湖南大学学报（自然科学版）
Journal of Hunan University (Natural Sciences)

第 50 卷 第 2 期
2023 年 2 月

Available online at http://jonuns.com/index.php/journal/index

Vol. 50 No. 2
February 2023

Open Access Article https://doi.org/10.55463/issn.1674-2974.50.2.1

Statistical Results of Reasoning Disorders in Children Worldwide

Hind Baba[1], Touri Bouzekri[1], Aziz Kasmi[1], Khaoula Khennou[1], Hind Bouzoubaa[2]

[1] Laboratory of Sciences and Technologies of Information and Education (LASTIE), Faculty of Sciences Ben M'Sick, Hassan II University, Casablanca, Morocco

[2] Laboratory of Physiopathology and Molecular Genetics (LPGM), Faculty of Sciences Ben M'Sick, Hassan II University, Casablanca, Morocco

Received: December 2, 2022 ▪ Review: January 5, 2023 ▪ Accepted: February 7, 2023 ▪ Published: February 27, 2023

Abstract: The delay or absence of logical structures necessary for learning and reasoning constitutes reasoning disorders. These disorders affect more logic in general and can cause language disorders and lead to school failure in schoolchildren, especially if they go unnoticed. This study aims to make an inventory of these disorders in Morocco through a comparative study to detect the prevalence of reasoning disorders in the different countries identified by this study in the world as well as to compare them with the prevalence of these disorders in Morocco. We have chosen an intervention method: a qualitative method with an inductive approach or "inductivism" to collect the information necessary for comparing to identify the most dominant type of these disorders in Morocco and develop the tools and skills for the prevention and detection of these types of disorders. The results suggest that ADHD is prevalent in Morocco. Few studies in Morocco explain the lower statistics for these disorders, given the infrequency of observing cases of sick children suffering from symptoms associated with these disorders of the mind. Generally, these reasoning disorders are higher in men than in women. Further research into reasoning disorders may lead to the development or improvement of new methods of clinical treatment of these disorders for evaluation in clinical trials.

Keywords: reasoning disorders, children, cognitive psychology, comparative study, analogical reasoning.

全球兒童推理障礙統計結果

摘要：學習和推理所必需的邏輯結構的延遲或缺失構成推理障礙。這些障礙通常會影響更多的邏輯，並可能導致語言障礙並導致學童學業失敗，特別是如果他們沒有引起注意的話。本研究旨在通過比較研究對摩洛哥的這些疾病進行清點，以檢測這些推理障礙在世界上本研究確定的不同國家的流行情況，並將它們與這些疾病在摩洛哥的流行情況進行比較。我們選擇了一種干預方法：一種採用歸納法或"歸納法"的定性方法，以收集必要的信息進行比較，以確定摩洛哥最主要的這些疾病類型，並開髮用於預防和檢測這些類型的工具和技能 的障礙。結果表明，多動症在摩洛哥很普遍。摩洛哥很少有研究解釋這些疾病的較低統計數據，因為觀察到患有與這些精神疾病相關的症狀的患病兒童的病例很少。通常，這些推理障礙在男性中的發生率高於女性。對推理障礙的進一步研究可能會導致開發或改進這些疾病的臨床

治療新方法，以便在臨床試驗中進行評估。

关键词：推理障礙，兒童，認知心理學，比較研究，類比推理。

1. Introduction

Reasoning disorders can affect many brain systems and several cognitive functions. Cognitive factors encompass disorders of exogenous attention, encompassing our involuntary orienting responses to stimuli in the environment. Exogenous attention deficits relevant to reasoning include attention neglect, which is an inability to orient to a particular location; therefore, thus endogenous attention deficit allows us to focus. The frontal lobes mediate this type of attention. Endogenous attention deficits can impact visuospatial reasoning.

On the other hand, we find that disturbances in working memory are usually involved in reasoning about complex information when we must keep different types of information in mind to solve a problem. Finally, long-term memory deficits can lead to the inability to visualize future situations.

The second category is social deficits, containing the theory of mental deficits, which leads to difficulties in reasoning with others.

The third category of disorders is the neurology of reasoning deficits that contain impairments of the medial frontal cortex, which is essential in helping us avoid making risky financial decisions.

The fourth category constitutes the relational disorders of reasoning altered when the frontal lobes are damaged. This condition can also lead to failures of inhibitory control, which also impact reasoning performance; it contains two subcategories – alterations in visuospatial relation and challenges in understanding and applying analogies.

The fifth category is decision-making disorders identifying the effects of brain damage on decision-making.

The sixth category of reasoning disorders concerns disturbances of moral reasoning that develop during childhood and depends on an intact prefrontal cortex for advanced reasoning to develop as also the stages of moral development [1].

The majority of male primary school teachers in the city of Abha, Saudi Arabia, have insufficient knowledge about ADHD. Applying for a knowledge enhancement program can significantly improve it. Consideration should be given to incorporating ADHD knowledge enhancement programs into teacher training programs [2]. A quantitative survey in Qatar provides accurate and current assessments of the number of students with ADHD in independent private and English schools. To ensure adequate support, it is necessary to support their educational growth and development [3].

Dyscalculia, a specific disturbance of calculus, is as common as dyslexia, yet it is much less known and studied. As a result, there are never clear instructions for pedagogical arrangements and examinations specific to student dyscalculia.

We have therefore carried out an inventory of these facilities so that, standard to the suite; suggestions adapted to each student are proposed [4].

Similarly, the effectiveness of using a phonological awareness-based curriculum helps develop the skill of sequential phonetic memorization among students with learning disabilities in the Aseer region [5].

To determine and clarify the missing intelligence closest to academic achievement in children with reasoning disabilities among the three indices of the Wechsler Intelligence Scale for Children and Adolescents, 5th Edition, WISC -V. A cognitive test was administered to children from 6 years to 16 years and 8 months. Working memory index (WMI), processing speed index (PSI), and visuospatial index (VSI) are the three indices used for this study.

The results for the samples showed that public school students show a very high average of the working memory index compared to the other two indices [6].

On the other hand, a full-scale intelligence quotient is a good predictor of academic achievement. This study aimed to calculate the full-scale intelligence quotient (FSIQ) of rural Moroccan students in the region of Safi. The Wechsler Psychometric Test of Intelligence for Children and Adolescents – 5th Edition WISC V was used by administering the five indices, namely Verbal Comprehension Index, Visuospatial Index, Fluent Index, reasoning index, working memory index, and processing speed index, to compare them with the Wechsler test average [7].

The universal and invariant reasoning disorder was the Theory of Mind (ToM) – our ability to predict the behavior of others based on their underlying expectations – has been held to be across cultures. However, several ToM studies conducted outside the Anglo-American cultural or linguistic framework, the borders have obtained mixed results [8].

Although poor decision-making ultimately impairs the quality of life in depression, few studies describe the characteristics of patients with dysfunctional decision-making. This study delineates the effect of childhood trauma and other personality factors on risk-averse and loss-averse decision-making patterns in patients with depression [9].

In this review, we summarize recent advances in

research regarding the statistics of different types of reasoning disorders. We also discussed how these disorders are ranked among the countries covered by the study and to know the prevalence of these reasoning disorders in Morocco given the lack of studies on this subject.

2. Materials and Methods

This study of reasoning disorders was conducted in children from preschool to adolescent age in establishments in Morocco. We carried out a bibliographic search referring to the following keywords reasoning disorders, children, attention disorders, ADHD, working memory disturbances, long-term memory deficits, theory of mind deficits, visuospatial relational deficits, deficits in understanding and applying analogies, effects of brain damage on decision making and disturbances in moral reasoning. In this comparative study, we have chosen to use as a study method the qualitative method with an inductive approach or "inductivism," which is a method that shares a fact with raw, actual, and observable data to explain a phenomenon. Fig. 1 shows the approach of the inductive method.

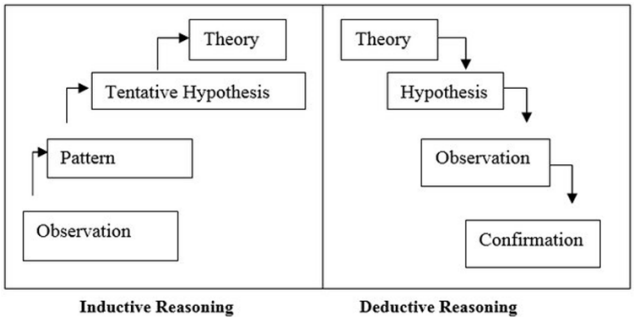

Fig. 1 Deductive and inductive reasoning methods [87]

The interest of this method is to find explanations thanks to concrete observations.

2.1. Axis 1: Inclusion, Non-Exclusion, and Study Exit Criteria

A computer database search of Academic Search Premier, Springer, PsychINFO, ScienceDirect, Web of Science, and Google Scholar was performed using the following search terms and logic: disorders, OR disturbances, OR disturbance, OR rational OR, reasoning), and children OR newborn. All the searches were limited to full-text articles published in the following countries: USA, France, Canada, England, Japan, the Gulf countries (Saudi Arabia, Qatar, and Kuwait), and Morocco were selected.

Studies were selected based on their content, either a quantitative investigation of each type of disorder or an IR synthesis study using a childhood age component. Since this review aimed to identify all available research evidence on reasoning disabilities, studies were not necessarily excluded based on methodological shortcomings such as small sample size or absence of the sample number, absence of a control group, or the dominance of a single-sex. However, studies were excluded if they did not contain the prevalence percentages of these disorders. Additionally, studies that referred only to general information about reasoning (i.e., no specific reference to the reasoning disabilities) were not considered for inclusion. Fig. 2 represents the stages of applying the inclusion and exclusion criteria to extract the sources that meet the conditions of the study.

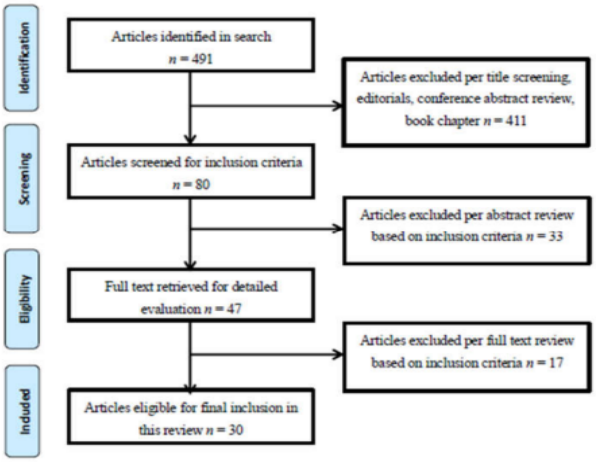

Fig. 2 Resource extraction method by inclusion and exclusion for the review

Finally, the age criterion is a limiting factor in accepting or rejecting articles, and studies conducted on children under or equal to 18 years old remain under consideration.

Table 1 Summary report of the results of research work on reasoning disorders

Source	Type	Authors	Date	Results
[13]	Article	Visser, S.N., Danielson, M.L., Bitsko, R.H., Holbrook, J.R., Kogan, M.D., Ghandour, R.M., Perou, R., and Blumberg, S.J.	2014	In 2011, 11% of children/adolescents aged 4 to 17 had ever been diagnosed with ADHD (6.4 million children). Of those with a history of ADHD diagnosis, 83% were reported as currently having ADHD (8.8%); 69% of children with current ADHD were taking ADHD medication (6.1%, 3.5 million children). Parent-reported history of ADHD increased by 42% from 2003 to 2011. The prevalence of a history of ADHD, current ADHD, medication ADHD, and moderate/severe ADHD has increased significantly from 2007 estimates. The prevalence of medication ADHD increased by 28% between 2007 and 2011.
[14]	Article	Lecendreux, M., Konofal, E., & Faraone, S.V.	2010	The prevalence of ADHD in France was between 3.5% and 5.6%. The population prevalence of ADHD treatment was 3.5%. Young people with ADHD are more likely to be men than women, and, compared with children without ADHD, children

				with ADHD are more likely to have CD and ODD. Having ADHD is associated with a family history of this disorder. Young people with ADHD are more likely to have had learning difficulties, have repeated a year, and be functioning academically below the grade level.
[17]	Article	Okumura, Y., Usami, M., Okada, T., Saito, T., Negoro, H., Tsujii, N., Fujita J., and Iida, J.	2018	The 86,756 prevalent users and 30,449 incident users of ADHD medications were in the database (Table 1). The directory prevalence per 1000 inhabitants was 4.1, with a peak of 7–12 years for both sexes (Table 2). Among the predominant users, 64% used OROS-MPH (Table 1) of the incident consumers, 61% continued their drug treatment at 150 days after the index date (Fig. 1). The retention rate was much higher among 7-12-year olds than among 16-18 year olds (65 versus 43%).
[19]	Article	Bener, A.	2009	Of the students surveyed, 50.7% were boys and 49.3% girls. The data revealed that 158 boys [16.7%; 95% CI (14.4-19.2] and 50 girls [5.4%; 95% CI (4.1-7.1)] scored above the threshold (≥15) for ADH symptoms, giving an overall prevalence of [11.1%; 95% CI (9.7-12.6)]. The children who had a higher score for ADH symptoms belonged to the age group of 6 to 9 years. Children who had more score for ADH symptoms had lower school performance than those with lower scores (P = 0.002). 200 children (96.2%) with ADH were disobedient, 60.6% loud and hyperactive, 36.5% very grumpy, 37.5% bothersome and 37.9% nervous. Logistic regression identified in our study that socio-economic status, number of children, school performance, and poor parental relations were the main contributors to ADH. This shows that inbreeding has no impact on ADH children.
[31]	Article	McLean, J.F., & Hitch, G.J.	1999	Children with poor arithmetic had normal phonological working memory, but were impaired on spatial working memory and some aspects of executive processing. Compared to matched controls, they were only impaired on a task designed to assess executive processes for retaining and manipulating information in long-term memory. These deficits in the executive and spatial aspects of working memory appear to be important factors in low arithmetic scores.
[41]	Article	Durrleman, S., Burnel, M., De Villiers, J.G., Thommen, E., Yan, R., & Delage, H.	2019	These results confirm previous results in other languages for TD, and further suggest promising new directions for therapeutic programs addressing ToM delays in populations of different etiologies, namely the incorporation of complementation training.
[52]	Article	Hamilton, C., Coates, R., & Heffernan, T.	2003	The results are interpreted to indicate that these memory-spanning procedures place complex demands on the architecture of visuospatial working memory and therefore an accurate identification of which processes are actually spanning is compromised. The components of working memory would allow a more precise understanding of the development of these processes.

2.2. Axis 2: Procedures in Chronological Order

We, therefore, proceeded to the exploitation of the data collected by the content analysis method [10] and, more specifically, to the thematic analysis, which allows the highlighting of the social representations or the judgments of the authors from an examination of certain constituent elements of the literature [1]: knowledge of the various existing reasoning disorders and research on the percentage of the prevalence of these disorders in the different countries previously chosen given the relevance of the studies carried out in these countries, the effect of reasoning disorders and relational knowledge on language, restitution, memorization and appreciation of information tools, representations of reasoning disorders [11]. Fig. 3 presents the method of content analysis.

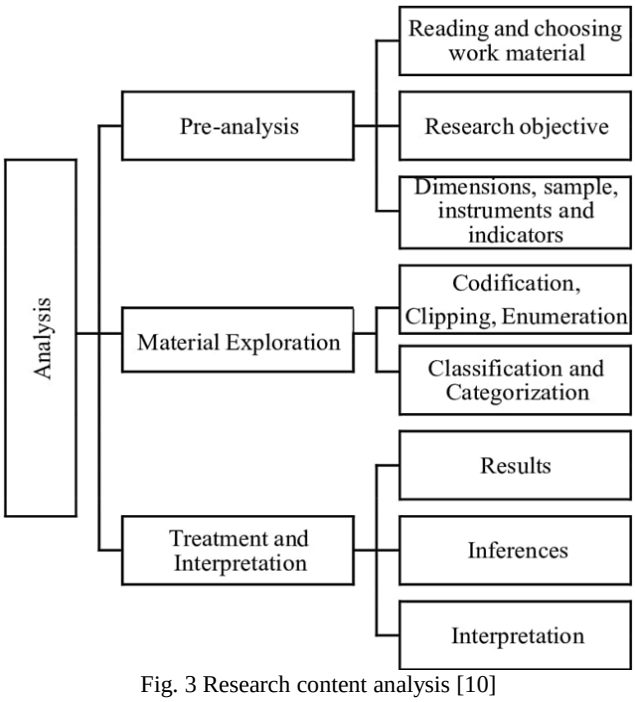

Fig. 3 Research content analysis [10]

We also sought during this study to identify the reasons for involving speech therapists in the

prescription of organized screening, thus allowing us to understand the impact of reasoning disorders on school failure in children [12].

2.3. Axis 3: Precise Definition of the Judgment Criteria

In this part, we define the criteria of judgment to evaluate the effectiveness of the research on the state of the art made thus to conduct the comparative table of the various disorders according to the various countries evoked previously, and, therefore, the ability to classify its disorders according to the most common type in each of these countries.

Criterion 1: Age (which must imperatively be less than or equal to 18 years old);

Criterion 2: Gender (which concerns the number or percentage of boys and girls presented in the analysis sample);

Criterion 3: Percentage (figures of disorders according to country);

Criterion 4: Classification (categorization of disorders according to the chronological order of their predominance).

Table 2 Statistics of reasoning disorders in children worldwide

Country	ADHD					Working memory disruptions				
	Age	Gender		% by country	Prevalence	Age	Gender		% by country	Prevalence
		M	F				M	F		
USA	4 to 17	15.1%	6.7%	8,8 [13]	3	3–6	5	5	14 [22]	7
France	6 to 12	4.7%	2.2%	5.6 [14]	4	9–14	29	21	37 [23]	3
Canada	1 to 17	5.3%	2.8%	4,1 [15]	7	7 to 11	15	3	25 [24]	4
England	5–16	2.2%	0.5%	1,5 [16]	9	4–11	30	11	80 [25]	1
Japan	7–12	4.1%		3.4–7.2 [17]	5	7	8	5	24 [26]	5
Kuwait	6 to 15	3%	1%	5.2 [18]	6	11	For boys		4–5 [27]	8
Qatar	6–12	16.7%	5.4%	11.1 [19]	2	8–16	10%	5 to 6	0.4 [28]	9
Saudi Arabia	7 to 11	100%	——	3.16 [20]	8	2.5–10.92	121	119	445 [29]	2
Morocco	< 19	84.6%	15.4%	32 [21]	1	12–13	48	39	2069 [30]	6

Table 3 Statistics of reasoning disorders in children worldwide

Country	Long–term memory loss					Theory of mind deficits				
	Age	Gender		% by country	Prevalence	Age	Gender		% by country	Prevalence
		M	F				M	F		
USA	7, 9	58	64	25 [31]	6	4 to 8	9	1	10 [40]	7
France	6	–	66	26 [32]	5	2 to 11	21	9	20–50 [41]	5
Canada	6–16	23 with TLE		30.4 [33]	4	0–17	9.5%	12%	18.1 [42]	6
England	6.5–11	52		20	58 [34]	2	32	11	15–60 [43]	4
Japan	7–10	4		90 [35]	1	6–7	8	8	50 [44]	2
Kuwait	6–7	30		6.29 [36]	8	18	100%	–	5 [45]	8
Qatar	10 and 14	–	9	57 [37]	3	11.34	15	10	66.64 [46]	1
Saudi Arabia	6–8	52.5%	47.5%	26 [38]	5	10 and 18	41%	51%	48 [47]	3
Morocco	3–6	457		10 [39]	7	≥ 6	10	10	50 [48]	2

Table 4 Statistics of reasoning disorders in children worldwide

Country	Visio–spatial relational deficits					Challenges in understanding and applying analogies				
	Age	Gender		% by country	Prevalence	Age	Gender		% by country	Prevalence
		M	F				M	F		
USA	7 and 13	18	2	17 [49]	7	8 and 17	Unimportant		11.7 [58]	2

Continuation of Table 4

France	Preschoolers	Unimportant		57 [50]	4	Grades 3 to 5	Unimportant		51 [59]	7
Canada	5–9	82	96	70 [51]	2	Grade 1	39	35	40 [60]	5
England	6–9	37	41	75 [52]	1	7–10	15	9	32.9 [61]	4
Japan	9–12	47%	53%	36 [53]	5	5–6	40	40	40 [62]	5
Kuwait	13–15	279	281	23 [54]	6	–	39%	61%	7 [63]	1
Qatar	Mean 11.2	56%	–	61 [55]	3	5–6	28	———	46 [64]	6
Saudi Arabia	7.94–10.98	56.21%	43.79%	11.76 [56]	9	10–11	Unimportant		14 [65]	3
Morocco	98.90 months	26	34	15.28 [57]	8	4; 2–8; 3	Unaccountable		81 [66]	8

Table 5 Statistics of reasoning disorders in children worldwide

Country	**The effects of brain damage on decision making**					**Disruptions in moral reasoning**				
	Age	**Gender**		**% by country**	**Prevalence**	**Age**	**Gender**		**% by country**	**Prevalence**
		M	**F**				**M**	**F**		
USA	8 to 16	Unimportant		37.5 [67]	4	–	64%	56%	54 [76]	1
France	18	65.6%	34.4%	40.5 [68]	5	–	16	4	20.9 [77]	5
Canada	8–17	51.6%	–	87.1 [69]	9	11.0	15 males		11.7 [78]	7
England	18	44%	56%	70 [70]	8	18	100	100	39.75 [79]	4
Japan	Preschool	68	78	44 [71]	6	Fifth grade	40	35	42 [80]	3
Kuwait	< 2	–		58 [72]	7	Mid to late teens	10– 0	12 to 14	50 [81]	2
Qatar	< 2	53%	47%	6–8 [73]	1	17	45	137	17,2 [82]	6
Saudi Arabia	≤18	78.4%	21.6%	32.1 [74]	3	8–10	44	72	> 5 [83]	9
Morocco	9.6	16		25 [75]	2	12 to 18	59%	41%	11.5 ٪ [84]	8

3. Results

3.1. Comparison According to the Studied Countries

- *ADHD:* We notice a higher prevalence of ADHD in Moroccan children 32% occupied the first class by country designated in this study, followed by Qatar - 11.1%, then 8.8% in the USA, then 5.6% in France, 3.4-7.2% in Japan 5.2% among children in Kuwait, then 4.1% among Canadian children, 3.16% among children in Saudi Arabia, and finally 1.5% among children in England.

- *Working memory disturbances:* England occupies the first class among the countries cited with a prevalence of 80%, followed by Saudi Arabia - 44.5%, then France - 37%, Canada - 25%, Japan - 24%, Morocco - 20.69%, the USA - 14%, Kuwait - 4-5%, and finally Qatar - 0.4%.

- *Long-term memory deficits:* Japan has the first class in long-term memory deficits with 90%, while England occupies the second class with a prevalence of 58%, then Qatar with a prevalence close to England at 57%, which occupies the third class, then Canada - 30.4%, France - 26%, Saudi Arabia and the USA with a percentage of 25%, while in Morocco it is 10% and at the end Kuwait with 6.29%.

- *Theory of mind deficits:* The prevalence of this disorder increases in Qatar with a percentage of 66.64%, followed by Japan and Morocco - 50%, then Saudi Arabia - 48%, then England with a prevalence between 15 to 60%, France - 20 to 50%, Canada - 18.1%, the USA - 10%, and at the end, Kuwait with a percentage of 5%.

- *Visuospatial relational deficits:* The prevalence of visuospatial relational deficits increases in children in England at 75%, then in Canada with a prevalence of 70%, then in Qatar at 61%, then in France at 57%, then in Japan at 36%, then in Kuwait at 23%, while 17% in the USA, and Morocco and Saudi Arabia occupy the last places successively.

- *Challenges of understanding and applying analogies:* The percentage of children who understand and apply the analogy too low in Kuwait is 7%, followed by American children with a percentage of 11.7%, 14% among Saudi children, then increases

gradually in children in England with 32.9%, then in Canadian and Japanese children with 40%, almost half of the sample of the population studied in Qatar and France has a challenge of understanding and applying analogies successively 46% and 51%, and finally in Morocco, 81% of children understand and apply the analogy.

- *The effects of brain damage on the decision:* Qatar ranks first among the countries cited in this study on the prevalence of the effects of brain damage on the decision, of which only 6-8% of brain damage in Qatari children does not affect the decision, followed by 25% of brain lesions in Moroccan children without impact on the decision, then 32.1% of the lesions have no impact on the decision in Saudi children, then 37.5% in the USA and 40.5% of children in France do not have decision-making difficulties, 44% of Japanese children who have decision-making ability while 58% have this ability in Kuwait and almost the majority of children have this ability for decision-making; in England, it is 70% and in Canada - 87.1%.

- *Disturbances of moral reasoning:* Almost half of the children in the USA and Kuwait represent deficits in moral reasoning with a prevalence of 54% and 50% successively; however, in Japanese children, the percentage rises to 42%, whereas only 39.75% of children who represent this disorder in England and 20.9% of children presenting this disturbance in France and with a prevalence of 17.2% in Qatari children; this proportion decreases to reach 11.7% and 11.5% successively in Canadian and Moroccan children and rare (less than 5%) in children in Saudi Arabia who present disturbances in moral reasoning.

3.2. Comparison between Developed Countries

We notice that developed countries have a higher prevalence of ADHD in the USA and France, while it is gradually decreasing in Japan and Canada and almost absent in England.

While working memory disturbances have the highest prevalence in England, followed by France, Canada, and Japan, and finally a very low prevalence in the USA.

For long-term memory deficits, the highest percentage is 90% in Japan, then an average prevalence ranging from 58% to 30% successively in England and Canada, and a prevalence of approximately 25% in France and the USA.

The prevalence of theory of mind deficits increases by 50% in Japan, England, and France, while it decreases in Canada and the USA.

Visuospatial Relational Deficits have risen to about 70% in England and Canada and 57% in France, while in Japan and the United States, the proportion is negligible.

The percentage of deficits in understanding and applying analogies is more preponderant in the USA with a percentage of 88.3%, then a gradual decrease in England to 67.1%, then to 60% in Canada and Japan to arrive at half of the children exposed to this trouble in France.

The effects of brain damage on the decision are dominant, with a prevalence of 62.5% in the USA, 59.5% in France, 56% in Japan, and uncommon in England and Canada, successively 30% and 12.9%.

Almost half of the children have disturbances of moral reasoning in the USA and Japan, and only a quarter of children with this disorder in England and France, while a tenth of children in Canada with this disorder.

3.3. Comparison between Gulf Countries and Morocco

ADHD is very common in Morocco, with a prevalence of 32%, followed by Qatar at a very low prevalence of 11.1% and almost very uncommon in Kuwait and Saudi Arabia.

Half of the children have working memory disturbances in Saudi Arabia, so about twenty children have this type of disorder, whereas very few children are exposed to this disorder in Kuwait and almost an absence of this disturbance among children in Qatar.

More than half of the children in Qatar show long-term memory deficits, while almost a third of children in Saudi Arabia present this disorder, a tenth of children in Morocco reveals this deficit, and less than one in twenty children in Kuwait are rarely exposed to this type of disorder.

The theory of mind deficits is a very present disorder in Qatar at 66.64%, followed by Morocco at 50% and Saudi Arabia at 48%, while it is very rare in Kuwait – only 5%.

Visuospatial Relational Deficits are very common in Qatar 61% (6/10) while a minority (2/10) of children with this disorder in Kuwait also 15% (< 2/10) of children caused by this disorder deficit in Morocco and (1/10) in Saudi Arabia according to the studies conducted.

Deficits in understanding and applying analogies are very preponderant in Kuwait 93% and in Saudi Arabia 86% and are average among children in Qatar 54% and low among Moroccan children 19%

The effects of brain damage on the decision are very frequent reasoning disorders of which Qatar dominates the first class with a prevalence of 92-94%, while Morocco occupies the second class with a prevalence of 75%, then very high in Saudi Arabia at 67.9%, and 42% exist among children in Kuwait.

Almost half of the children in Kuwait exhibit these disturbances of moral reasoning, yet only 17.2% of children in Qatar and 11.5% of children in Morocco exhibit these disturbances, while rarely more than 5% of children in Saudi Arabia identify with these types of trouble.

3.4. Comparison by Gender

ADHD is more abundant in males than females in the USA, France, Canada, England, Kuwait, Qatar, and Morocco, while it is the same for males than females in Japan, and it exists only in males in the sample studied in Saudi Arabia, where the study only includes males.

Disturbances of working memory is a very preponderant disorder in males than females in the countries of USA, France, Canada, England, Japan, and Morocco, while 100% of males in Kuwait in the sample studied, which does not involve only males and sex does not matter in Qatar and Saudi Arabia, where the prevalence of these disorders is identical in males and females.

Long-term memory deficits is a deficit that exists more in males than females in England and Saudi Arabia, while it is dominant in females in the USA, where the prevalence of females is more than males, and in France and in Qatar, where the sample only includes girls while the gender is not identified in Canada, Japan, Kuwait, and Morocco.

Theory of mind deficits is a disorder that is more prevalent in girls than boys in America's countries, France, England, and Qatar, yet for the countries Canada, and Saudi Arabia, the prevalence is higher in girls than boys, while it is the same for girls as for boys in Japan and Morocco and 100% for boys where the population comprises only boys in Kuwait.

The percentage of Visuospatial Relational Deficits is higher in boys than girls in Qatar, Saudi Arabia, and the USA, while it is higher in females than males in Canada, England, Japan, and Morocco; whereas in France and Kuwait, there are no differences between the sexes.

Deficits in understanding and applying analogies are higher among boys than girls in Canada, England, and Kuwait, while they are similar for both boys and girls in Japan, while they are present at 100% among boys in Qatar according to the sample studied where the sex factor does not matter in the USA, France, Saudi Arabia, and Morocco where there is a lack of information concerning sex.

The effects of brain damage on the decision is trauma affecting decisions with a prevalence of males exposed more than females in France, Canada, Qatar, and Saudi Arabia and are less exposed than females in England, Japan, and where sex not identified in the USA, Kuwait, and Morocco.

Disturbances of moral reasoning are more frequent in males than females in most of the countries studied: USA, France, England, Japan, and Morocco, except in Qatar, and 100% of the disturbances revealed in the population in Canada are in males, except for the reverse in Saudi Arabia, where the prevalence of females is higher than males. In Kuwait, the reference to sex is not mentioned.

3.5. Comparison between Reasoning Disorders

The most predominant disorder is deficits in understanding and applying analogies, with 93% among affected children in Kuwait. The effects of brain damage on decision-making in children exposed to this type of disorder are 92%, with deficits of long-term memory, which occupies 3rd place (90%) in Japanese children. The 80% of the disturbances of working memory ranked in 4th place among children in England. Visuospatial Relational deficits belong to the fifth class among these disorders studied at 75% in England, with a prevalence of 66.64% among children in Qatar. Theory of mind deficits has the sixth class.

Nevertheless, the disturbances of moral reasoning occupy the seventh class with a prevalence of 54% appearing in American children, and at the end, 32% of children in Morocco are exposed to ADHD, which represents the last disorder rarely frequented among children.

4. Discussion

Impairment of reasoning, currently, is a requirement requiring further study, examination, and reflection.

Existing reviews of these disorders suggest the need for critical examination of their current definition as a key step toward developing new research.

Although several conducted quantitative studies concerning reasoning disorders, these results have not been synthesized to identify the different types of reasoning disorders that can be attributed, in part, to the multidisciplinary nature of RDs research and, in particular, the low number of studies.

Therefore, the first objective of this systematic review was to identify the state of the statistical studies that reveal the prevalence of reasoning disorders in each country delineated in the study.

The second objective was to determine the degree of existence of its various disorders by classifying each disorder according to the countries studied and thus to identify the most predominant disorder in each country.

Overall, the results of this review suggest that among RDs remain deficits in understanding and applying analogies, the effects of brain injury on decision-making, and deficits in long-term memory, the most prominent disorders ranging successively by 93%-92%-90%, unlike Attention Deficit Disorders and Hyperactivity are ranked in the last position, affecting almost a third of children with an incidence of 32%.

By comparing current and previous studies, the prevalence of reasoning disorders has always been higher in men than in women, and the prevalence of ADHD has always undergone some change. The prevalence of ADHD in France was between 3.5% and 5.6%. Therefore, in this recent study, it was 5.6%.

ADHD directly affects the learning levels of the 200 children with ADHD (96.2%) that were defiant; 60.6% were loud and hyperactive, 36.5% were very moody, 37.5% - irritable and 37 .9% - neurotic.

Previous studies have also yielded surprising news about DR. Certain impairments in the execution and spatial aspects of working memory appear to be important causes of low computational scores.

ADHD is associated with a family history of this disorder. Young people with ADHD are more likely to have learning disabilities, repeat grades, and perform lower.

Children with higher scores for ADH symptoms were in the 6-9-year-old group. Socioeconomic status, number of children, school performance, and poor parental relationships were the primary causes of ADH, indicating that inbreeding does not affect children with ADH.

Another promising new direction for treatment programs addressing Tom's retardation in populations of diverse etiologies is the incorporation of complementary training.

The statistics presented are synthetic from the literature reviews and deserve further validation, but suggest multiple avenues for original research in this area, partially in the diagnosis and management of these disorders in future screening.

The scope of this review included both statistics and categorization of reasoning disabilities by country using empirical-inductive or survey-based methodologies.

Consistent with previous reviews of the incidence of these reasoning disorders, there are very few published studies on reasoning disorders that span all typologies of these disorders.

Although this review was not designed to assess the limitations and inconsistencies, several inconsistencies in diagnosis and management have been observed. Two weaknesses of current diagnostic interventions for RDs have been highlighted: the delay in diagnosis when the complications of failure come to weigh down the clinical picture and the insufficient role of maternal and child protection services in the follow-up of children at risk [85].

Existing management studies, as a rule, are insufficient, yet RDs are not covered by a single intervention. This discovery suggests the need for early and appropriate care aimed at improving the deficient functions while involving health professionals, in conjunction with parents and teachers, in addition to improving a health course for these children, constitutes a major issue to plan a social and professional future in complete independence [86].

5. Conclusion

With its tentative recognition, cognitive psychology and the correlates of reasoning disorders can be the focus of many future studies. Such investigations offer new opportunities to assess alternative perspectives and conceptual models of the disorder. This review proposes that there may be several important and distinct types of cognitive reasoning that fit into categories.

The statistical study of the various reasoning disorders in the world reveals the difference between these from one country to another. Although often compared to other countries identified by this study, RDs may have a unique cognitive profile rarely answered in Morocco given the lack of studies and diagnoses in this sense.

The results show that ADHD is prevalent in Morocco, whereas impaired working memory is predominant in England, and long-term memory deficits are dominant in Japan, where mind deficits are higher. In Qatar, visuospatial relational deficits are higher than in England. As deficits in understanding and applying analogies increase among children in Kuwait

Qatar occupies the first class among the countries where brain damage affects the decision, while only 50% of the children present disorders of moral reasoning in the USA. Generally, these reasoning disorders are higher in men than in women.

Current diagnostic procedures for RD, complications associated with failure to weigh the clinical picture, delayed diagnosis, and inadequate maternal and child protective services in the subsequent care of at-risk children were identified.

However, it is impossible to identify children affected by these disorders by a simple intervention that directly affects the prevalence of these disorders. Therefore, several screening sessions are necessary.

Further studies of reasoning impairment cognition could lead to the development of new methods and/or improvements in clinical therapy for RDs for evaluation in clinical trials. Ultimately, it is hoped that continued basic and applied research on RDs can increase clinical knowledge and contribute to recognizing RDs as legitimate disorders.

Recent scientific news related to the analysis of the post-traumatic stress disorder group showed a correlation between maladaptive emotion regulation strategies and negative cognitive biases. Moderation analysis revealed cognitive biases that explain the relationship between emotion regulation strategies and overall trauma exposure and how they accentuate emotional problems in PTSD.

A more accurate understanding of cognitive function in people with PTSD will lead to clearer diagnosis and better management. Determining what aspects of a person’s cognitive and psychological functioning have been altered by trauma can help design the most appropriate treatment program.

References

[1] KRAWCZYK D.C. Disorders of reasoning. In: *Reasoning – The Neuroscience of How We Think*. Elsevier, 2018: 155-176. DOI: 10.1016/B978-0-12-809285-9.00007-7

[2] ALSHEHRI A.M., SHEHATA S.F., ALMOSA K.M., and AWADALLA N.J. Schoolteachers’ knowledge of

attention-deficit/hyperactivity disorder-current status and effectiveness of knowledge improvement program: A randomized controlled trial. *International Journal of Environmental Research and Public Health*, 2020, 17(15): 5605. https://doi.org/10.3390/ijerph17155605

[3] BRADSHAW L.G., and KAMAL M. Prevalence of ADHD in Qatari school-age children. *Journal of Attention Disorders*, 2017, 21(5): 442-449. https://doi.org/10.1177/1087054713517545

[4] GRISARDS *Inventory of educational arrangements and examinations for young people with dyscalculia*. University of Lille, 2012.

[5] ALKHAWALDEH M.A., and KHASAWNEH M.A.S. The Effectiveness of Phonological Awareness Training in Treating Deficiencies in Auditory Processing Among Children with Learning Disabilities Among Elementary Cycle Students in Saudi Arabia. *International Journal of Language Education*, 2020, 4(3): 350-360.

[6] IMANE G., KHALID M., MOHAMMED B. and TOURI B. Working Memory, Processing Speed, Visuospatial and Class Notes: Proof of the Administration of Intelligence Test on Moroccan Students. *International Journal of School and Cognitive Psychology*, 2020, 7(220): 1-4. http://doi: 10.35248/2469-9837.19.6.220

[7] BERGADI M., MARNOUFI K., TOURI, B., and GHAZLANE I. Intelligence analysis among rural learners in Morocco. In: *International Psychological Applications Conference and Trends*, 2020: 1-6. DOI: 10.36315/2020inpact016

[8] KOBAYASHI C., GLOVER G.H., and TEMPLE, E. Cultural and linguistic influence on neural bases of "Theory of Mind": an fMRI study with Japanese bilinguals. *Brain and Language*, 2006, 98(2): 210-220. https://rb.gy/oiwkgf

[9] HUH H.J., BAEK K., KWON J.H., JEONG J., and CHAE J.H. Impact of childhood trauma and cognitive emotion regulation strategies on risk-aversive and loss-aversive patterns of decision-making in patients with depression. *Cognitive Neuropsychiatry*, 2016, 21(6) : 447-461. https://doi.org/10.1080/13546805.2016.1230053

[10] BARDIN L. *Content analysis*. French University Press, 2013. http://doi:10.3917/puf.bard.2013.01.

[11] KRZEMIEN M. Analogical reasoning, relational knowledge and language disorders. *Glossa*, 2016, 119: 1-22.

[12] DEHETRE A. *Speech therapist professional booklet 2019*. National federation of speech therapists, France, 2019.

[13] VISSER S.N., DANIELSON M.L., BITSKO R.H., HOLBROOK J.R., KOGAN M.D., GHANDOUR R.M., PEROU R., and BLUMBERG S.J. Trends in the parent-report of health care provider-diagnosed and medicated attention-deficit/hyperactivity disorder: United States, 2003-2011. *Journal of the American Academy of Child and Adolescent Psychiatry*, 2014, 53(1): 34-46. DOI: 10.1016/j.jaac.2013.09.001

[14] LECENDREUX, M., KONOFAL, E., and FARAONE, S. V. Prevalence of Attention Deficit Hyperactivity Disorder and Associated Features among Children in France. *Journal of Attention Disorders*, 2010, 15(6) : 516-524. DOI: 10.1177/1087054710372491

[15] DIALLO F.B., ROCHETTE L., PELLETIER É., LESAGE A., VINCENT A., VASILIADIS H.-M., and PALARD S. *Surveillance of attention deficit disorder with or without hyperactivity (ADHD) in Quebec*. National Institute of Public Health of Quebec, Canada, 2019. https://www.inspq.qc.ca/sites/default/files/publications/2535_surveillance_deficit_attention_hyperactivite.pdf

[16] RUSSELL G., RODGERS L.R., UKOUMUNNE O.C., and FORD T. Prevalence of Parent-Reported ASD and ADHD in the UK: Findings from the Millennium Cohort Study. *Journal of Autism and Developmental Disorders*, 2013, 44(1): 31-40. https://rb.gy/yg1ucq

[17] OKUMURA Y., USAMI M., OKADA T., SAITO T., NEGORO H., TSUJII N., FUJITA J., and IIDA J. Prevalence, incidence and persistence of ADHD drug use in Japan. *Epidemiology and Psychiatric Sciences*, 2019, 28(6): 692-696. https://doi.org/10.1017/S2045796018000252

[18] SALEM H., YOUSSEF I.M., ALKHADHARI S., FAHMY M.T., HAGGAG W.E., MUHAMED A.G., and RADWAN D.N. Attention deficit hyperactivity disorder in a referred sample of school-aged children in Kuwait: sociodemographics, frequency, clinical presentations and impairments. *The Egyptian Journal of Psychiatry: Official Journal of the Egyptian Psychiatric Association*, 2014, 35(3): 115. https://rb.gy/tgs00p

[19] BENER A. The prevalence of attention deficit hyperactivity symptoms in school children: A highly consanguineous community. *European Psychiatry*, 2009, 24. DOI: 10.1016/s0924-9338(09)70622-4

[20] MOTAWEH D., HIROMITSU, and AHMED. Effectiveness of the proposed training program on attention and working memory for children with special needs in Saudi Arabia. *Life Science Journal*, 2014, 11(8): 461-473. DOI: 10.13140/RG.2.2.31537.84320

[21] VAN DEN BAN E.F., SOUVEREIN P.C., VAN ENGELAND H., SWAAB H., EGBERTS T.C.G., and HEERDINK E. R. Differences in ADHD medication usage patterns in children and adolescents from different cultural backgrounds in the Netherlands. *Social Psychiatry and Psychiatric Epidemiology*, 2015, 50(7): 1153-1162. https://rb.gy/nu6ck6

[22] ROMAN A.S., PISONI D.B., and KRONENBERGER W.G. Assessment of Working Memory Capacity in Preschool Children Using the Missing Scan Task. *Infant and Child Development*, 2014, 23: 575-587. https://rb.gy/qddzty

[23] SWANSON H.L., and HOWELL M. Working memory, short-term memory, and speech rate as predictors of children's reading performance at different ages. *Journal of Educational Psychology*, 2001, 93(4): 720-734. https://rb.gy/2dle02

[24] TANNOCK R., ICKOWICZ A., and SCHACHAR R. Differential Effects of Methylphenidate on Working Memory in ADHD Children with and without Comorbid Anxiety. *Journal of the American Academy of Child & Adolescent Psychiatry*, 1995, 34(7): 886-896. https://rb.gy/hijbun

[25] ALLOWAY T.P., GATHERCOLE S.E., KIRKWOOD H., and ELLIOTT J. Evaluating the validity of the Automated Working Memory Assessment. *Educational Psychology*, 2008, 28(7): 725-734. https://rb.gy/8o59rb

[26] MARTON K., and SCHWARTZ R.G. Working Memory Capacity and Language Processes in Children With Specific Language Impairment. *Journal of Speech Language and Hearing Research*, 2003, 46(5). https://rb.gy/lsoztb

[27] ELSAYYAD H., EVERATT J., MORTIMORE T., and HAYNES C. The influence of working memory on reading comprehension in vowelized versus non-vowelized Arabic. *Reading and Writing*, 2016, 30(4): 871-886. https://doi.org/10.1007/s11145-016-9705-1

[28] SALEH M.S., ALJAAM J.M., KARIME A., and

SADDIK A. An edutainment system for assisting qatari children with moderate intellectual and learning disability through exerting physical activities. In: *IEEE Global Engineering Education Conference (EDUCON)*, 2013. https://rb.gy/ix7csg

[29] RAKHLIN N.V., ALJUGHAIMAN A., and GRIGORENKO E.L. Assessing language development in Arabic: The Arabic language: Evaluation of function (ALEF). *Applied Neuropsychology: Child*, 2019, 10(1): 37-52. https://doi.org/10.1080/21622965.2019.1596113

[30] KHALID M., TOURI B., MOHAMMED B., and IMANE G. Working memory, processing speed & visuospatial intelligence tests results compared to class performance within Moroccan pupils. *European Journal of Education and Applied Psychology*, 2020, 2: 27-32.

[31] MCLEAN J.F., and HITCH G.J. Working memory impairments in children with specific arithmetic learning difficulties. *Journal of Experimental Child Psychology*, 1999, 74(3): 240-260. DOI:10.1006/jecp.1999.2516

[32] ORDONEZ MAGRO L., ATTOUT L., MAJERUS S., and SZMALEC A. Short-and long-term memory determinants of novel word form learning. *Cognitive Development*, 2018, 47: 146-157. https://doi.org/10.1016/j.cogdev.2018.06.002

[33] GASCOIGNE M.B., SMITH M.L., BARTON B., WEBSTER R., GILL D., and LAH S. Accelerated long-term forgetting in children with temporal lobe epilepsy. *Neuropsychologia*, 2014, 59: 93-102.

[34] ALLOWAY T.P., and GATHERCOLE S.E. The role of sentence recall in reading and language skills of children with learning difficulties. *Learning and Individual Differences*, 2005, 15(4): 271-282. https://rb.gy/urfk7e

[35] UNO A., KANEKO M., HARUHARA N, and KAGA M. Disability of phonological versus visual information processes in Japanese dyslexic children. In: *Sixth International Conference on Spoken Language Processing (ICSLP 2000) Beijing, China, October 16-20, 2000*, 2: 42-44. https://www.isca-speech.org/archive_v0/archive_papers/icslp_2000/i00_2042.pdf

[36] AL-GHURAIR N. Adaptive Arabic application for enhancing short-term memory of Dyslexic children. *Journal of Engineering Research*, 2019, 7(1). https://kuwaitjournals.org/jer/index.php/JER/article/view/7894

[37] HAMDY HASSAN R., and NEVES J. Teaching vocabulary to deaf students through enriched subtitling: A case study in Qatar. *International Journal of Language Translation and Intercultural Communication*, 2019, 8: 10. https://doi.org/10.12681/ijltic.20274

[38] YADAV S., and BHATTACHARAYA C. Effectiveness of Memory Package to improve long term memory and problems related to memory among children of age group 6-8 years in selected school. *Saudi Journal of Nursing and Health Care*, 2021, 4(7): 170-177.

[39] BOUHOUCH R. R., EL-FADELI S., ANDERSSON M., ABOUSSAD A., CHABAA L., ZEDER C., and ZIMMERMANN M.B. Effects of wheat-flour biscuits fortified with iron and EDTA, alone and in combination, on blood lead concentration, iron status, and cognition in children: a double-blind randomized controlled trial. *American Journal of Clinical Nutrition*, 2016, 104(5): 1318-1326. https://doi.org/10.3945/ajcn.115.129346

[40] WELLMAN H.M., BARON-COHEN S., CASWELL R., GOMEZ J.C., SWETTENHAM J., TOYE E., and LAGATTUTA K. Thought-bubbles help children with autism acquire an alternative to a theory of mind. *Autism*, 2002, 6(4): 343-363. https://rb.gy/7kb7ck

[41] DURRLEMAN S., BURNEL M., DE VILLIERS J.G., THOMMEN E., YAN R., and DELAGE H. The Impact of grammar on mentalizing: a training study including children with autism spectrum disorder and developmental language disorder. *Frontiers in Psychology*, 2019, 10. https://doi.org/10.3389/fpsyg.2019.02478

[42] SPADY D.W., SCHOPFLOCHER D.P., SVENSONL. W., and THOMPSON A.H. Prevalence of Mental Disorders in Children Living in Alberta, Canada, as Determined From Physician Billing Data. *Archives of Pediatrics & Adolescent Medicine*, 2001, 155(10): 1153-1159. https://rb.gy/zpenci

[43] BUITELAAR J.K., WEES M., SWAAB-BARNEVELD H., and GAAG R.J. Verbal memory and performance IQ predict theory of mind and emotion recognition ability in children with autistic spectrum disorders and in psychiatric control children. *Journal of Child Psychology and Psychiatry*, 1999, 40(6): 869-881. https://rb.gy/rshvul

[44] KOBAYASHI C., GLOVER G. H., and TEMPLE E. Cultural and linguistic influence on neural bases of "Theory of Mind": An fMRI study with Japanese bilinguals. *Brain and Language*, 2006, 98(2): 210-220. https://rb.gy/oiwkgf

[45] ELTAWEEL E., and IBRAHIM M. Theory of mind deficits in symptom remittent schizophrenia. *Middle East Current Psychiatry*, 2017, 24(3): 102-108. https://doi.org/10.1097/01.xme.0000516723.00890.f0

[46] WILU A., ALLAIN P., MOUSTAFA A.A., and EL HAJ M. To whom did I tell that information?: Relationship between destination memory and theory of mind in traumatic brain injury. *Applied Neuropsychology: Adult*, 2021, 28(1): 1-11. https://doi.org/10.1080/23279095.2019.1585350

[47] AL-SUGHAYR A.M., and FERWANA M.S. Prevalence of mental disorders among high school students in National Guard Housing, Riyadh, Saudi Arabia. *Journal of Family & Community Medicine*, 2012, 19(1): 47-51. https://rb.gy/y2yfw1

[48] SZCZYPIŃSKI J., ALIŃSKA A., WALIGÓRA M., KOPERA M., KRASOWSKA A., MICHALSKA A., and MARCHEWKA A. Familiarity with children improves the ability to recognize children's mental states: an fMRI study using the Reading the Mind in the Eyes Task and the Nencki Children Eyes Test. *Scientific Reports*, 2020, 1. https://doi.org/10.1038/s41598-020-69938-4

[49] FACOETTI A., ZORZI M., CESTNICK L., LORUSSO M.L., MOLTENI M., and PAGANONI P. The relationship between visuo-spatial attention and nonword reading in developmental dyslexia. *Cognitive Neuropsychology*, 2006, 23(6): 841-855. https://rb.gy/x20irb

[50] FRANCESCHINI S., GORI S., RUFFINO M., PEDROLLI K., and FACOETTI A. A causal link between visual spatial attention and reading acquisition. *Current Biology*, 2012, 22(9): 814-819. https://rb.gy/cpobig

[51] NADLER R.T., and ARCHIBALD L.M.D. The Assessment of Verbal and Visuospatial Working Memory with school age Canadian children. *Canadian Journal of Speech-Language Pathology and Audiology*, 2014, 38(3): 262-279. https://psycnet.apa.org/record/2014-45614-001

[52] HAMILTON C., COATES R., and HEFFERNAN T. What develops in visuo-spatial working memory development? *European Journal of Cognitive Psychology*, 2003, 15(1): 43-69. DOI: 10.1080/09541440303597

[53] KOKUBO N., INAGAKI M., GUNJI A., KOBAYASHI T., OHTA H., KAJIMOTO O., and KAGA M. Developmental change of visuo-spatial working memory in children: quantitative evaluation through an Advanced Trail Making Test. *Brain & Development*, 2012, 34(10): 799-805. https://rb.gy/htcs3v

[54] HINDAL H.S. Visual-spatial learning: A characteristic of gifted students. *European Scientific Journal*, 2014, 10 (13): 557-574. https://core.ac.uk/download/pdf/236412891.pdf

[55] EL BASHIR H., DEKAIR L., MAHMOUD Y., and BEN-OMRAN T. Neurodevelopmental and cognitive outcomes of classical homocystinuria: Experience from Qatar. *Journal of Inherited Metabolic Disease Reports*, 2015, 21: 89-95. https://rb.gy/zlgssz

[56] TAHA M.M., and EL NAGAR H.Z. Constructing and norming Diagnostic Battery Tests of verbal and non-verbal learning disabilities for students in Arabic schools. *Insights into Learning Disabilities*, 2018, 15(1): 65-84. http://files.eric.ed.gov/fulltext/EJ1182859.pdf

[57] KLEEMANS T., SEGERS E., and VERHOEVEN L. Cognitive and Linguistic Predictors of Basic Arithmetic Skills: Evidence from First-language and Second-language Learners. *International Journal of Disability, Development and Education*, 2014, 61(3): 306-316. https://rb.gy/0w42iy

[58] GREEN A.E., KENWORTHY L., MOSNER M.G., GALLAGHER N.M., FEARON E.W., BALHANA C.D., and YERYS B.E. Abstract Analogical Reasoning in High-Functioning Children with Autism Spectrum Disorders. *Autism Research*, 2014, 7(6): 677-686. https://rb.gy/6ebq88

[59] BOSSE M.L., VALDOIS S., and TAINTURIER M.J. Analogy without priming in early spelling development. *Reading and Writing*, 2003, 16(7): 693-716. https://rb.gy/ceeisp

[60] WALTON P.D., WALTON L.M., and FELTON K. Teaching rime analogy or letter recoding reading strategies to prereaders: Effects on prereading skills and word reading. *Journal of Educational Psychology*, 2001, 93(1): 160-180. https://rb.gy/hfbpzc

[61] WRIGHT J., and JACOBS B. Teaching Phonological Awareness and Metacognitive Strategies to Children with Reading Difficulties: A comparison of two instructional methods. *Educational Psychology*, 2003, 23(1): 17-47. https://rb.gy/ucvvmh

[62] INAGAKI K., and HATANO G. Young children's spontaneous personification as analogy. *Child Development*, 1987, 58(4): 1013. https://rb.gy/ojtkmf

[63] GILBERT E.A. Culture, lay science, and analogies: Westerners think X → Y, Easterners think X :: Y. *PsyArXiv Preprints*, 2017. https://doi.org/10.31234/osf.io/v3dnr

[64] GLADY Y., FRENCH R.M., and THIBAUT J.P. Children's failure in analogical reasoning tasks: A problem of focus of attention and information integration? *Frontiers in Psychology*, 2017, 8: 707. https://doi.org/10.3389/fpsyg.2017.00707

[65] BEVERIDGE M., and PARKINS E. Visual representation in analogical problem solving. *Memory & Cognition*, 1987, 15(3): 230-237. https://rb.gy/vdtn0r

[66] BLOM E., POLIŠENSKÁ D., and WEERMAN F. Articles, adjectives and age of onset: the acquisition of Dutch grammatical gender. *Second Language Research*, 2008, 24(3): 297-331. https:/ https://rb.gy/7qlli0

[67] HANTEN G., SCHEIBEL R.S., LI X., OOMER I., STALLINGS-ROBERSON G., HUNTER J.V., and LEVIN H.S. Decision-making after traumatic brain injury in children: a preliminary study. *Neurocase*, 2006, 12(4): 247-251. https://rb.gy/ub31qv

[68] JOLLANT F., BELLIVIER F., LEBOYER M., ASTRUC B., TORRES S., VERDIER R., and COURTET P. Impaired Decision Making in Suicide Attempters. *American Journal of Psychiatry*, 2005, 162(2): 304-310. https://rb.gy/virw0a

[69] KULLY-MARTENS K., TREIT S., PEI J., and RASMUSSEN C. Affective Decision-Making on the Iowa Gambling Task in Children and Adolescents with Fetal Alcohol Spectrum Disorders. *Journal of the International Neuropsychological Society*, 2012, 19(02). https://rb.gy/igswba

[70] HUH H.J., BAEK K., KWON J.H., JEONG J., and CHAE J.H. Impact of childhood trauma and cognitive emotion regulation strategies on risk-aversive and loss-aversive patterns of decision-making in patients with depression. *Cognitive Neuropsychiatry*, 2016, 21(6): 447-461. https://doi.org/10.1080/13546805.2016.1230053

[71] TAKAGISHI H., KOIZUMI M., FUJII T., SCHUG J., KAMESHIMA S., and YAMAGISHI T. The Role of Cognitive and Emotional Perspective Taking in Economic Decision Making in the Ultimatum Game. *PLoS ONE*, 2014, 9(9). https://rb.gy/ggwbpi

[72] HENNELLY K.E., MANNIX R., NIGROVIC L.E., LEE L.K., THOMPSON K.M., MONUTEAUX M.C., PROCTOR M., and SCHUTZMAN S. Pediatric traumatic brain injury and radiation risks: a clinical decision analysis. *Journal of Pediatrics*, 2013, 162(2): 392-397. https://rb.gy/fjehfw

[73] AL-SHAMI R., KHAIR A. M., ELSEID M., IBRAHIM K., AL-AHMAD A., ELSETOUHY A., KAMEL H., AL YAFEI K., and MOHAMED K. Neuro-imaging evaluation after the first afebrile seizure in children: A retrospective observational study. *Seizure: The Journal of the British Epilepsy Association*, 2016, 43: 26-31. https://doi.org/10.1016/j.seizure.2016.10.008

[74] ALHABDAN S., ZAMAKHSHARY M., AL NAIMI M., MANDORA H., ALHAMDAN M., AL-BEDAH K., AL-ENAZI S., and AL-HABIB A. Epidemiology of traumatic head injury in children and adolescents in a major trauma center in Saudi Arabia: implications for injury prevention. *Annals of Saudi Medicine*, 2013, 33(1): 52-56. https://rb.gy/cacic5

[75] KHALIL J., CHAABI S., OBERLIN O., SIALITI S., HESSISSEN L., and BENJAAFAR N. Medulloblastoma in childhood: What effects on neurocognitive functions? *Cancer Radiotherapy*, 2019, 23(5): 370-377. DOI: 10.1016/j.canrad.2018.11.004.

[76] HAAN N., SMITH M.B., and BLOCK J. Moral reasoning of young adults: political-social behavior, family background, and personality correlates. *Journal of Personality and Social Psychology*, 1968, 10(3): 183-201. https://rb.gy/hiomye

[77] O'CONNOR, R.E. Political activism and moral reasoning: Political and apolitical students in great Britain and France. *British Journal of Political Science*, 1974, 4(1): 53-78. https://rb.gy/ijneei

[78] BEAUCHAMP M.H., DOOLEY J.J., and ANDERSON V. A preliminary investigation of moral reasoning and empathy after traumatic brain injury in adolescents. *Brain Injury*, 2013, 27(7-8): 896-902. https://rb.gy/5vkomf

[79] SPENSER K.A., BULL R., BETTS L., and WINDER B.

Gender Differences in Theory of Mind, Empathic Understanding, and Moral Reasoning in an Offending and a Matched Non-Offending Population. *International Journal of Offender Therapy and Comparative Criminology*, 2021, 66(5). https://doi.org/10.1177/0306624x211010287

[80] BEAR G.G., MANNING M.A., and SHIOMI K. Children's Reasoning about Aggression: Differences between Japan and the United States and Implications for School Discipline. *School Psychology Review*, 2006, 35(1): 62-77. https://rb.gy/hwxwje

[81] BOYDEN J. The Moral Development of Child Soldiers: What Do Adults Have to Fear? Peace and Conflict. *Journal of Peace Psychology*, 2003, 9(4): 343-362. https://rb.gy/nxjfuo

[82] YUGUERO O., ESQUERDA M., VIÑAS J., SOLER-GONZALEZ J., and PIFARRE J. Ethics and empathy: The relationship between moral reasoning, ethical sensitivity and empathy in medical students. *Revista Clinica Espanola (English Edition)*, 2019, 219(2): 73-78. https://doi.org/10.1016/j.rceng.2018.09.009

[83] ALSAMIH M., and TENENBAUM H.R. Saudi Arabian children's reasoning about religion-based exclusion. *British Journal of Developmental Psychology*, 2018, 36(3): 508-513. https://doi.org/10.1111/bjdp.12238

[84] BAYSU G., CELESTE L., BROWN R., VERSCHUEREN K., and PHALET K. Minority Adolescents in Ethnically Diverse Schools: Perceptions of Equal Treatment Buffer Threat Effects. *Child Development*, 2016, 87(5): 1352-1366. https://doi.org/10.1111/cdev.12609

[85] ABBASSI B. *School failure: diagnostic orientation and therapeutic perspectives*. Ph.D. thesis, Cadi Ayyad University, 2009. https://rb.gy/ccz7vh

[86] FRENCH NATIONAL AUTHORITY FOR HEALTH. *How to improve the health course of a child with specific language and learning disorders?* 2017. http://www.ffdys.com/wp-content/uploads/2018/01/guide_tsla_vf.pdf

[87] TROCHIM, W.M. and DONNELLY, J.P. *The Research Methods Knowledge Base*. 3rd ed. Atomic Dog, Cincinnati, OH, 2006.

参考文:

[1] KRAWCZYK D.C. 推理障礙。在：推理 - 我們如何思考的神經科學。愛思唯爾，2018：155-176。DOI: 10.1016/B978-0-12-809285-9.00007-7

[2] ALSHEHRI A.M.、SHEHATA S.F.、ALMOSA K.M. 和 AWADALLA N.J. 學校教師對注意力缺陷/多動障礙的知識——知識改進計劃的現狀和有效性：一項隨機對照試驗。國際環境研究與公共衛生雜誌，2020 年，17(15)：5605。https://doi.org/10.3390/ijerph17155605

[3] BRADSHAW L.G. 和 KAMAL M. 多動症在卡塔爾學齡兒童中的患病率。注意力障礙雜誌，2017 年，21(5)：442-449。https://doi.org/10.1177/1087054713517545

[4] GRISARDS 計算障礙青少年的教育安排和考試清單。里爾大學，2012 年。

[5] ALKHAWALDEH M.A. 和 KHASAWNEH M.A.S. 語音意識訓練在治療沙特阿拉伯小學學生中有學習障礙的兒童聽覺處理缺陷方面的有效性。國際語言教育雜誌，2020, 4(3): 350-360.

[6] IMANE G.、KHALID M.、MOHAMMED B. 和 TOURI B. 工作記憶、處理速度、視覺空間和課堂筆記：摩洛哥學生智力測試管理證明。國際學校與認知心理學雜誌，2020, 7(220): 1-4. http://doi:10.35248/2469-9837.19.6.220

[7] BERGADI M., MARNOUFI K., TOURI, B., 和 GHAZLANE I. 摩洛哥農村學習者的智力分析。在：國際心理應用會議和趨勢，2020：1-6。DOI：10.36315/2020inpact016

[8] KOBAYASHI C.、GLOVER G.H. 和 TEMPLE, E. 文化和語言對“心理理論”神經基礎的影響：對日本雙語者的 功能磁共振成像 研究。大腦與語言，2006, 98(2): 210-220. https://rb.gy/oiwkgf

[9] HUH H.J.、BAEK K.、KWON J.H.、JEONG J. 和 CHAE J.H. 童年創傷和認知情緒調節策略對抑鬱症患者風險厭惡和損失厭惡決策模式的影響。認知神經精神病學，2016, 21(6)：447-461. https://doi.org/10.1080/13546805.2016.1230053

[10] BARDIN L. 內容分析。法國大學出版社，2013 年。http://doi:10.3917/puf.bard.2013.01。

[11] KRZEMIEN M. 類比推理、關係知識和語言障礙。詞彙表，2016 年，119：1-22。

[12] DEHETRE A. 言語治療師專業手冊 2019。全國言語治療師聯合會，法國，2019。

[13] VISSER S.N.、DANIELSON M.L.、BITSKO R.H.、HOLBROOK J.R.、KOGAN M.D.、GHANDOUR R.M.、PEROU R. 和 BLUMBERG S.J. 醫療保健提供者診斷和藥物治療的注意力缺陷/多動障礙的家長報告趨勢：美國，2003-2011 年。美國兒童和青少年精神病學學會雜誌，2014 年，53(1)：34-46。DOI：10.1016/j.jaac.2013.09.001

[14] LECENDREUX, M., KONOFAL, E. 和 FARAONE, S. V. 法國兒童注意力缺陷多動障礙和相關特徵的患病率。注意力障礙雜誌，2010 年，15(6)：516-524。DOI: 10.1177/1087054710372491

[15] DIALLO F.B.、ROCHETTE L.、PELLETIER É.、LESAGE A.、VINCENT A.、VASILIADIS H.-M. 和 PALARD S. 魁北克省伴或不伴多動症 (注意力不集中/多動症) 的注意力缺陷障礙的監測。加拿大魁北克國家公共衛生研究所，2019 年。https://www.inspq.qc.ca/sites/default/files/publications/2535_surveillance_deficit_attention_hyperactivite.pdf

[16] RUSSELL G.、RODGERS L.R.、UKOUMUNNE O.C. 和 FORD T. 英國父母報告的自闭症谱系障碍和注意力不集中/多動症 的患病率：千年隊列研究的結果。自閉症與發育障礙雜誌，2013 年，44(1)：31-40。https://rb.gy/yg1ucq

[17] OKUMURA Y.、USAMI M.、OKADA T.、SAITO T.、NEGORO H.、TSUJII N.、FUJITA J. 和 IIDA J. 日本注意力不集中/多動症 藥物使用的流行率、發病率和持續性。流行病學與精神病學，2019, 28(6): 692-696. https://doi.org/10.1017/S2045796018000252

[18] SALEM H.、YOUSSEF I.M.、ALKHADHARI S.、FAHMY M.T.、HAGGAG W.E.、MUHAMED A.G. 和 RADWAN D.N. 科威特學齡兒童參考樣本中的注意力缺陷多動障礙：社會人口統計學、頻率、臨床表現和損傷 . 埃及精神病學雜誌：埃及精神病學協會官方雜誌，2014 年，35(3)：115。https://rb.gy/tgs00p

[19] BENER A. 學齡兒童注意力缺陷多動症狀的流行：一個高度血緣關係的社區。歐洲精神病學, 2009, 24. DOI: 10.1016/s0924-9338(09)70622-4

[20] MOTAWEH D.、HIROMITSU 和 AHMED。擬議的沙特阿拉伯有特殊需要兒童注意力和工作記憶培訓計劃的有效性。生命科學雜誌, 2014, 11(8): 461-473. DOI: 10.13140/RG.2.2.31537.84320
[21] VAN DEN BAN E.F.、SOUVEREIN P.C.、VAN ENGELAND H.、SWAAB H.、EGBERTS T.C.G. 和 HEERDINK E.R. 來自荷蘭不同文化背景的兒童和青少年注意力不集中/多動症 藥物使用模式的差異。社會精神病學與精神病流行病學，2015, 50(7): 1153-1162. https://rb.gy/nu6ck6
[22] ROMAN A.S.、PISONI D.B. 和 KRONENBERGER W.G. 使用缺失掃描任務評估學齡前兒童的工作記憶能力。嬰幼兒發展, 2014, 23: 575-587. https://rb.gy/qddzty
[23] SWANSON H.L. 和 HOWELL M. 工作記憶、短期記憶和語速作為不同年齡兒童閱讀表現的預測指標。教育心理學雜誌，2001，93（4）：720-734。https://rb.gy/2dle02
[24] TANNOCK R.、ICKOWICZ A. 和 SCHACHAR R. 哌醋甲酯對伴有和不伴有共病焦慮的 注意力不集中/多動症兒童工作記憶的不同影響。美國兒童與青少年精神病學學會雜誌，1995 年，34(7)：886-896。https://rb.gy/hijbun
[25] ALLOWAY T.P.、GATHERCOLE S.E.、KIRKWOOD H. 和 ELLIOTT J. 評估自動工作記憶評估的有效性。教育心理學，2008, 28(7): 725-734. https://rb.gy/8o59rb
[26] MARTON K. 和 SCHWARTZ R.G. 特定語言障礙兒童的工作記憶能力和語言過程。語言與聽力研究雜誌，2003，46（5）。https://rb.gy/lsoztb
[27] ELSAYYAD H.、EVERATT J.、MORTIMORE T. 和 HAYNES C. 工作記憶對元音化與非元音化阿拉伯語閱讀理解的影響。閱讀與寫作，2016, 30(4): 871-886. https://doi.org/10.1007/s11145-016-9705-1
[28] SALEH M.S.、ALJAAM J.M.、KARIME A. 和 SADDIK A. 一種寓教於樂的系統，通過進行體育活動來幫助具有中度智力和學習障礙的卡塔爾兒童。在：電氣和電子工程師學會全球工程教育會議，2013 年。https://rb.gy/ix7csg
[29] RAKHLIN N.V.、ALJUGHAIMAN A. 和 GRIGORENKO E.L. 評估阿拉伯語的語言發展：阿拉伯語：功能評估。應用神經心理學：兒童，2019，10(1)：37-52。https://doi.org/10.1080/21622965.2019.1596113
[30] KHALID M.、TOURI B.、MOHAMMED B. 和 IMANE G. 與摩洛哥學生的課堂表現相比，工作記憶、處理速度和視覺空間智力測試結果。歐洲教育與應用心理學雜誌，2020 年，2：27-32。
[31] MCLEAN J.F. 和 HITCH G.J. 具有特定算術學習困難的兒童的工作記憶障礙。實驗兒童心理學雜誌，1999，74（3）：240-260。DOI:10.1006/jecp.1999.2516
[32] ORDONEZ MAGRO L.、ATTOUT L.、MAJERUS S. 和 SZMALEC A. 新詞形式學習的短期和長期記憶決定因素。認知發展，2018 年，47：146-157。https://doi.org/10.1016/j.cogdev.2018.06.002
[33] GASCOIGNE M.B.、SMITH M.L.、BARTON B.、WEBSTER R.、GILL D. 和 LAH S. 顳葉癲癇患兒的長期遺忘加速。神經心理學，2014，59：93-102。
[34] ALLOWAY T.P. 和 GATHERCOLE S.E. 句子回憶對學習困難兒童閱讀和語言技能的作用。學習與個體差異, 2005, 15(4): 271-282. https://rb.gy/urfk7e
[35] UNO A.、KANEKO M.、HARUHARA N 和 KAGA M. 日本閱讀障礙兒童的語音與視覺信息過程的障礙。在：第六屆國際口語處理會議中國北京，2000 年 10 月 16-20 日，2：42-44。https://www.isca-speech.org/archive_v0/archive_papers/icslp_2000/i00_2042.pdf
[36] AL-GHURAIR N. 增強閱讀障礙兒童短期記憶的自適應阿拉伯語應用程序。工程研究學報，2019, 7(1). https://kuwaitjournals.org/jer/index.php/JER/article/view/7894
[37] HAMDY HASSAN R. 和 NEVES J. 通過豐富的字幕向聾人學生教授詞彙：卡塔爾的案例研究。國際語言翻譯與跨文化交流雜誌，2019 年，8:10。https://doi.org/10.12681/ijltic.20274
[38] YADAV S. 和 BHATTACHARAYA C. 記憶包在改善選定學校 6-8 歲兒童的長期記憶和記憶相關問題方面的有效性。沙特護理與保健雜誌，2021 年，4(7)：170-177。
[39] BOUHOUCH R. R.、EL-FADELI S.、ANDERSSON M.、ABOUSSAD A.、CHABAA L.、ZEDER C. 和 ZIMMERMANN M.B. 單獨和聯合使用鐵和乙二胺四乙酸強化小麥粉餅乾對兒童血鉛濃度、鐵狀態和認知的影響：一項雙盲隨機對照試驗。美國臨床營養學雜誌，2016 年，104(5)：1318-1326。https://doi.org/10.3945/ajcn.115.129346
[40] WELLMAN H.M.、BARON-COHEN S.、CASWELL R.、GOMEZ J.C.、SWETTENHAM J.、TOYE E. 和 LAGATTUTA K. 思想泡泡幫助自閉症兒童獲得心理理論的替代方案。自閉症，2002, 6(4): 343-363。https://rb.gy/7kb7ck
[41] DURRLEMAN S.、BURNEL M.、DE VILLIERS J.G.、THOMMEN E.、YAN R. 和 DELAGE H. 語法對心理化的影響：一項包括自閉症譜系障礙和發育性語言障礙兒童的培訓研究。心理學前沿，2019 年，第 10 頁。https://doi.org/10.3389/fpsyg.2019.02478
[42] SPADY D.W.，SCHOPFLOCHER D.P.，SVENSONL。W. 和 THOMPSON A.H. 根據醫生賬單數據確定的生活在加拿大艾伯塔省的兒童的精神障礙患病率。兒科和青少年醫學檔案, 2001, 155(10): 1153-1159. https://rb.gy/zpenci
[43] BUITELAAR J.K.、WEES M.、SWAAB-BARNEVELD H. 和 GAAG R.J. 語言記憶和表現智商預測自閉症譜系障礙兒童和精神控制兒童的心理理論和情緒識別能力。兒童心理學與精神病學雜誌，1999，40（6）：869-881。https://rb.gy/rshvul
[44] KOBAYASHI C.、GLOVER G. H. 和 TEMPLE E. 文化和語言對“心理理論”神經基礎的影響：對日本雙語者的 功能磁共振成像 研究。大腦與語言, 2006, 98(2): 210-220. https://rb.gy/oiwkgf
[45] ELTAWEEL E. 和 IBRAHIM M. 症狀緩解型精神分裂症的心理缺陷理論。中東當代精神病學，2017 年，24(3)：102-108。https://doi.org/10.1097/01.xme.0000516723.00890.f0
[46] WILU A.、ALLAIN P.、MOUSTAFA A.A. 和 EL HAJ M. 我把這些信息告訴了誰？：目的地記憶與創傷性腦損傷心理理論之間的關係。應用神經心理學：成人，2021 年，28(1)：1-11。https://doi.org/10.1080/23279095.2019.1585350

[47] AL-SUGHAYR A.M. 和 FERWANA M.S. 沙特阿拉伯利雅得國民警衛隊宿舍高中生精神障礙患病率。家庭與社區醫學雜誌，2012 年，19(1)：47-51。https://rb.gy/y2yfw1
[48] SZCZYPIŃSKI J.、ALIŃSKA A.、WALIGÓRA M.、KOPERA M.、KRASOWSKA A.、MICHALSKA A. 和 MARCHEWKA A. 熟悉兒童可以提高識別兒童心理狀態的能力：一項使用閱讀眼中有心任務和嫩基兒童眼睛測試。科學報告，2020 年，1。https://doi.org/10.1038/s41598-020-69938-4
[49] FACOETTI A.、ZORZI M.、CESTNICK L.、LORUSSO M.L.、MOLTENI M. 和 PAGANONI P. 發展性閱讀障礙中視覺空間注意力與非文字閱讀之間的關係。認知神經心理學，2006 年，23(6)：841-855。https://rb.gy/x20irb
[50] FRANCESCHINI S.、GORI S.、RUFFINO M.、PEDROLLI K. 和 FACOETTI A. 視覺空間注意力與閱讀習得之間的因果關係。當代生物學，2012，22(9): 814-819。https://rb.gy/cpobig
[51] NADLER R.T. 和 ARCHIBALD L.M.D. 對加拿大學齡兒童的語言和視覺空間工作記憶的評估。加拿大語言病理學和聽力學雜誌，2014 年，38(3)：262-279。https://psycnet.apa.org/record/2014-45614-001
[52] HAMILTON C.、COATES R. 和 HEFFERNAN T. 視覺空間工作記憶發展有何進展？歐洲認知心理學雜誌，2003 年，15(1)：43-69。DOI: 10.1080/09541440303597
[53] KOKUBO N.、INAGAKI M.、GUNJI A.、KOBAYASHI T.、OHTA H.、KAJIMOTO O. 和 KAGA M. 兒童視覺空間工作記憶的發展變化：通過高級軌跡製作測試進行定量評估. 腦與發育，2012，34(10): 799-805. https://rb.gy/htcs3v
[54] HINDAL H.S. 視覺空間學習：資優學生的一個特點。歐洲科學雜誌，2014 年，10 (13)：557-574。https://core.ac.uk/download/pdf/236412891.pdf
[55] EL BASHIR H.、DEKAIR L.、MAHMOUD Y. 和 BEN-OMRAN T. 經典同型半胱氨酸尿症的神經發育和認知結果：卡塔爾的經驗。遺傳代謝病雜誌報告，2015，21: 89-95. https://rb.gy/zlgssz
[56] TAHA M.M. 和 EL NAGAR H.Z. 為阿拉伯語學校的學生構建和規範語言和非語言學習障礙的診斷電池測試。洞察學習障礙，2018，15(1): 65-84. http://files.eric.ed.gov/fulltext/EJ1182859.pdf
[57] KLEEMANS T.、SEGERS E. 和 VERHOEVEN L. 基本算術技能的認知和語言預測因素：來自第一語言和第二語言學習者的證據。國際殘疾、發展和教育雜誌，2014 年，61(3)：306-316。https://rb.gy/0w42iy
[58] GREEN A.E.、KENWORTHY L.、MOSNER M.G.、GALLAGHER N.M.、FEARON E.W.、BALHANA C.D. 和 YERYS B.E. 患有自閉症譜系障礙的高功能兒童的抽像類比推理。自閉症研究，2014，7(6): 677-686. https://rb.gy/6ebq88
[59] BOSSE M.L.、VALDOIS S. 和 TAINTURIER M.J. 在早期拼寫發展中沒有啟動的類比。閱讀與寫作，2003，16(7): 693-716. https://rb.gy/ceeisp
[60] WALTON P.D., WALTON L.M. 和 FELTON K. 向學前班教授韻律類比或字母重新編碼閱讀策略：對預讀技能和單詞閱讀的影響。教育心理學雜誌，2001，93（1）：160-180。https://rb.gy/hfbpzc
[61] WRIGHT J. 和 JACOBS B. 向有閱讀困難的兒童教授語音意識和元認知策略：兩種教學方法的比較。教育心理學, 2003, 23(1): 17-47. https://rb.gy/ucvvmh
[62] INAGAKI K. 和 HATANO G. 幼兒的自發擬人化作為類比。兒童發展, 1987, 58(4): 1013. https://rb.gy/ojtkmf
[63] 吉爾伯特 E.A. 文化、外行科學和類比：西方人認為 X →是，東方人認為 X :: 是。PsyArXiv 預印本，2017 年。https://doi.org/10.31234/osf.io/v3dnr
[64] GLADY Y.、FRENCH R.M. 和 THIBAUT J.P. 兒童在類比推理任務中的失敗：注意力集中和信息整合的問題？心理學前沿，2017 年，8：707。https://doi.org/10.3389/fpsyg.2017.00707
[65] BEVERIDGE M. 和 PARKINS E. 類比問題解決中的視覺表示。記憶與認知，1987 年，15(3)：230-237。https://rb.gy/vdtn0r
[66] BLOM E.、POLIŠENSKÁ D. 和 WEERMAN F. 文章、形容詞和開始年齡：荷蘭語語法性別的習得。第二語言研究, 2008, 24(3): 297-331. https://rb.gy/7qlli0
[67] HANTEN G.、SCHEIBEL R.S.、LI X.、OOMER I.、STALLINGS-ROBERSON G.、HUNTER J.V. 和 LEVIN H.S. 兒童創傷性腦損傷後的決策：一項初步研究。神經病例, 2006, 12(4): 247-251。https://rb.gy/ub31qv
[68] JOLLANT F.、BELLIVIER F.、LEBOYER M.、ASTRUC B.、TORRES S.、VERDIER R. 和 COURTET P. 自殺未遂者的決策受損。美國精神病學雜誌，2005 年，162(2)：304-310。https://rb.gy/virw0a
[69] KULLY-MARTENS K.、TREIT S.、PEI J. 和 RASMUSSEN C. 患有胎兒酒精譜系障礙的兒童和青少年愛荷華州賭博任務的情感決策。國際神經心理學會雜誌, 2012, 19(02). https://rb.gy/igswba
[70] HUH H.J.、BAEK K.、KWON J.H.、JEONG J. 和 CHAE J.H. 童年創傷和認知情緒調節策略對抑鬱症患者風險厭惡和損失厭惡決策模式的影響。認知神經精神病學，2016 年，21(6)：447-461。https://doi.org/10.1080/13546805.2016.1230053
[71] TAKAGISHI H.、KOIZUMI M.、FUJII T.、SCHUG J.、KAMESHIMA S. 和 YAMAGISHI T. 最後通牒博弈中認知和情感觀點在經濟決策中的作用。公共科學圖書館一號，2014 年，9(9)。https://rb.gy/ggwbpi
[72] HENNELLY K.E.、MANNIX R.、NIGROVIC L.E.、LEE L.K.、THOMPSON K.M.、MONUTEAUX M.C.、PROCTOR M. 和 SCHUTZMAN S. 小兒創傷性腦損傷和輻射風險：臨床決策分析。兒科雜誌, 2013, 162(2): 392-397. https://rb.gy/fjehfw
[73] AL-SHAMI R.、KHAIR A.M.、ELSEID M.、IBRAHIM K.、AL-AHMAD A.、ELSETOUHY A.、KAMEL H.、AL YAFEI K. 和 MOHAMED K. 第一次神經影像評估後 兒童無熱性驚厥：一項回顧性觀察研究。癲癇發作：英國癲癇協會雜誌，2016 年，43：26-31。https://doi.org/10.1016/j.seizure.2016.10.008
[74] ALHABDAN S.、ZAMAKHSHARY M.、AL NAIMI M.、MANDORA H.、ALHAMDAN M.、AL-BEDAH K.、AL-ENAZI S. 和 AL-HABIB A. 兒童和兒童創傷性頭部損傷的流行病學 沙特阿拉伯一個主要創傷中心的青少年：對傷害預防的影響。沙特醫學年鑑，2013 年，33(1)：52-56。https://rb.gy/cacic5
[75] KHALIL J.、CHAABI S.、OBERLIN O.、SIALITI

S.、HESSISSEN L. 和 BENJAAFAR N. 兒童髓母細胞瘤：對神經認知功能有何影響？癌症放療, 2019, 23(5): 370-377. DOI：10.1016/j.canrad.2018.11.004。
[76] HAAN N.、SMITH M.B. 和 BLOCK J. 年輕人的道德推理：政治社會行為、家庭背景和人格相關性。人格與社會心理學雜誌，1968，10（3）：183-201。https://rb.gy/hiomye
[77] O'CONNOR，R.E. 政治激進主義和道德推理：英國和法國的政治和非政治學生。英國政治學雜誌，1974年，4(1)：53-78。https://rb.gy/ijneei
[78] BEAUCHAMP M.H.、DOOLEY J.J. 和 ANDERSON V. 青少年創傷性腦損傷後道德推理和同理心的初步調查。腦損傷, 2013, 27(7-8): 896-902. https://rb.gy/5vkomf
[79] SPENSER K.A.、BULL R.、BETTS L. 和 WINDER B. 心理理論、移情理解和道德推理在犯罪和匹配的非犯罪人群中的性別差異。國際罪犯治療與比較犯罪學雜誌，2021年，66(5)。https://doi.org/10.1177/0306624x211010287
[80] BEAR G.G.、MANNING M.A. 和 SHIOMI K. 兒童對侵略的推理：日本和美國的差異及其對學校紀律的影響。學校心理學評論，2006, 35(1): 62-77. https://rb.gy/hwxwje
[81] BOYDEN J. 兒童兵的道德發展：成年人有什麼好怕的？和平與衝突。和平心理學雜誌，2003，9（4）：343-362。https://rb.gy/nxjfuo
[82] YUGUERO O., ESQUERDA M., VIÑAS J., SOLER-GONZALEZ J. 和 PIFARRE J. 倫理學和同理心：醫學生的道德推理、倫理敏感性和同理心之間的關係。西班牙臨床雜誌（英文版），2019, 219(2): 73-78. https://doi.org/10.1016/j.rceng.2018.09.009
[83] ALSAMIH M. 和 TENENBAUM H.R. 沙特阿拉伯兒童對基於宗教的排斥的推理。英國發展心理學雜誌，2018年，36(3)：508-513。https://doi.org/10.1111/bjdp.12238
[84] BAYSU G.、CELESTE L.、BROWN R.、VERSCHUEREN K. 和 PHALET K. 種族多元化學校中的少數民族青少年：平等對待緩衝威脅效應的看法。兒童發展，2016, 87(5): 1352-1366. https://doi.org/10.1111/cdev.12609
[85] ABBASSI B. 學業失敗：診斷方向和治療觀點。博士論文，開齋節大學，2009年。https://rb.gy/ccz7vh
[86] 法國國家衛生局。如何改善有特定語言和學習障礙的孩子的健康歷程？2017. http://www.ffdys.com/wp-content/uploads/2018/01/guide_tsla_vf.pdf
[87] TROCHIM, W.M. 和 DONNELLY, J.P. 研究方法知識庫。第三版。原子狗，辛辛那提，俄亥俄州，2006。