66 - POSTURE RISKS: EVALUATION OF THE WEIGHT OF BACKPACKS USED BY CHILDREN OF THE FIRST TO THE FOURTH GRADE OF A PRIVATE ELEMENTARY SCHOOL IN OSASCO, SP

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INTRODUCTION

School backpacks started to be used in Rio de Janeiro in 1986 when children and preadolescents adopted this accessory to carry their belongings in (BENATO, B. M., 2001).

The use of school backpacks is controversial. Despite the fact that backpacks are considered the ideal accessory because the weight of school books and notebooks is distributed, their inappropriate use can result in future or immediate musculoskeletal disorders in children. (BENATO, B. M., 2001).

According to the observational study carried out by KOROVESSIS (2004), short school children carried the same weight as tall school children, being more prone to back pain than the taller ones.

Among the factors that make the use of physical therapy difficult in the primary care setting, the lack of epidemiological data concerning some disorders and health disturbances that may interfere in its use play an important role (MANGUEIRA, J. O., 2004).

According to NISSINEM and col. (2000), asymmetry of the trunk is a common finding in adolescents. When asymmetry is readily seen, they search a physician or physical therapist for treatment. Compliance to treatment, however, results from the persistence of their parents. The prevalence of scoliosis in Argentina (VERNENGO, 1994) and Greece (SOUCACOS and col., 2000) is lower than 2% while a prevalence of 7.32% was found in Brazil (ROCHA & PEDREIRA, 2001).

Although the governor of Santa Catarina State had vetoed the Law Nº 10.759/98, it was passed by the State Legislative Assembly. It provides that the weight of backpacks, folders, and the like should not exceed 5% of the weight of a preschool child and 10% of the weight of a first-grade student. These recommendations are endorsed by the World Health Organization (WHO). Public and private schools are required to establish the school items that children must carry daily; the remaining items must be placed in the lockers made available to students(BORBA, R.M.,2005).

The health of students was one of their concerns. Accordingly, the Backpack Law Nº 2772/97 was passed. It provides that children do no carry school items weighing more than 10% of their body (CONSCIÊNCIA.NET, 2004). The law provides that schools must supply the students with alternative options, such as lockers for the safekeeping of their books and notebooks, so as to avoid that overweight backpacks adversely affect students' vertebral column (CONSCIÊNCIA.NET, 2004).

OBJECTIVE

To investigate the weight of the school backpacks used by the first-, second-, third-, and fourth-grade students of elementary school, taking into account the maximum backpack weight recommended by law.

MATERIAL AND METHODS

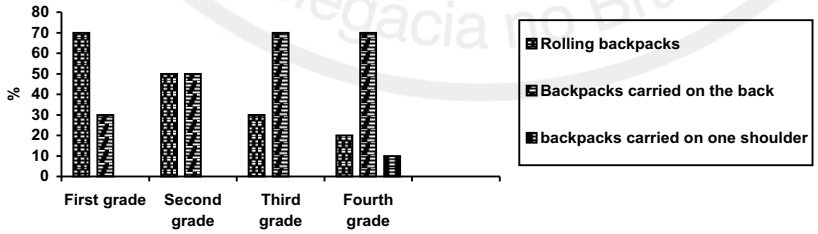
The epidemiological cross-sectional quantitative and descriptive study was carried out in a convenience sample of forty (n = 40) male and female students of the first, second, third, and fourth grades who attended a private elementary school in Osasco, São Paulo, in 2007, and carried school backpacks daily.

Data collection included an authorization form signed by school representatives, a Freely Given and Informed Consent Form in compliance with Resolution 196/96 of the National Council of Health-Health Ministry (ethics in public health), signed by parents/legal representatives, and a questionnaire consisting of 28 objective questions, its questions having been used as study variables. The questionnaire was applied in the presence of parents and school board of directors

Study results are presented as percentages and absolute numbers in simple frequency graphs and tables.

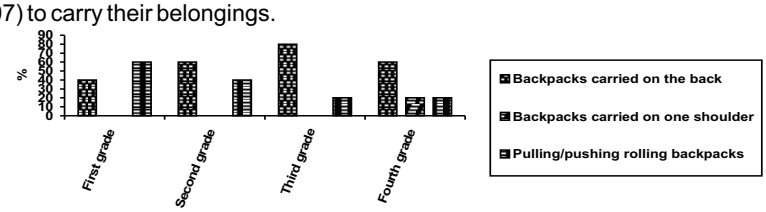
RESULTS

Graph 1 - Percentage distribution of the types of backpacks used by study subjects (students attending the elementary school in Osasco, SP, 2007) to carry their belongings and school articles.



Rolling backpacks were used by 70% of first-grade students while both the rolling backpacks and backpacks carried on the back were used by approximately the same number of second-grade students (50% each). As for third- and the fourth-grade students, backpacks carried on the back were adopted by the majority of them (70%).

Graph 2 - Percentage distribution of the type of transport used by study subjects (students attending the elementary school in Osasco, SP, 2007) to carry their belongings.

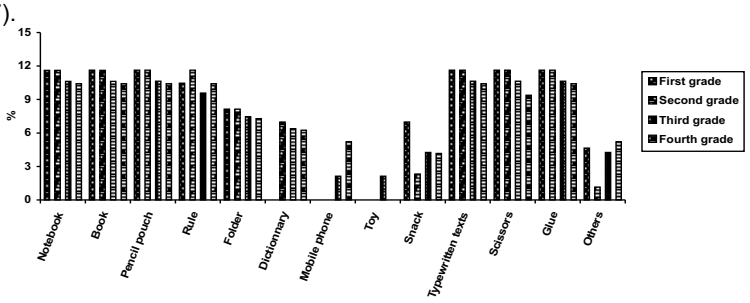


As for first-grade students, the pulling/pushing type of transport was seen in 60%, an expected finding since the majority of them (70%) used a rolling backpack. Backpacks carried on the back was the type of transport in 60% of second-grade

students, 80% of third-grade students, and 60% of fourth-grade students, an expected finding since a backpack with two strands was the commonest type of backpack used by these students.

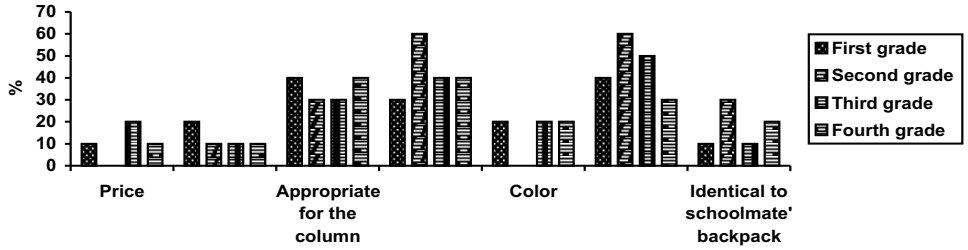
In their study, VAN G.C and col. (2003) reported that only 12.30% of students carried their backpacks with one strand on each shoulder and emphasized that this was the appropriate way of using backpacks. In contrast, the present study found that 60% of study subjects carried their backpacks with one strand on each shoulder. However, even if students carried their backpacks with one strand on each shoulder, this did not necessarily mean that they adopted the appropriate way of using their backpacks. In many cases, the backpack was below the waist; the appropriate strand protection was lacking; the strands were overstretched; the waist strand was not used so as to better distribute the weight; the weight of backpacks exceeded the weight allowed by law.

Graph 3 - Percentage distribution of items carried in backpacks by study subjects (students attending the elementary school in Osasco, SP, 2007).



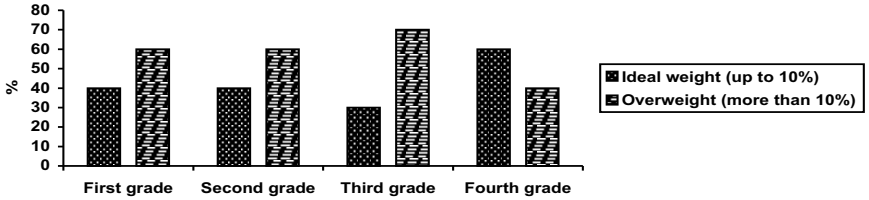
As for the four grades, the most frequent items carried by study subjects were notebooks (10.41%), books (10.41%), pencil pouches (10.41%), typewritten texts (10.42%), scissors (9.38%), and glue (10.42%).

Graph 4 - Percentage distribution of parents' and/or legal representatives' criteria used in the choice of school backpacks/rolling backpacks used by the study subjects (students attending the elementary school in Osasco, SP, 2007).



As for the choice of backpacks for first-grade children, the most frequent criteria was appropriateness for the column (40%). Student's choice was the most frequent criteria for the second-grade (60%) and third-grade (40%) students. As for the fourth-grade students, the most frequent criteria included appropriateness for the column (40%) and student's choice (40%). Print was the reason of choice for a mean of 45% of students for those of all grades.

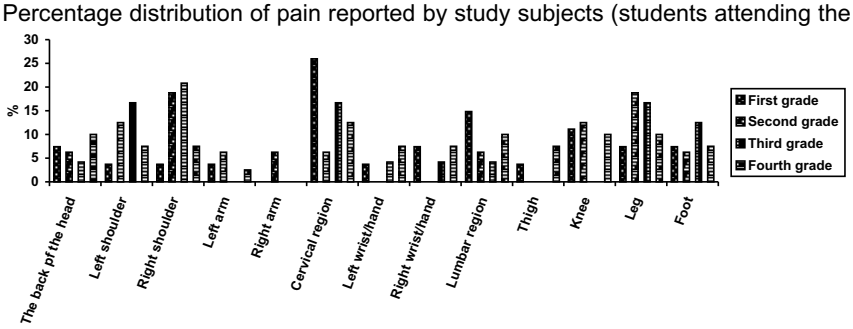
Graph 5 - Percentage distribution of the weight of backpacks carried by study subjects (students attending the elementary school in Osasco, SP, 2007)



LIMON (2004) found that 30% to 54% of the backpacks used by first-grade students weighed more than 15% of student's body weight. In the present study, the Backpack Law Nº 2772/92, in effect in Rio de Janeiro, was taken into account. It provides that the maximum tolerable weight of the school items carried daily should not exceed 5% of the weight of a preschool child and 10% of the weight of a first-grade student. This applies to students attending public and private schools. The present study found that 60% of the backpacks carried by study subjects exceeded the maximum weight established by law, that is, 10% of the body weight

According to a deputy from the Rio de Janeiro State, after 130 school inspections, many of them started obeying the law. However, only 30% of them provided students with collective and individual lockers since hundreds of students developed lordosis and scoliosis due to the weight of their backpacks. The present study showed that 57.50% of students carried a school backpack weighing more than 10% of their body weight. Differently from the study carried out by LIMON (2004), the present study could not confirm that the backpack weight was one of the factors associated with the occurrence of lumbar pain at school age. However, the present study suggested that the weight of school backpacks and the type of transport (on the back, on one shoulder, or pulling/pushing) are significant factors in the pathogenesis of the several types of dorsalgia.

Graph 6 - Percentage distribution of pain reported by study subjects (students attending the elementary school in Osasco, SP 2007).



According to VAN G.C and col. (2003), the most frequent pain sites are the neck, shoulders, and vertebral column. In contrast, the present study found that the most frequent pain sites were the back (cervical and thoracic region) (61.35%), legs (52.83%), and the right shoulder (50.78%).

CONCLUSION

The present study found that 60.00% of students carried backpacks weighing more than the recommended weight. Back pain, including pain in the neck and the upper back, was aggravated in 61.35% of them; 52.83% and 50.78% reported leg and right shoulder pain, respectively. In conclusion, the site of the pain reported by study subjects can be due to the weight of school backpacks used to carry books, notebooks, and other belongings. In general, the backpack weight exceeded the recommendation of 10% of the body weight.

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POSTURE RISKS: EVALUATION OF THE WEIGHT OF BACKPACKS USED BY CHILDREN OF THE FIRST TO THE FOURTH GRADE OF A PRIVATE ELEMENTARY SCHOOL IN OSASCO, SP.

ABSTRACT:

School backpacks have been used by more and more students, specially children. Their use, however, can lead to posture disorders in the future, as the World Health Organization remarked. The WHO warned the public that 85% of general population had, have or will have back pain due to posture disorders beginning in childhood because the development of bones is incomplete in this period. For this reason, many Brazilian States tried to reduce the risk for developing posture-related disorders and passed a law to restrict the weight of school backpacks. According to law, children of school age must carry school backpacks weighing less 10% of their body weight. To verify whether the weight of the school backpacks used by the study subjects complies with that which should be recommended. In addition, to verify the possibility of associated disease causation. The epidemiological cross-sectional quantitative and descriptive study was carried out in a convenience sample of forty students (n = 40) attending the first, second, third, and fourth grades who used school backpacks daily. A questionnaire was applied in the presence of parents and school board of directors for direct data collection. Its questions were used as study variables. Study results are presented as percentages and absolute numbers in simple frequency graphs and tables. The present study complied with legal and ethical requirements. The present study found that 60.00% of students carried a backpack with each strand on each shoulder; 60.00% carried a backpack weighing more than 10% of their body weight. As for pain, 61.35% of students reported cervical and thoracic pain while 52.83% and 50.78% reported leg and right shoulder pain, respectively. This finding suggests that pain can be related to exceeding load. The results of the present study suggest that the sites of pain can be related to the exceeding weight of school backpacks.

KEY-WORDS: School backpacks; posture; Public Health.

VÊRIFICÁCIÔN DE POIDS DES SACS UTILISIER POUR ÈTUDIANT DE INSTRUCTION ESSENTIRL I, D'ÉCOLE PARTICULIER, A LA VILLE DE OSASCO, SÃO PAULO, BRÉSIL.

RÉSUMÉ:

Porter le sac d'école sur des épaules c'est une attitude inconvenable qui, plus tard, peut provoquer des problèmes de position correcte du corps, déjà observés et alertés par l'Organization Mondialle de Santé. Les résultats de cette recherche nous permet de savoir que: 85% de la population ont mal aux épaules, provoqué par dês problèmes de posture dans l'enfance, quand les os se dévéllopent. C'est pourquoi plusieurs pays, comme le Brésil, ont établi des règles et des lois qui obligent l'enfant de transporter leur sac d'école, dont le poids soit proportionnel a 10% du poids brut corporel de l'enfant. Vérifier si le poids des sacs d'école portés par les élèves sont d'accord la recommandation des médecins et si cette attitude va provoquer des pathologies dejá décritesOn fait une étude épidemiologique descritive, transverselle, quantitative, dont 40 élèves, d'enseignement fondammental, ont participé d'une montre de convenance. Ces élèves (de la première jusqu'à la quatrième classe), portent, tous les jours, des ceux sacs sur des épaules. Pour faire cette recherche, on s'agit d'observer des principes d' éthique et de justice. Ont a vérifié qui 60% des élèves portent des sacs sur des épaules, dont le poids est supérieur à 10% du poids corporel de l'énfant. 61,35% ont mal à la région cervical et thoracique; 52;83% ont mal aux jambes; 50,78 ont mal à l'ombre droit.

sacs d'école, risques de posture, santé publique

RIESGOS POSTURALES: VERIFICACIÓN DEL PESO DE LAS MOCHILAS UTILIZADAS POR NIÑOS DE 1RO. A 4TO. GRADO DE LA ENSEÑANZA PRIMARIA, EN LA RED PRIVADA, DEL MUNICÍPIO DE OSASCO, SAO PAULO.

RESUMEN:

El uso de la mochila escolar, utilizada cada vez más por los estudiantes, principalmente niños, puede desencadenar futuramente problemas posturales, hecho este que ya fue señalado por la Organización Mundial de la Salud, alertando que el 85% de la población tiene, tuvieron o tendrán dolores en la espalda debido a problemas posturales originados en la infancia pues, es en esta fase, que los huesos aún se encuentran en desarrollo. Así, en muchos Estados de Brasil se busca reducir los riesgos de estas ocurrencias, creando leyes para que los niños en edad escolar, transporten mochilas escolares con hasta un 10% de su peso corporal. Verificar si el peso de las mochilas escolares utilizadas por los alumnos entrevistados, está de acuerdo con lo que debería ser recomendable y, con la probabilidad de desencadenarse patologías asociadas. Se realizo un estudio epidemiológico descriptivo, transversal, cuantitativo, cuya muestra de conveniencia estaba compuesta por cuarenta estudiantes (n = 40) del 1ro. a el 4to grado de la Enseñanza Primaria, que utilizan diariamente mochilas escolares, con una colecta de datos directa, a través de un formulario aplicado a los estudiantes, en presencia de sus progenitores y la dirección de la escuela, cuyas preguntas fueron utilizadas como variables. Los datos compilados serán expuestos en tablas y gráficos de frecuencia simple expresados en números y porcentajes, con tratamiento estadístico no paramétrico, a través del cálculo de la mediana y del Test de Fisher. Los aspectos éticos y legales fueron observados. Se verifico que el 60,00% de los alumnos transportan mochilas con un alza en cada hombro; 60,00% transportan un peso superior al 10% de su peso corporal. Con relación a la presencia de dolores, el 61,35% de los alumnos dice tener dolores en la región cervical y torácica; 52,83% sienten dolores en las piernas y, 50,78% en el hombro derecho. Lo que nos sugiere que estos efectos pueden estar relacionados con esa carga excedente. Los resultados obtenidos sugieren que, los puntos de dolor relatados por los alumnos, pueden estar relacionados con el exceso de peso de las mochilas escolares.

PALABRAS LLAVE: Mochilas escolares; Riesgos posturales; Salud Pública.

RISCOS POSTURAIS: VERIFICAÇÃO DO PESO DAS MOCHILAS UTILIZADAS POR CRIANÇAS DE 1ª A 4ª SÉRIE DO ENSINO FUNDAMENTAL I, NA REDE PRIVADA, NO MUNICÍPIO DE OSASCO, S.P.

RESUMO:

O uso da mochila escolar, utilizada cada vez mais pelos estudantes, principalmente crianças, pode desencadear, futuramente, problemas posturais, fato este que foi observado pela Organização Mundial de Saúde, alertando que 85% da população têm, tiveram ou terão dores nas costas em razão de problemas posturais originadas na infância pois, nesta fase, os ossos ainda estão em desenvolvimento. Assim, muitos Estados do Brasil buscam reduzir os riscos dessas ocorrências, criando leis para que as crianças em idade escolar, transportem mochilas escolares com até 10% do seu peso corporal. Verificar se os pesos das mochilas escolares utilizadas pelos alunos entrevistados, estão de acordo com o que deveria ser recomendado e, a possibilidade do desencadeamento de patologias associadas. Realizou-se um estudo epidemiológico descritivo, transversal, quantitativo, cuja amostra de conveniência foi composta por quarenta estudantes (n = 40) da 1ª a 4ª série do Ensino Fundamental I, que usam diariamente mochilas escolares, com coleta de dados direta, através de um formulário aplicado aos estudantes, na presença dos genitores e direção da escola, cujas questões foram utilizadas como variáveis. Os dados após compilados foram expostos em tabelas e gráficos de freqüência simples expressos em números e percentagens, com tratamento estatístico não-paramétrico, através do cálculo da mediana e do Teste de Fisher. Os aspectos éticos e legais foram observados. Verificou-se que 60,00% dos alunos transportam a mochila com uma alça em cada ombro; 60,00% transportam peso superior a 10% do seu peso corporal. Com relação à presença de dores, 61,35% dos alunos relatam dores na região cervical e torácica; 52,83% sentem dores nas pernas e, 50,78% no ombro direito. o que nos sugere estar relacionado a esta carga excedente, onde. Os resultados obtidos nos sugerem que, os locais de dor relatados pelos alunos, podem estar relacionados com o excesso de peso das mochilas escolares.

PALAVRAS CHAVE: Mochilas escolares; riscos posturais; Saúde Pública.