh (2015)
Ryan (2019)	Urban (2018)	Marusak (2018)
Wang (2017)		Modi (2018)

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CLASSIFICATION OF ARTICLES ACCORDING TO SYMPTOMATOLOGICAL CHARACTERISTICS OF THE SAMPLE  
TABLE N°3

Characteristics of the sample (according to health, behavior, or cognitive variables)	Artículos	Tontal (n)
Focus of the study is diagnosis of ASD	Edginton (2016); Gabriels (2015); Lakes (2019); Rohr (2020);	4
Focus of the study is diagnosis of TDAH	Fosco (2018)	1
Brain injury	Chavez (2020); Kaldoja (2015); Ryan (2019)	3
Eating disorder or eating behavior problems	Goldschmidt (2018); Lopez (2016); Lopez (2017); Marsh (2015)	4
Fetal alcohol syndrome	Nash (2015)	1
Epilepsy	Modi (2018)	1
Disruptive behavior	Grabell (2017)	1
Population with multiple diagnoses (without focusing on one)	Bowling (2017)	1
Population at risk of suffering from mental health problems	Marusak (2018)	1
Healthy population or typical development	Densing (2018); Miller (2015); Tiego (2020); Wang (2017)	4
Intellectually gifted population	Urben (2018)	1
Few or no inclusion / exclusion criteria for health, behavior or cognitive variables	Anokhin (2017); Bell (2019); Hanson (2019); Malanchini (2019); Lackner (2018); O'Connor (2015)	6

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CLASSIFICATION OF ARTICLES ACCORDING TO THE AGE OF THE SAMPLE  
TABLE N°4

0-5 age	6-11 age	12-18 age	18+age
Grabell (2017)	Chavez (2020) (6-12 years old)	Densing (2020) Group 11-13years old y group 20-25years old	
Kaldoja (2015)	Goldschmidt (2018) 9-12years old	Hanson (2019) 11years old and 25 years old (longitudinal)	
Miller (2015)	Lakes (2019) average 8,5years old / SD=2	Wang (2017) 16-20 years old, average 18,48 years old	
Ryan (2019) 5-16 years old, average 11 years old.			Lopez (2016) 18-23 years old
	Bell (2019) – From kindergarten to eight grade.		Lopez (2017) 18-23 years
	Bowling (2017) 7-16years old		
	Fosco (2018) 8-13 years old		
	Gabriels (2015) 6-16 years old		
	Lim (2016) 8-14 years old		
	Malanchini (2019) – From third to eighth grade		
	Marusak (2019) 9-16years old		
	Rohr (2020) 8-13 years old		
	Nash (2015) 8-12 years old	Anokhin (2018) 12-16 years old longitudinal	
	O'Connor (2015) 10-12 years old	Edginton (2016) 11-16 years old	
	Tiego (2020) 11-12 years old	Lackner (2018) 12-15 years old	
		Marsh (2015) adolescents under 19 years of age	
		Modi (2018) 13-17 years old	
		Urban (2018) 12-18 years old	