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Knowledge and beliefs about attention deficit hyperactivity disorder in teachers from three latin-american countries

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Original article

SUMMARY

Background

Attention deficit hyperactivity disorder (ADHD) is a health problem that affects school functioning of those who suffer from it. To recognize the teachers´ knowledge and beliefs (KB) about ADHD is important for the development of psychoeducational and training strategies for teachers. There are few Latin American reports about the teachers´ KB and none comparing them among different countries.

Objective

To evaluate and compare the school teachers' KB about ADHD in three Latin American countries (Mexico, Dominican Republic [DR] and Bolivia).

Methods

With previous verbal informed consent, the version for teachers of ADHD self-report scale (ASRS), a self-report document that was constructed based on other instruments, was applied. The answers were examined with descriptive and comparative statistics.

Results

311 public and private school teachers were evaluated, 192 (61.7%) from DR, 84 (27%) from Mexico and 35 (11.3%) from Bolivia; 79.3% of them considered ADHD as a disease. Most of the sample considered the psychologist to be the competent health professional for its diagnosis and treatment. Multimodal treatment was the most frequently identified as the ideal one (44.1%). Regarding their KB about the pharmacological treatment, only 14.7% identified drugs as the main components of integrative treatment. The teachers recognized the treatment effects on the social and academic functioning. However, differences were found among teachers from each country regarding the importance of drug treatment or the need for multimodal treatment.

Conclusions

Teachers identify ADHD as a disease, albeit without clear recognition of its biological components. There were differences among countries, which should be taken into account in the design of the local health attention programs.

Key words: Knowledge and beliefs, teachers, ADHD, Latin America.

RESUMEN

Antecedentes

El trastorno por déficit de atención con hiperactividad (TDAH) es un problema de salud que afecta el funcionamiento escolar de quienes lo padecen. Comprender los conocimientos y creencias (CC) de los maestros resulta fundamental para el desarrollo de estrategias psicoeducativas y de capacitación para los docentes. Son pocos los reportes en Latinoamérica sobre los CC en los maestros y ninguno que compare reportes en más de un país.

Objetivo

Evaluar y comparar los CC de los maestros de niños y adolescentes en tres países latinoamericanos (México, República Dominicana [RD] y Bolivia).

Método

Previo consentimiento verbal informado, se aplicó la versión para maestros de la Cédula de Autorreporte sobre el TDAH (CASO TDAH), que fue construida a partir de otros instrumentos. Se examinaron las respuestas con estadística descriptiva y comparativa.

Resultados

Se evaluaron 311 profesores de escuelas públicas y privadas, 192 (61,7%) de RD, 84 (27%) de México y 35 (11.3%) de Bolivia. El 79.3% consideró el TDAH como una enfermedad; la mayor parte de la muestra consideró al psicólogo como el profesional de salud indicado para su diagnóstico y tratamiento. El tratamiento combinado fue el más frecuentemente señalado como el ideal (44.1%). Con respecto a sus CC acerca del tratamiento farmacológico, sólo el 14.7% señaló al fármaco como el componente más importante del tratamiento integral. Los maestros reconocieron los efectos del tratamiento en el funcionamiento social, además del académico. Sin embargo, existieron diferencias entre países con respecto al grado de impacto del mismo o la necesidad de tratamiento combinado.

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Conclusiones
Los maestros identificaron al TDAH como una enfermedad, aunque el reconocimiento de sus aspectos biológicos no fue claro. Existen diferencias por país que deben ser tomadas en cuenta en los diseños de los programas locales de atención a la salud.

Palabras clave: Conocimientos y creencias, maestros, TDAH, Latinoamérica.

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder that starts during childhood, and its main symptoms inattention, hyperactivity and impulsiveness.[1] ADHD is the most common externalizing disorder in pediatric population; its accumulated prevalence worldwide being 5.29%.[2] Children and adolescents with ADHD have a bigger risk of confronting academic difficulties and suffering from affective, anxiety and behavioral disorders. The etiology of this disorder includes neurobiological and environmental factors.[3] Neuroscience research, genetic studies[4] and pharmacological trials[5] have provided various data which support its biological origin to a great extent.

Outside the medical field, ADHD is controverted in its diagnosis and treatment. Much of the criticism suggests it is not a real disorder, but a constellation of behaviors that teachers and parents are not willing to confront or do not know how to handle.[6]

Teachers play an essential part when it comes to evaluating behavioral and academic achievement problems.[7] They are also a reliable source of information due to the contact they have with children and adolescents in various situations, and they are frequently the first to channel them for a diagnostic evaluation. Subjects with serious ADHD are the most frequently referred.[8,9] Due to the importance of the information given by teachers, the DSM-5 will require the opinion of these professionals to establish an ADHD diagnosis.[10] As well as being important for clinical evaluation, teachers also play a fundamental part in the treatment of ADHD. Kauffman et al.[11] proved in a study with 61 teachers that most of them considered themselves capable of teaching their students critical abilities, such as listening and following rules inside the classroom, and handling unacceptable behaviors such as tantrums and robbery. In spite of that, the percentage of teachers involved with the diagnostic and therapeutic processes of their students with ADHD is low.[12] The clinical handling includes participation from the teachers and parents, as well as pharmacological treatment, this being the cornerstone of the process.[13,14] The objective of the treatment is not only the reduction of symptoms, but functionality recovery as well.[15,16]

Participation from health and education professionals in the different stages of clinical evaluation and treatment of children and adolescents with ADHD make it necessary to investigate about the beliefs, knowledge and attitudes of the education professionals who work with children and adolescents with this disorder. Most of the research conducted in the last 15 years has been done in English-speaking countries such as United States and Australia.[9,12,17-20] These researches pointed out that scientific information in this area is limited; for example, the percentage of right answers in a questionnaire about knowledge regarding ADHD goes from 47.8 to 77.5%.[9,12,17,20] Apparently, the level of work experience does not affect the myths related to ADHD, such as food additives being the cause of the disorder.[18] Additionally, in-service teachers did not recognize ADHD more than the trainee teachers.[19]

When evaluating 87 Turkish elementary school teachers, it was observed that their knowledge about the cause of ADHD were rather scarce: 32.2% claimed ADHD is caused by biological vulnerabilities and genetic causes, while 65.5% said it was a consequence of bad raising. 67.8% recognized that children with ADHD experience social dysfunction, as well as academic.[21]

There are some differences between the knowledge and beliefs of the teachers of school-age children and the teachers of adolescents. A study on 193 Spanish elementary school teachers showed that they have a greater knowledge of the symptoms and diagnosis than about the treatment of ADHD.[22] Also, a recent investigation in southeastern USA proved that the teachers of adolescents with ADHD agreed to have their students receive psychosocial and pharmacological treatment.[23]

Information about the teachers' knowledge and beliefs about ADHD in Latin America is scarce. A study performed in Puerto Rico evaluated the knowledge about the disease in 132 teachers of both public and private schools, where 35% reported having previous knowledge regarding ADHD and 72% showed a low level of knowledge.[24] There are no studies that contrast the teacher populations in the Latin-American subcontinent.

The objective of this research was to describe and compare the knowledge and beliefs about ADHD in teachers of children and adolescents in Mexico, Bolivia and Dominican Republic (DR).

MATERIALS AND METHODS

The sample was made up of teachers from preschool to high school level, from public and private schools. All the teachers agreed to answer the version of ADHD self-report scale (ASRS) for teachers. The recruitment procedure was directly at

the schools and for convenience. The project complied with the requirements established through the Declaration of Helsinki and was approved by the correspondent ethics committees.

Tools

ASRS. This scale is a questionnaire based on other instruments.[25,26] There are three versions of it: a) parents, b) teachers and c) health professionals. The one reported in this study was the one applied to teachers, which consists of a self-assessment questionnaire made out of 21 multiple choice questions related to four areas: a) workplace, b) knowledge about ADHD, c) beliefs about the diagnosis and treatment and d) handling of children with attention and behavior problems. The questionnaire is answered in an average time of 20 minutes.

Statistical analysis

The results were analyzed with the program PASW Statistics 18. When there was from 5 to 15% of missing data in any variable, the simple imputation method was used for data substitution.[27] For the results description, measures of central tendency and dispersion were used. For the comparisons between nominal variables, Chi^2 test for linear trend was used. A significant value of $p<0.05$ was used.

RESULTS

311 teachers were evaluated: 192 (61.7%) from DR, 84 (27%) from Mexico and 35 (11.3%) from Bolivia. 55.5% (N=172) worked on public schools and the remainder on private ones. 50.8% (N=158) worked with adolescents, 40.8% (N=127) with schoolchildren and 8% with preschool children; one of the teachers mentioned working with adults. There were no differences regarding the type of school or the age group of the teachers' students. 28.8% (N=85) of the teachers had one to two students and 40.3% (N=119) between three and five students with academic or behavior problems.

Knowledge about ADHD

87.3% (N=268) of the teachers declared they knew what ADHD was, and their opinions were grouped as follows: 79.3% (N=237) answered it was a disease, 17.7% (N=53) answered it was a problem related to raising issues and 1% answered it was a myth, a fashion or an invention of the pharmaceutical industry.

Knowledge of the teachers regarding the impact of the disease and the associated risks showed considerable differences depending on the country: a) teachers from DR considered more frequently that children and adolescents with ADHD had a greater risk to initiate their sex lives before 18 years of age (90.4% *vs*. 76.5% and 66.7% from Mexico and Bolivia respectively; χ^2=11.445, gl=1, p=0.001); b)teachers from Bolivia considered they were at greater risk of suffering serious injuries and fractures(93.3% *vs*. 85.1% and 67.5% from México y DR respectively, χ^2=9.862, gl=1, p=0.002); c)teachers from Mexico considered they were more prone to have accidents (89.7% *vs*. 87.5% and 75.9% from Bolivia and DR, respectively, χ^2=4.881, gl=1, p=0.02).

Knowledge and beliefs about diagnosis and treatment

The greatest part of our sample considered the psychologist to be the trained professional apt to diagnose and treat this condition (Table 1). In a comparison by country, teachers from DR mentioned more frequently that the psychologist was the trained professional apt to give a diagnosis(67.7% *vs*. 54.8% and 48.6% from Mexico and Bolivia, respectively, χ^2=6.946, gl=1, p=0.0008); a greater percentage of teachers from DR pointed out that the psychologist was the most adequate professional to treat this condition (58.6% *vs*. 51.4% y 41.2 from Mexico and Bolivia, respectively, χ^2=3.951, gl=1, p=0.04), whereas a greater percentage of the teachers from Bolivia considered the neurologist or neuropediatrician (14.7% *vs*. 5.78% and 4.7% from México and DR, respectively, χ^2=3.829, gl=1, p=0.05)to be adequate for the treatment of patients with ADHD.

Types of treatment

Teachers mentioned several types of treatment both pharmacological and psychosocial; graph 1 shows the ones most frequently mentioned as ideal for ADHD.

Regarding the knowledge about medication, 55.6% (N=155) considered them to be useful only as support for psychological or psychological treatment; 14.7% (N=41) pointed out that they constituted the most important part of integrative treatment and 9.7% (N=27) declared they were not useful. 14% (N=39) said drugs had secondary effects and 8.2% (N=23) said they caused addiction.

A great number of the teachers who were evaluated considered that treatment improved: academic performance

Table 1. Professionals who are able to diagnose and treat children and adolescents with ADHS according to teachers in Mexico, Bolivia and the Dominican Republic.

	Diagnosis [N=311] %	Treatment [N=295] %
Psychiatrist/Child Psychiatrist	37.6	10.8
Neurologist/Pediatric Neurologist	26.7	6.1
Psychologist	62.1	54.9
Neuropsychologist	25.7	0.0
Pedagogue	50.8	12.2
Pediatrician	5.5	0.0
Psychotherapist	0.0	25.4

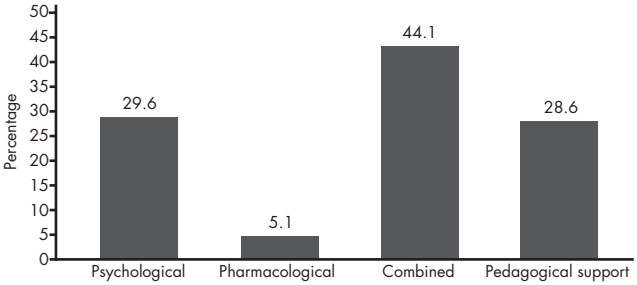

Figure 1. Ideal treatment for a person with ADHD.

64.3% (N=153); social relations, 53.4% (N=127), attachment to school routine, 51.7% (N=123), and spare time activities, 37% (N=88).

The differences regarding knowledge and beliefs about treatment are shown by country in table 2.

Behavior of teachers with students with ADHD

82.5% (N=255) mentioned they had experience working with children and adolescents with behavior problems inside the classroom and 59.7% (N=181) mentioned having experience handling ADHD.

42.1% (N=130) used strategies of behavioral management inside the classroom at detecting students with behavior or school performance problems. Apart from these strategies, 8% (N=25) informed the parents that their children had behavior problems and 0.9% (N=3) requested assessment by a health professional. Only 4.2% (N=13) of the teachers included the parents of a health professional in their interventions, along with the management inside the classroom. When comparing the countries, it was found that the teachers in DR let the parents know of the situation at identifying any behavior problem among students in a greater proportion than those in Bolivia and Mexico (44.8% vs. 28.6% and 26.2%, respectively, $\chi 2=7.736$, gl=1, P=0.005). They also reported more frequently that they had them sitting at the front and supervising them closely when compared with those from Mexico and Bolivia (27.1% vs. 11.9% and 11.4%, respectively, $\chi 2=8.699$, gl=1, p=0.003).

DISCUSSION

This study describes and compares the knowledge and beliefs of teachers from three different Latin American countries representing North America, South America and the Caribbean. The sample analyzed was proportional regarding the private or public educational center; 90% worked with school children or adolescents. The distribution by country was not equitable since the teachers from DR represented 61% of the sample. It is important to note that almost 70% of the teachers polled mentioned to have at least one student with behavior or performance problems. This is similar to previous reports28 and it shows that the population studied had daily contact with this psychopathology.

The percentage of teachers pointing out ADHD as a disease (79%) was similar to the results of some studies made by non-medical professionals,[28] which suggests that our results are not influenced by the fact that the surveys were distributed by a medical team. On the other hand, this percentage is higher than that which was reported in studies from countries such as Iran and Sri Lanka, where over half of the teachers polled considered ADHD as a problem of upbringing.[29,30]

For the current study, most of the teachers considered the psychologist as the professional chosen to diagnose and treat ADHD. Previous studies showed that teachers have no regular contact with doctors treating this condition.[17] In this regard, it is worth mentioning that in the countries included in the present studies there is a greater number of psychologists as there is of neurologists and psychiatrists (up to a 100 times as many).[31-34] Being the psychologist the mental health professional of the greatest availability in this

Table 2. Difference in knowledge and beliefs about treatment among teachers from Bolivia, Mexico and the DR

	Bolivia (N=35) %	Mexico (N=84) %	Dominican Republic (N=192) %	x^2	gl	p
The ideal treatment for a person suffering ADHD is psychological treatment.	14.3	17.9	37.5	13.686	1	0.000
The ideal treatment for a person suffering ADHD includes psychological and pharmacological treatment.	45.7	63.1	35.4	8.062	1	0.005
Pharmacological treatment is only useful as support for psychological or pedagogical treatment.	31.4	60.3	58.5	5.394	1	0.02
Pharmacological treatment is the most important part in integrative treatment.	25.7	22.1	9.7	9.204	1	0.002
Normal routine improves with treatment.	33.3	50.7	56.6	5.225	1	0.02
Social relations improve with treatment.	33.3	55.1	57.4	4.660	1	0.03

three countries, they might probably be the ones to have the greatest influence on the information received by teachers about the diagnosis and treatment of ADHD. Researches which studied the beliefs of psychologists about this condition have mentioned that they considered it to be a disease with a highly psychosocial component, prone to be modified with environmental measures.[35] In this sense, we could mention that only 44.1% of the teachers pointed out combined treatment as the ideal one and 55.6% mentioned that medication is useful as a support for psychological or pedagogical treatment. The aforementioned suggests a lack of information about the neurobiological bases of this disease and the need of pharmacological treatment, as it has been in other countries.[36-38] Besides, it is important to note that even when the greatest part of the teachers surveyed considered themselves as capable of handling a child with ADHD in the classroom, few considered being included in the joint management along with parents and health professionals, which points out to the need of educating teachers about their role within a multimodal management scheme.

The percentage of teachers who pointed out that combined treatment was the ideal one was similar to the one reported in a study applied in Spain.[22] In the current study teachers in Mexico mentioned in a greater proportion that combined treatment was the ideal one. On the other hand, Bolivian teachers identified in a lesser proportion that pharmacological treatment was of aid in psychological and pedagogical treatment. This is similar to the results of a study made in the United States where, in spite of receiving specific training regarding ADHD, 34% of the teachers considered the use of stimulants as the last resource in treatment.[17] These differences underscore the need to develop psychoeducational and training strategies which are specific to each country.

Despite teachers from all three countries were in general able to identify the impact of ADHD on the social life and the safety of their students, some differences came up. Thus, teachers from Bolivia reported in a lesser percentage that ADHD carries a greater risk for an early start of sex life and those from DR about suffering accidents. Previous studies mention that teachers tend to be more worried about problematic behavior of their students than they are about their social difficulties.[11] Even when Latin America as a region has common characteristics such as the existence of a greater proportion of psychologist compared to psychiatrists, as well as the conceptualization of ADHD as a disease, differences by country point out to specific needs that must be addressed in order to design psychoeducation programs and the wholesome attention of the disorder.

Limitations

It is important to take into account the following aspects: The sample was not obtained at random but by convenience, being different for each country, which lessens its representativity and external validity of the results obtained from this population. The years of work experience of the teachers were not assessed, as was not how familiar the teacher was with the disorder, whether from having a relative suffering this condition or from having received information or previous training. Scientific literature has not shown that their experience as teachers of their age be related with their knowledge about ADHD.[24,28] Another aspect that must be taken into account is that information was not obtained by means of a scale but by a questionnaire expressly designed for this study incorporating information of instruments applied on parents or on health professionals. This questionnaire tried to explore different aspects by means of multiple choice or open questions having a concrete answer which were assigned to a specific area (knowledge, beliefs or behaviors) judged by investigators, which constituted its apparent validity.

CONCLUSIONS

Teachers identified ADHD as a disease, though they did not identify its biological component and therefore the need for pharmacological treatment as clearly. Therefore it would be recommendable to improve the communication between health professionals and teacher. Even when many answers were similar, there were differences by country. These must be taken into consideration while designing local programs of psychoeducation and ADHD attention.

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