

Practices of Primary School Teachers in Supporting Students with Asthma in Jordan

Dr. Bashir Abu-Hamour
Dr. Hanan Al-Hmouz
Mutah University

Abstract

This study investigated the level of practices and training regarding asthma and its management among public primary school teachers in Jordan. A total sample of 57 teachers were selected to complete the survey and for the follow-up interviews. The results indicated that all teachers have positive attitudes toward including students with asthma in public school, although there are very few of them who were trained to manage asthma. Most importantly, findings in general suggested that the health and educational needs for students with asthma were not met in public schools settings. Recommendations and implications for future research are discussed in the context of the educational system in Jordan.

Introduction:

Asthma is the most common chronic disease and health impairments of children; estimates of its prevalence range from 6% to as high as 20% of school-age children (Mendenhall & Tsien 2000; Sexson & Dingle, 2001), and in many urban cities and school districts, rates range from 20% to 25%, according to the federal Centers for Disease Control and Prevention (U.S. Department of Health and Human Services, 2013). Currently, chronic disease, such as asthma, among school-aged children is a major international public health concern. In Australia, one in six children has asthma with higher prevalence in the school aged group (Asthma Foundation of Australia, 2007). A similar rate has been reported in other developing countries (Jordanian Ministry of Health, 2016). The prevalence of asthma among Jordanian children has been reported to range from 10% to 13%.

Asthma is described as a lung disease with reversible airway obstruction and airway inflammation. An increased responsiveness (or hyperactivity) or a variety of stimuli is also present. Each student will vary as to what trigger an asthma attack. Some students have extrinsic asthma in which the asthma attack is triggered by allergies, such as those to pollen, dust mites, or cats. Children with asthma can also be exposed to secondhand tobacco smoke at home and come to school wearing clothing exposed to tobacco smoke that can trigger symptoms in other students. Some students have intrinsic asthma in which there is no identifiable allergen, but asthma attacks may be triggered by viral respiratory infections and environmental stimuli such as air pollution. Some students will have a combination of extrinsic and intrinsic types and be considered to have mixed asthma. Still other students' asthma will be triggered by exercise

(exercise-induced asthma) or aspirin (aspirin-induced asthma) (Heller, Alberto, Forney, & Schwartzman, 2009). In addition, it is well-documented that the severity of asthma varies greatly (U.S. Department of Health and Human Services, 2013). The child may experience only a period of mild coughing or extreme difficulty in breathing that requires emergency treatment. However, many asthmatic children experience normal lung functioning between episodes.

Students with asthma or respiratory conditions typically need medication to increase respiratory functioning, including bronchodilators (that open up the air passages) or anti-inflammatory agents (that reduce airway inflammation) (Asthma Foundation of Australia, 2007). These medications are often delivered through an inhaler or nebulizer, so school personnel will need to know how to use them properly. In addition, students with asthma can be taught to take their medication with assistance. Some students are taught the times that they take their medications and which pill or type they take at which time. Some students may learn this schedule through a picture or object schedule. Learning the purposes of the medications is also important. Some students may be able to learn what each medication is for or have information documented on their notebook (e.g., "this pill helps me to breathe"). Having students able to identify their medications can help decrease errors and promote independence. Fortunately, asthma can be controlled effectively in most children with a combination of medications and limiting exposure to known allergens. The majority of children with asthma who receives medical and psychological support successfully complete school and lead normal lives. By working cooperatively with parents and medical personnel to minimize the child's contact with provoking factors and constructing a plan to assist the child during attacks, the classroom teacher can play an important role in reducing the impact of asthma (Getch & Neuharth-Pritchett, 1999).

The Educational Aspect of Asthma

“Other Health Impairment” is one of the 14 categories of disability listed in USA special education law, the Individuals with Disabilities Education Act (IDEA) (Yell, Shriner, & Katsiyannis, 2006). To be classified as a student with disability under IDEA, a child with asthma must fall under the other health impairment. Under IDEA, a child who has an “other health impairment” is very likely to be eligible for special services to help the child address his or her educational, developmental, and functional needs resulting from the disability. Other health impairment means having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, that: (i) Is due to chronic or acute health problems such as asthma .,.; and (ii) Adversely affects a child’s educational performance (Heller et al., 2009). In the USA, the landmark 1975 *Education for All Handicapped Act* (Civil Rights Division, 1990) mandated free and appropriate public education for all students with disabilities in the least restrictive and most integrative environment possible. This policy gives children with disabilities, including children with asthma, the right to be educated and supported in public schools. In Jordan, we have the ‘*Law on the Rights for Persons with Disabilities*’ for the year of 2007. This law stated in the Article four, Section (B) that ‘The Ministries of Education and Higher Education are adopting inclusive education programs between students with disabilities and non-disabled counterparts and implementing these programs within the framework of educational institutions’ (The Higher Council for the Affairs of Persons with Disabilities 2007, 4). However, placing students with asthma in public schools or constituting a law is not good enough to assume that they receive appropriate support. Some research revealed gaps between policy and practice and showed that

significant barriers remain to the participation of students with health impairment in education (Abu-Hamour & Al-Hmouz, 2014).

Schools should have a system for finding and supporting students with asthma. This system should offer a spectrum of services, including identifying students with asthma, supervising medication, providing case management, and educating students and school personnel on appropriate management skills. The classroom can be a useful place to discuss disabilities and encourage understanding and acceptance of a child with a health impairment. Some teachers find that simulation or role-playing activities are helpful. Factual information can also help build a general understanding of impairment. Classmates should learn to use accurate terminology and offer the correct kind of assistance when needed. This in turn can play a vital role in ensuring that students with asthma have the same educational opportunities as other students and lead to improved academic performance. On the other hand, some previous studies suggested that care for children with asthma in schools was often disorganized, poorly delivered, or not delivered at all (McLaughlin, Maljanian, Kornblum, Clark, Simpson, & McCormack, 2006; Snow, Larkin, Kimball, Iheagwara, & Ozuah, 2005). Poor organizational structure around asthma may result in inadequate asthma management due to the lack of appropriate treatment and medications. Furthermore, according to Dockett (2004), children with asthma are often viewed as being different and physically challenged, and they experience lowered expectations from their teachers. In addition, many children with health impairments suffer from excessive pity, sympathy, and overprotection; others are cruelly rejected, stared at, teased, and excluded from participation in activities with nondisabled children. However, if students with asthma are to succeed within the general education classrooms, well-preparation and school modifications are essential for many of them. In other words, the success of an inclusive placement is

dependent on general education teachers' ability and willingness to make modifications to accommodate individual differences (Salend, 2005).

Several previous research has indicated that teachers recommend and use accommodations they perceive to maintain academic integrity, are effective, are easy to use, and are feasibly implemented (e.g., Gajria, Salend, & Hemrick, 1994; Gilbertson-Schulte, Elliott, & Kratochwill, 2000). If certain accommodations are not acceptable to teachers or hard to be implemented by them, it is very likely teachers will not use them (e.g., Ainscow, 2007; Ketterlin-Geller, Alonzo, Braun-Monegan, & Tindal, 2007; Miner & Finn, 2003). In terms of students with asthma, accommodations are frequently necessary to enable them to participate more fully and independently in school. These accommodations may include adaptations to provide increased access to a task or an activity, changing the way in which instruction is delivered, and changing the manner in which the task is done (Heller, Dangel, & Sweatman, 1995). More specifically, Some students with asthma will need assignments and tests modified because of fatigue and endurance issues-either because of a health problem or because of the physical effort involved in slowly completing an assignment or test. Assignments may need to be abbreviated or broken up into shorter segments, or students may need extra time to complete assignments and tests. A student may be offered alternate ways to complete an assignment or test, such as using a computer or telling the answer instead of writing them. Although the current educational policy in Jordan states that schools must make available reasonable accommodations that assist students with asthma to learn, communicate, receive training, and enjoy mobility; there is not a clear national policy regarding the reasonable accommodations for these students. Additionally, recent research indicated that teachers have little knowledge and training about which accommodations

are appropriate for students with health impairments such as asthma (Abu-Hamour & Al-Hmouz, 2014).

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Teachers Training

With improved knowledge, teachers should be able to manage the school children with asthma and deal with emergency medical situations appropriately. Students who require health care procedures are often found in the school environment, and their procedures often need to be performed during school hours. Teachers not only need to be familiar with these procedures but they also need to consider if a student can or should be taught to assist with the performance of his or her own procedures (Heller et al., 2009). Schools should have policies in place regarding who can administer medications. If non-nursing personnel (e.g., teacher, paraprofessional) are allowed to administer such medications, it is important that they be given proper training.

Health is not merely the absence of disease or infirmity but also a state of optimal mental, social, and physical well-being (Dorland's Illustrated Medical Dictionary, 2011). Given this broader definition, not only do teachers need to monitor students for common health problems and problems involving health care procedures but they also need to have a broader understanding of the student's disability and its impact on health and school performance. Students who have asthma may be at risk of not performing optimally. Some students may not feel well because of health problems or they may experience discomfort. In these instances, the student's attention will be drawn away from the task. Teachers need to monitor for health problems and make appropriate accommodations (e.g., alleviate discomfort as indicated, provide breaks). Also, teachers need to remember that classroom performance may be erratic when the student is feeling poorly. Most students will need more repetition of the classroom material when

feeling ill or having discomfort than they would require when feeling healthy. In addition, students with asthma often have increased absenteeism due to illness or asthma attack or allergy. Some students may miss classroom time because they need to leave classes early due to slower mobility or to have health care procedures performed. Teachers will need to be prepared to accommodate students absences, whether they are for a few days or a few minutes. They may need to re-teach skills because of prolonged absences, modify the length of a student's lesson, or build in more repetition when more time is available, for example (Heller et al., 2009).

For teachers to provide appropriate care, it is important that they have a sound knowledge of asthma and have the confidence to manage any problems that may arise. However, It has been reported that although teachers are known to be concerned about students with asthma, and are often called upon to manage asthma at school, they may have little knowledge and understanding of the condition (French & Carroll, 1997). Recent studies suggested asthma knowledge deficit among elementary school teachers (Lucas, Anderson, & Hill, 2012). The results indicated that most of these teachers felt that they did not know enough about asthma, but they have positive attitudes toward children with asthma. Furthermore, many of the studies emerged in the '90s suggested a lack of teachers' awareness on asthma and its management (Eiscnberg, Moe, & Stillger, 1993; Hussey, Cahill, Henry, King, & Gormley, 1999; Madsen, Storm, & Johansen, 1992). Based on, teachers' training on asthma and its management was then recommended in most of the research that addressed asthma in schools.

Context of the Study

Considering that integration is a new practice, Jordan has recently made progress in teaching students with special education needs in public schools (Al Khateeb & Al Khateeb, 2008). The Jordanian National Education Strategy calls for the commitment of the Ministry of

Education to offer appropriate educational programs in regular schools for students with special educational and health needs. Nevertheless, the movement towards integration in Jordan has not been supported by serious efforts to restructure the public and private schools system. For instance, pre-service training and in-service training programs for teachers were not addressing the needs of students with asthma. As integrating efforts continued, resource room teachers have been assigned the sole responsibility of supporting students with special needs in general. Regular classroom teachers, on the other hand, have not been involved in addressing the needs of the included students. The integration of students with disabilities into schools is currently one of the foremost educational policy in Jordan and has generated much debate. Thus, it is a necessity to conduct more research for the purpose of exploring integration and inclusion of students with asthma in the Jordanian context.

Students with health impairments such as asthma have not received much attention from schools and the community in general in Jordan. It seems that these students are considered to be the sole responsibility of their families who should seek help from physician and practitioner in the private sector (eg., hospital and medical clinic). Furthermore, most of the teachers in Jordan are not fully aware of the characteristics of students with other health impairments, such as asthma, and the recommended practices for working with them. In Jordan, practitioners indicated that integration efforts have been mostly directed toward students with learning disabilities. Students with other special needs (e.g., other health impairment) have not received similar attention yet.

Significance of the Study

Students with health impairment have a wide range of medical problems that teachers need to understand so that they can monitor students effectively and intervene should a problem

occur. Properly trained teachers are important resources for addressing asthma among children. They can identify students with asthma, respond appropriately to asthma emergencies, and reduce student's exposure to classroom asthma triggers. Additionally, knowledge and practices about asthma held by teacher is likely to have a major impact on how well a child is able to manage at emergency situation. Child spends most of the day at school. It is therefore important that these children are given proper asthmatic management either in the form of preventive measures or in case they develop symptoms at school.

Most schools in Jordan do not have nurses, thus placing the responsibility for daily asthma management of students with asthma by teachers. Proper education and knowledge of school teachers about asthma is essential, which will help in management and control of this chronic disease in school settings. Thus, the major purpose of this study was to investigate the teachers' practices and training about asthma in Jordan. This in turn, will help the policy makers in Jordan to have better understanding for the needs of students with asthma which should be addressed in the school's system. In addition, the results of this study can be used to help teachers to provide better classroom practices for students with asthma. To our knowledge no study exists that has investigated Jordanian teachers' practices and training of asthma in primary school level.

Purposes of the Study

The main purpose of this study was to investigate the level of practices and training regarding asthma and its management among primary school teachers in Jordan.

This study addressed the following questions:

Study question 1: To what extent do regular classroom teachers favor inclusion of students with asthma in public schools?

Study question 2: To what extent do regular classroom teachers have training about asthma that is reflected in providing appropriate accommodations in public schools?

Study question 3: What are the most challenges that are faced by regular classroom teachers which limit their ability to provide appropriate services for students with asthma?

Method

Participants

A total number of 68 regular classroom teachers who worked in eight public schools that provided teaching for students in primary grades in the southern region of Jordan were asked to be the participants of the study. The schools were selected purposively for feasibility reasons. All these schools have resource rooms to provide special education services. Of this total population, 57 teachers responded and returned the survey material. The second author met the teachers individually in their school and encouraged them to be part of the study which increased the response rate. All of the teachers were females and have students with asthma in their classes. The ages ranged from 24 to 35 years of age with the majority being 29 years old with seven years of teaching experiences. All of them were qualified teachers and have a university degree in the field of child education.

Procedures

The Ministry of Education provided the researchers with all descriptive information and contact numbers for schools in Jordan and authorization was obtained from the appropriate education bodies. Permission was sought from the principals of eight public primary schools then regular classroom teachers were approached. The teachers were approached individually and the aim of the survey was explained to them. Teachers were assured that the study was for scientific

purposes only and that their responses were confidential and anonymous. They were urged to respond to all items to the best of their knowledge. A cover letter explaining the purpose of the survey, the term of inclusion, and the estimated time for filling out the survey (25 minutes) was presented in the beginning of the study. Inclusive education was defined as "students with special needs (e.g., asthma) who are supported in chronologically age appropriate general education classes in their home schools and receive the reasonable accommodations (e.g., alleviate discomfort as indicated, provide breaks, re-teach skills because of prolonged absences) within the context of the core curriculum and general class activities" (Halvorsen & Neary, 2001, p.18). The informed consent was requested from the teachers in order for them to participate in the study. The teachers completed a hard copy of the survey and returned it to the researchers within four days after receiving it. Then the second author interview each teacher individually for around 20 minutes to discuss their responses and clarify any vague point for them. All data was collected during the month of April of 2015.

Instrument

The survey instrument had three main sections. The first section requested descriptive information about the participants' gender, age, education levels, years of teaching experience, the existence of students with asthma in their classroom, and the inclusion preference. The second section requested information about the teachers' training and practices of the general health and legal information that pertaining to asthma; and the teachers' practices in terms of accommodating students with asthma in their schools. The third section is an open-ended question that asked participants to list the major challenges and obstacles in including students with asthma in public schools.

The survey included 21 items that were distributed randomly to mitigate order effects and selection bias. The 21 items of the instrument were formulated based on a modified version of the Classroom Adaptations for Students with Health Disabilities Questionnaire (Heller et al., 2009), and the review of relevant literature (Ainscow, 2007; Asthma Foundation of Australia, 2007; Ketterlin-Geller et al., 2007; Lucas et al., 2012; McLaughlin et al., 2006; Snow et al., 2005; U.S. Department of Health and Human Services, 2013; Yell et al., 2006). Areas covered in the survey included: general health and legal information, physical and health monitoring, environmental arrangement, instruction and curricular adaptations, and assignments and tests. The responses on the items were in Likert-type forms designated as follows: (a) yes always, yes sometimes, and no; and (b) yes or no.

Validity and Analyses

To establish the face and content validity of the instrument, an initial version of the survey was given to 10 university instructors. These referees were asked to judge the content of the survey and provide feedback. They made comments on a few items and suggested merging some items due to similarity of their meanings, and re-phrasing some for more clarity; these suggested changes were taken into consideration when making the final version of the survey. Language validity was established by translation in Arabic and re-translation to English done by the first author and two language experts. In addition, internal consistency was calculated using Cronbach's alpha (Field, 2009). The instrument had a high coefficient (.94) of reliability.

In order to respond to the research questions, the information from the closed-ended items in the questionnaire was entered into the statistical package for the Social Sciences (SPSS Inc., Chicago IL, 2008). An exploratory analysis approach was applied to all data, providing frequency distributions as well as graphical displays of data. In addition, to generate categories

and themes for the last section of the survey, the researchers were immersed with the data by reading the teachers' responses and analyzing the interviews scripts to this question many times. Then generate the category through the prolonged engagement with the data (the teachers' answers). These categories then become buckets into which segments of text are placed. These categories are internally consistent but distinct from one another (Marshall & Rossman, 2006, p.159).

Results

Although just 4% (n=2) of the total number of participants (N=57) are trained to correctly dispense medication and look for signs of asthma, all teachers (100%) have positive attitudes toward including students with asthma in public school, and all teachers (100%) have students with asthma in their classrooms. A closer inspection of the data is introduced in the form the percentages and frequencies (see Table 1) according to the covered domain, and themes for an open ended question of the survey are presented in the next section.

The general trend of the descriptive data are: (a) all of the teachers are in favor of including students with asthma in public schools; (b) teachers are not trained to support students with asthma in regular classroom; (c) teachers are not familiar with Law on the Rights for Persons with Disabilities for the year of 2007; (d) teachers are not monitoring for asthma signs and its medication; (e) teachers are positive and flexible in terms of providing environmental arrangement for students with asthma but not in terms of providing instructional and curricular adaptations; (f) teachers are not providing consistent practice to support students with asthma in their assignments and tests; and (g) students with asthma are not considered eligible for special education services in public schools in Jordan.

Table 1. *Percentages and Frequencies of the study's items*

Domain/Item	Item's Response	Percentages (%)	Frequencies
General Health and Legal Information			
1- Are you trained to correctly dispense medication and look for signs of asthma (e.g., steps to use the inhaler, asthma attack indicators)?	Yes	4	2
	No	96	55
2- Do you have an emergency plan for students with asthma (e.g., specific contact numbers listed and a strategy in place in the event of asthma attacks or other potential medical problems)?	Yes	7	4
	No	93	53
3- Do you lecture your students about asthma to make them aware of this illness needs?	Yes	4	2
	No	96	55
4- Are you familiar with the Jordanian Law (31) on the Rights of Persons with Disabilities? (Specifically the section that addresses the needs of students with health impairments).	Yes	2	1
	No	98	56
Physical and Health Monitoring			
1- Do you monitor the health problems (e.g., breathing problems, asthma attack) for your students?	Yes Always	3	2
	Yes Sometimes	18	10
	No	79	45
2- Do you monitor pain and discomfort for students with asthma?	Yes Always	77	44
	Yes Sometimes	16	9
	No	7	4
3- Do you monitor fatigue and low endurance for students with asthma?	Yes Always	16	9
	Yes Sometimes	56	32
	No	28	16

4- Do you monitor medication and treatment effects for students with asthma?	Yes Always	4	2
	Yes Sometimes	8	5
	No	88	50

Table 1–(Continued).

Domain/Item	Item's Response	Percentages (%)	Frequencies
Environmental Arrangement: Across school environments and within classrooms			
1- Do you consider special arrival and departure times for students with asthma when needed?	Yes Always	62	35
	Yes Sometimes	26	15
	No	12	7
2- Do you consider providing students with asthma with appropriate seats?	Yes Always	65	37
	Yes Sometimes	25	14
	No	10	6
3- Do you schedule rest breaks or rest breaks as needed for students with asthma?	Yes Always	21	12
	Yes Sometimes	56	32
	No	23	13
Instruction and Curricular Adaptations			
1- Do your school provide special education services for students with asthma?	Yes Always	5	3
	Yes Sometimes	11	6
	No	84	48
2- Do you have a documented accommodation plan for student with asthma?	Yes Always	0	0
	Yes Sometimes	5	3
	No	95	54
3- Do you provide modify activities (e.g., more time, shorter segments, different response, different outcome) for students with asthma?	Yes Always	9	5
	Yes Sometimes	37	21
	No	54	31
4- Do you provide textbook on CD for students with asthma?	Yes Always	0	0
	Yes Sometimes	0	0
	No	100	57
5- Do you communicate with parents to let them	Yes Always	4	2

know about the missed school work when student with asthma is absent?

Yes Sometimes	10	6
No	86	49

Table 1–(Continued).

Domain/Item	Item's Response	Percentages (%)	Frequencies
Assignments and Tests			
1- Do you break up assignments and tests into shorter segments for students with asthma?	Yes Always	23	13
	Yes Sometimes	67	38
	No	10	6
2- Do you provide extended time for students with asthma as needed?	Yes Always	18	10
	Yes Sometimes	70	40
	No	12	7
3- Do you use peer helper to help students with asthma for assignments?	Yes Always	9	5
	Yes Sometimes	23	13
	No	68	39
4- Do you use alternate grading for students with asthma as needed?	Yes Always	0	0
	Yes Sometimes	11	6
	No	89	51
5- Do you monitor the academic progress of students with asthma to make sure that they are not falling behind?	Yes Always	5	3
	Yes Sometimes	55	31
	No	40	23

Major Challenges and Obstacles in Including Students with Asthma in Public Schools

Responses to the open-ended question that asked teachers about the major challenges and obstacles in including students with asthma in public schools were coded. These were then read and re read and themes were developed to reflect the nature of the responses. The main themes that represented the challenges and obstacles that faced by teachers in providing appropriate services for students with asthma were: (a) teachers are too busy to make time for students with asthma, (b) teachers fear working with students with special health care needs in general, (c) teachers have concerns about liability in supporting the needs of students with asthma, (d) teachers lack of training and experiences in supporting the needs of students with asthma, (e) schools lack the proper resources to manage student's asthma effectively.

Discussion

All teachers must maintain safe, healthy environments for all of their students to promote health and learning. Teachers who have students with asthma often need specialized knowledge and skills to address specific health issues. In some instances teachers will need to know how their students' health can affect educational performance, whereas in other situations teachers will need to know what to do if a health problem should occur. Understanding these students' special health care needs make a significant difference in providing proper health management and appropriate educational adaptations to address the health issues (Heller et al., 2009). The primary purpose of this study was to investigate the level of training and practices regarding asthma and its management among primary school teachers in Jordan. The major findings of this study are discussed in details in the following sections.

All of the teachers are in favor of including students with asthma in public schools. Similar findings were reported by other researches (e.g., French & Carroll, 1997; Lucas et al., 2012). This result may be explained by the fact that teachers want to look good or have sympathy

for students with asthma more than it is a general policy or practice in Jordan. This finding is expected since previous research in Jordan suggested greater willingness amongst teacher to include students with certain types of mild disabilities, such as asthma, rather than students with other severe disabilities that affect basic academic skills (Al-Zyoudi, 2006). However, school teachers have a duty of care for all children while attending school or participating in school related activities. This duty of care applies particularly to children with a health condition such as asthma.

Teachers are not trained to support students with asthma in regular classroom. Although teachers generally embrace the practice of inclusion, the results of this study suggested that these teachers are largely untrained and unprepared to truly integrate students with asthma in public schools. As indicated previously, several studies suggested a lack of teachers' awareness on asthma and its management (Eisenberg et al., 1998; Hussey et al., 1999; Madsen et al., 1992). Improved pre-service preparation and professional development for primary school teachers to help students with asthma is needed.

Teachers are not familiar with Law on the Rights for Persons with Disabilities for the year of 2007. Unfortunately, even though the Law on the Rights for Persons with Disabilities has passed since 2007, it is not practiced in the real world with students with special needs in Jordan. It would be easy to think that legislation in itself has created an environment that can accommodate the educational needs of students with disabilities in Jordan, but this is not true. The law of education for students with asthma needs to be enforced in Jordan. This finding confirms that fact that most of the students with asthma infiltrate the regular education system in Jordan without being provided with adequate educational support (Abu-Hamour & Al-Hmouz, 2014). Legislation has been implemented slowly or has not been implemented at all in Jordan.

The policies and legal protections need to be better understood, accepted and implemented at both the central governmental and wider community levels.

Teachers are not monitoring for asthma signs and its medication. This finding is expected since most of these teachers are not trained to provide help for students with asthma. Previous studies suggested that care for children with asthma in schools was often disorganized and lack of appropriate treatment and accessibility to asthma medications (McLaughlin et al., 2006; Snow et al., 2005). However, School teachers' ability to correctly identify the signs and symptoms of a severe acute asthma attack are critical if they are to handle this type of emergency in the school environment.

Teachers are positive and flexible in terms of providing environmental arrangement for students with asthma but not in terms of providing instructional and curricular adaptations. For example teachers' interviews in this study indicated that they had acceptance to students absenteeism due to illness or asthma attack but very few of them would consider providing certain accommodations to compensate these students. This result is in line with previous research that has indicated that teachers were selecting the accommodations according to the easiness of implementation and not according to the needs of students with asthma (e.g., Ainscow, 2007; Ketterlin-Geller et al., 2007; Miner & Finn, 2003) .

Teachers are not providing consistent practice to support students with asthma in their assignments and tests. This result is a reflection of not using standardized accredited procedures in Jordanian schools to support students with asthma. If students with asthma are to succeed within general education classrooms, testing and assignments accommodations are essential. In a very important sense, several investigators indicated that testing accommodations have a positive effect on students' academic achievement (e.g., Goh, 2004; Lang et al., 2005). Therefore, the

Ministry of Education in Jordan may need a clear written policy on testing accommodations use to assure that students with asthma have equal opportunities to participate in testing situations. Indeed, assessment is the cornerstone of effective teaching and learning environments. It plays a central role in determining the quality of education. Effective assessment for students with disabilities requires adequate resources and teachers well-grounded in assessment accommodations technique (Elhoweris & Alsheikh, 2010).

Students with asthma are not considered eligible for special education services in public schools in Jordan. This may be explained by the fact that philosophies and practices of inclusion, as an advanced phase of integration, have not been clearly understood and implemented within the public schools in Jordan (Abu-Hamour & Al-Hmouz, 2014). In Jordan, it is notably observed that integration efforts have been directed toward students with learning disabilities in particular. It seems that classroom teachers and special education teachers are not aware that they have common responsibilities toward students with asthma.

Teachers are facing several challenges that limit their abilities to support students with asthma. Teachers faced many obstacles and challenges while teaching and implementing the reasonable accommodations that allowed students with asthma to participate effectively in the classroom. These findings are consistent with findings reported by Bartholomew and colleagues (2006) who indicated that lack of resources (e.g. equipment) and time constraints among school staff were barriers to asthma care. In this study, many teachers understandably express anxiety about accepting liability for what they perceive to be a medical rather than an educational issue and one for which they have received little or no training.

Recommendations, Limitations, and Future Research

Based on the results of this study, the researchers recommended the following: (a) develop and implement necessary training programs for teachers and other staff who will be responsible for asthma care task at school and school-related activities, (b) meet with parents and health care providers to address issues of concern about the provision of care to students with asthma by teachers, (c) identify students with asthma, and review their health records as submitted by families and health care providers, (d) arrange a meeting to discuss health accommodations and educational aids and services that the student with asthma may need, and to develop an Individualized Educational Program (IEP), (e) find appropriate interventions for students with asthma to reduce their loss of instructional time as well as gaps in sequential learning events created by their absences, and (f) ensure that the student with asthma receive prescribed medications in a safe, reliable, and effective manner and has access to needed medication at all times during the school day.

There are a few limitations in this study that should be considered when interpreting the findings. First, all information was based on teacher self-report and interviews. The study would be more reliable if there were observations sessions to conduct better understanding of teachers' perspectives and practices. Second, the study sample was small and was conveniently selected from public schools. As a result, generalization of these findings must be treated with caution. For example, crucial differences between private and public schools in Jordan may be existed. Private schools in Jordan provide better services for students with health impairments than public schools, and most of these private schools hire a full time nurse to satisfy the needs of the students with asthma. In general, students in private schools presented a better learning, health, and behavioral profile than students in public schools in Jordan. Thus, the conditions of students with asthma in private schools should be explored in future research. Finally, although the ability

for students with asthma to attend school is more of a reality than it has ever been in the past, the rising prevalence rates combined with the absence of school nursing staff in public schools creates a burden on unprepared school systems. Thus, it is critical that further research focus on the identification of evidenced-based practices that lead to safe and successful educational outcomes for this vulnerable population of students.

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