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THE ROLE OF TEACHERS IN MANAGEMENT OF T1D AMONG PRIMARY SCHOOLS IN HAFR AL BATIN

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Abstract

The incidence of diabetes in school-going children in Saudi Arabia, especially in Hafr Al Batin, is alarming, thus necessitating the need for intervention in primary schools to ensure that patients meet their requirements for medication, diet, and physical exercise. Children spend plenty of time away from their guardians at school. In this research, the researcher tried to find out how to include the teachers in the management of the condition. The main purpose of this research was to discover teachers' role in managing T1D in primary school students. The researcher wanted to find out whether teachers are qualified and motivated in a school set up to handle diabetes in school-going kids. In addition, the researcher aimed to decide whether teachers obtain assistance in handling the diseases from parents, schools, and the government.

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The researcher performed a quantitative analysis and collect statistical data in order to address the numerous research questions and attain the research objectives.

A standardized questionnaire composed of eleven questions was used to collect data from a sample of 142 teachers in Hafr Al Batin, representing 142 primary schools. The researcher discovered that the teachers were not trained on how to manage diabetes in schools and did not receive support from the parents and the schools. In addition, the government did not provide guidelines to the teachers on how to manage diabetic students in school. In light of this, the researcher recommends that the teachers be trained and empowered on how to manage the disease while in school and get support from all stakeholders.

Keywords: diabetes, Type 1 diabetes, school, children, teachers.

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الملخص:

إن انتشار مرض السكري بين الأطفال الذين يذهبون إلى المدرسة في المملكة العربية السعودية ، وخاصة في حفر الباطن ،أصبح أمراً مقلقاً الأمر الذي استدعي الحاجة إلى التدخل في المدارس الابتدائية لضمان تلبية المرضى لمتطلباتهم من الأدوية والأنظمة الغذائية المناسبة والتمارين الرياضية خاصة بالنظر الى أن الأطفال يقضون الكثير من الوقت بعيدًا عن أولياء أمورهم في المدرسة. في هذا البحث حاولت الباحثة معرفة كيفية إشراك المعلمين في إدارة هذه الحالة. كان الغرض الرئيسي من هذا البحث هو اكتشاف دور المعلمين في إدارة مرض السكري من النوع الأول بين طلاب المدارس الابتدائية. أرادت الباحثة معرفة ما إذا كان المعلمون مؤهلين وقادرون على التعامل مع مرض السكري لدى الأطفال الذين يذهبون إلى المدرسة. بالإضافة إلى ذلك ، هدفت الباحثة إلى تحديد ما إذا كان المعلمون يحصلون على المساعدة في معالجة الأمراض من الآباء والمدارس والحكومة. قامت الباحثة بتحليل كمي وجمع بيانات إحصائية من أجل معالجة أسئلة البحث ولتحقيق أهداف البحث تم استخدام استبيان موحد يتكون من أحد عشر سؤالاً لجمع البيانات من عينة من ١٤٢ معلماً في حفر الباطن ، يمثلون ١٤٢ مدرسة ابتدائية. اكتشفت الباحثة أن المعلمين لم يتم تدريبهم على كيفية إدارة مرض السكري في المدارس ولم يتلقوا الدعم من أولياء الأمور والمدارس. بالإضافة إلى ذلك ، لم تقدم الحكومة إرشادات للمعلمين حول كيفية إدارة الطلاب المصابين بالسكري في المدرسة. في ضوء ذلك ، أوصت الباحثة بضرورة تدريب المعلمين وتمكينهم على كيفية إدارة المرض أثناء وجودهم في المدرسة والحصول على الدعم من جميع أصحاب المصلحة.

الكلمات المفتاحية: السكري ، السكري من النوع الأول ، المدرسة ، الأطفال ، المعلمون.

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Introduction

Self-care education and awareness for developmentally tailored diabetes is an important part of contemporary multidisciplinary Type 1 diabetes (T1D) care. The T1D patient should be assisted by the family and the diabetes team to sustain the rigors of diabetes management, but during the developmental cycle of early childhood, middle childhood / school-age years, and adolescence, the basic responsibilities of patients and families with regard to everyday diabetes activities shift dramatically (Markowitz, Garvey, & Laffel, 2015).

Management of diabetes in children and adolescents needs several activities of everyday management that can test caregivers. The scientifically established long-term health effects of optimum diabetes management, however, mandate that best efforts be made in school and at home to control diabetes (Chiang et al., 2014). Diabetes educators are best placed to assist in the process of teaching diabetes management to school nurses and non-medical school employees, thereby promoting the diabetes treatment of the patient within the school setting. Every school employee responsible for a diabetes patient should have a basic understanding of the disease, targets of blood glucose, tasks of control, and signs of hypoglycemia and hyperglycemia that could require interference through school-related activities.

T1D is a chronic disease that causes the pancreases to produce little or no insulin, thus inhibiting the body from naturally balancing the blood sugar. The condition is mostly found in children and teenagers although it may equally develop in adults (Robert et al., 2018, p.12). T1D has no cure and the intervention and treatment involves managing blood glucose levels with insulin, changed lifestyle and diet to delay, and prevent the onset of complications.

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T1D patients may show various symptoms including increased thirst, blurred vision, fatigue and weakness, irritability and other mood changes, extreme hunger, fluctuation of weight, and frequent urination which may result to bed-wetting for children who previously did not wet the bed throughout the night (Robert et al., 2018, p.16).

As a result of T1D, the body may develop life-threatening complications resulting from the disruption of the normal functioning of organs due to blood sugar imbalance over time. The complications include heart and blood vessel disease-causing cardiovascular problems, nerve damage called neuropathy, kidney damage called nephropathy, eye damage, foot damage, skin and mouth conditions, and pregnancy complications (Badawi and Ryoo, 2016, p.1743). Proper management of T1D can drastically reduce the risk of these complications.

Research problem

Children are at a higher risk of developing T1D, thus, there is a need for the teachers to learn how to manage the condition in school since the children spend most of their time in school. In the US, 5% of the population has diabetes mellitus (Driscoll et al., 2015, p.616). T1D is prevalent globally with at least one person in every three hundred suffering from the condition. In addition, there is a constant increase of 3% every year. In Saudi Arabia, there are 35,000 children and adolescents suffering from T1D, making Saudi rank as the 8th in terms of numbers of Type 1 Diabetes and the fourth country globally in terms of incidence rate (Memish et al., 2014, p.64). The rate is alarming, thus necessitating a study to find out how the teachers can be empowered to help manage diabetes in children.

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In addition, there are no adequate research interventions on the role teachers play in managing the T1D, thus, the research would be useful in providing evidence-based information for making informed recommendations on the role of teachers in the management of diabetes in children in a school setting (Robert et al., 2018, p.23). Therefore, the researcher prepared this research to investigate the role of teachers in management of t1d among primary schools in hafr al batin.

Research question

The current study problem can be represented in the following main question:

- What is the role of teachers in managing T1D in children in primary school in the Hafar Al-Batin area?

  From the main question, a number of sub-questions can be asked, the most important of which are the following:

  - Do the teachers receive adequate training for the management of T1D in children in Hafr Al Batin?
  - What role do the government, school management and parents play in supporting teachers in managing diabetes in primary schools?

Research aim and objectives

The research aims at investigating the role teachers play in managing T1D for affected children in primary schools within Hafr Al Batin. The outcome of the research will help in supporting teacher education as the most suitable approach for managing the occurrences of T1D.

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- To determine whether teachers are fully empowered for trough training in line with managing T1D for affected children at the primary school level.
- To determine the role of school management, parents, and the government in supporting teachers in the managing of T1D in school.

Research methodology

In this study, the researcher adopted a quantitative research design. The approach allows the formulation of statistical hypotheses without being subjected to the researcher's emotions and perceptions (Watson, 2015, p.44). In addition, the quantitative research design allows probabilistic inference and prediction for sound implementation and hence the rigorous evaluation of the quantitative hypothesis. The approach allows the evaluation of many datasets and hypotheses in a faster and more accurate manner that the human brain can handle (Creswell and Creswell, 2017, p.25). Quantitative research avoids the use of manual data analysis by using structured data, thus performing analysis in a faster manner. For these reasons, the researcher found a quantitative research design to be the most appropriate for this study.

The study used questionnaires as the research instruments for data collection. The questionnaires were designed to obtain data from the research participants in order to answer the research questions. The researcher prepared a structured questionnaire with 11 questions. The standardized questions to collect similar data from the participants for ease in comparison, to reduce errors in making conclusions in the answers to the research questions. In addition, structured questionnaires are an inexpensive approach for collecting data from a huge research sample.

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According to Nardi (2018), structured questionnaires are the most affordable research instruments of collecting quantitative data, especially for the self-administered questionnaires where the researcher needs not to hire surveyors to conduct face-to-face interviews. Structured questionnaires collect quantitative data from a huge sample in a cost-effective way and in a relatively short period, thus, making it the most appropriate approach for this research (Creswell and Creswell, 2017, p.32). Lastly, structured questionnaires offer quantitative data which is easy to understand and analyze. The researcher allocates a value to each answer, thus can investigate all the participants' data easily.

Population and sampling

The current study population was Hafr Al Batin primary schools in 2018 and 2019. The research targeted teachers to inquire how much they help diabetic children in primary schools manage the disease if they are empowered and trained to support the diabetic children. Hafr Al Batin has a total of 142 primary schools. One teacher from each school was selected according to the system in Saudi Arabia, where one teacher is appointed as a health counselor for each school (Ministry of Education, 2018). Therefore, a sample of 142 teachers was selected randomly, one from each school to fill the questionnaire. The researcher adopted a probability sampling technique to ensure all the teachers in the school had an equal chance of being selected to participate in the research. The approach ensured that the entire population was well represented.

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Ethical Considerations

The researcher ensured ethical considerations were met throughout the research process. First, the researcher used available and accessible secondary data thus did not need any authorization to use the secondary data in the research. However, the researcher ensured proper citing and referencing to avoid plagiarism which is unethical. In collecting the primary data, the researcher ensured that the research participants voluntarily took part in the research without being coerced. The participants were adults of sound mind to make independent decisions. The participants had the right to withdrawal from the study at any time without having to explain why they left. The participants signed a consent form and were informed of the purpose of the data collection was for the research purpose only, and their personal data would be held with entire confidentiality.

Results and Analysis

The teachers were asked to indicate how many years they had been working in their current school. No teacher had been in the school for less than a year, thirty teachers were in their schools for between one to three years, ninety teachers had been in the schools for between three to five years and twenty-two teachers had been in the institutions for more than five years. The findings are represented in figure 1 below.

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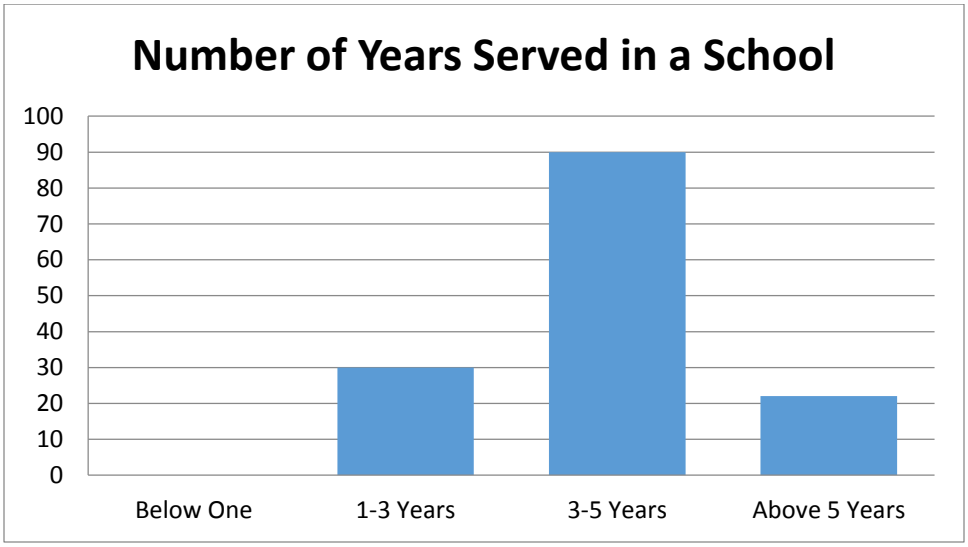

Figure 1: Number of Years served in a school (Primary Data).

Figure 1 shows that most of the teachers had spent more than three years in their current school. The time spent in the school was adequate for the teachers to be able to answer the questions detailed in the questionnaire as they had observed what happens in the school for long enough.

Number of children with T1D in the school

The teachers were asked to indicate the number of diabetic children in their institutions. The researcher wanted to find out the prevalence of T1D in primary schools in Hafr Al Batin. Of the 142 teachers interviewed from the 142 schools, 68 teachers reported that their schools did not have diabetic children, another 68 teachers reported that their schools had between one to ten diabetic children, totaling to 498 students, five teachers reported their schools had between 10 to 20 diabetic students with a total of 71 diabetic students and one school had more than 20 diabetic students, with 21 students. There was a total of 590 diabetic students in Hafr Al Batin primary schools, being from 74 schools. Figure two below shows the findings.

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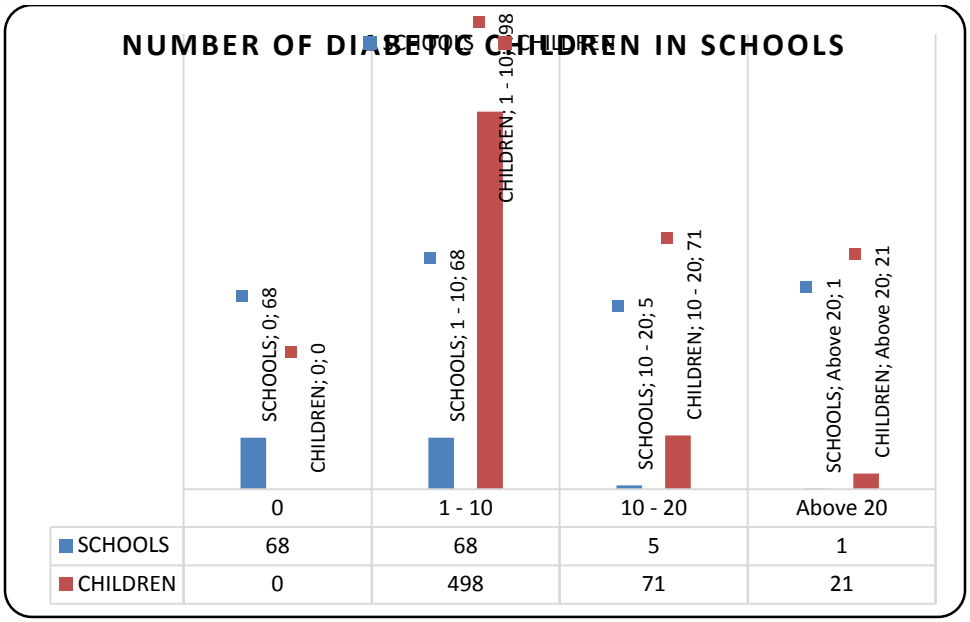

Figure 2: Number of children with T1D in primary schools (Primary Data).

Figure 2 shows that the prevalence of T1D in primary schools in Hafr Al-Batin was high. Only 68 schools reported that they did not have diabetic children at the moment. However, 74 schools, which is about 52% of the schools had diabetic children. A total of 590 children had T1D, meaning there was a need for intervention to ensure they comply with the treatment when they are in school, away from their parents and caregivers.

Teacher training on management of T1D

The researcher sought to know if the teachers received any training on the management of T1D to be able to support the diabetic students in their school. All the teachers from the 142 schools reported that they had never received any training.

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The results indicated that the schools' management and the ministry of health did not know the value of training teachers to have them empowered to support the diabetic students in managing the condition. The responsibility was left fully to the nurses and other medical professionals in the schools.

Deaths associated with T1D

The researcher sought to find out if the schools had lost any student due to T1D emergencies or associated complications. All the participants reported that their school had not lost any student as a result of T1D.

Flexibility of the school routine

The researcher sought to know if the schools had flexible routines to accommodate diabetic children. The diabetic children needed frequent breaks for urination, taking snacks, measuring the blood sugar levels, and taking medication. Of the 142 participants, 60 reported that their schools had flexible routines, 15 said their school routine was not flexible, 20 said the routine was a bit flexible, 30 said the routine was very flexible and 17 said they were not able to define the level of flexibility of their school routine. The results are represented in figure three below.

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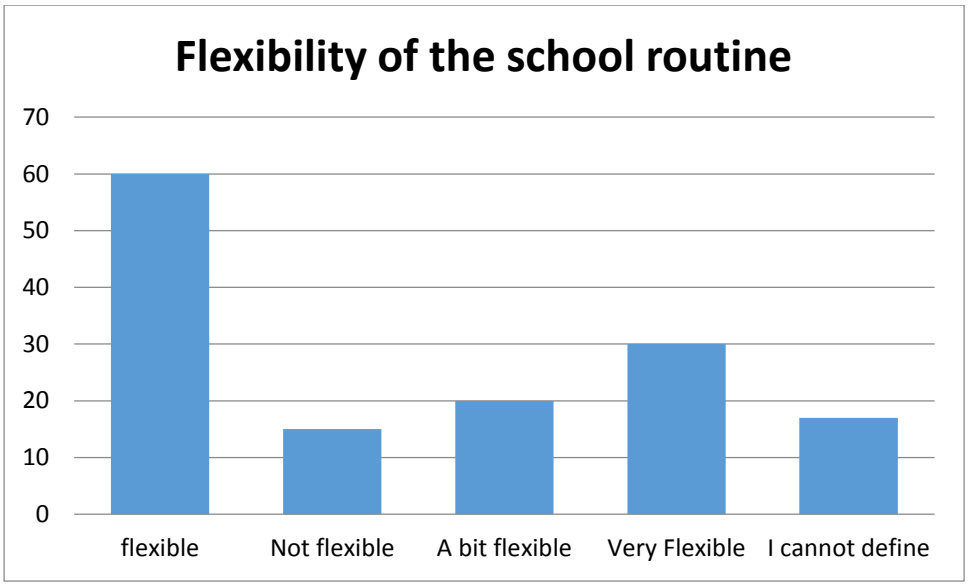

Figure 3: Flexibility of the school routine (Primary Data).

Figure 3 above shows that only 21% of the schools were fully flexible to allow diabetic students to self-manage their condition adequately. About 42% of the schools were flexible and 14% were a bit flexible. The trend shows that schools in Hafr Al-Batin allow their students time to manage their condition. However, 10.5% said that their schools were not flexible at all. The result shows that the children in their schools were at a higher risk of failing to comply with the treatment interventions which would lead to a higher risk of developing diabetes complications. Nevertheless, the researcher was not able to tell whether the 10.5% of schools that were not flexible were from the schools which reported no diabetic children.

T1D management equipment in school

The researcher sought to know if the schools were equipped with facilities to manage T1D for its students. Of the 142 schools represented in the study, none one the teachers stated that their

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school was very equipped, ten teachers said their schools were equipped, none of the teachers said their school was equipped, and 132 teachers reported their schools were not equipped. The findings are represented in figure 4 below.

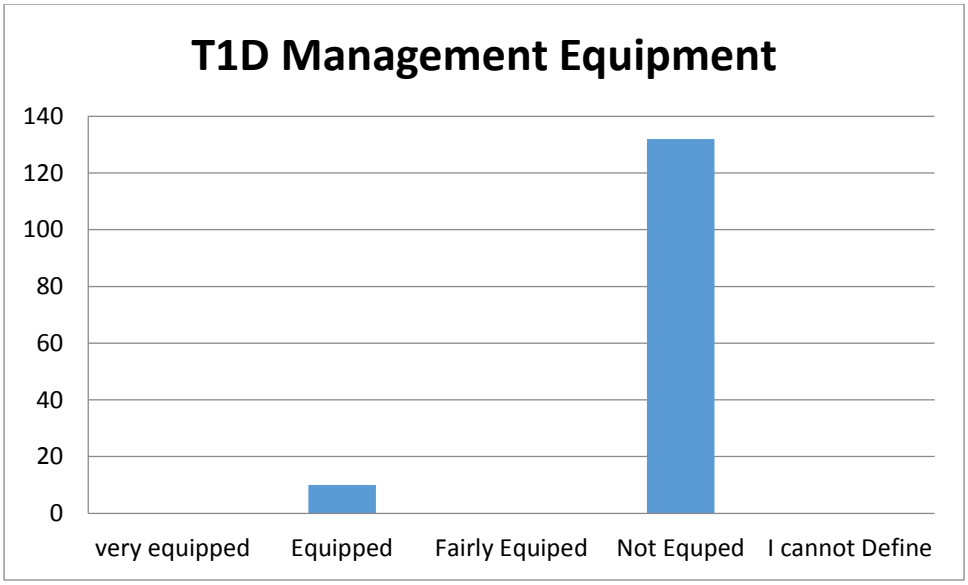

Figure 4: T1D management equipment in school (Primary Data).

Figure 4 above shows that 93% of the schools were not equipped with facilities of managing T1D and only 7% of the schools were equipped. The results show that the schools are not able to manage T1D and the students depend on the facilitation from their homes and hospitals. The results show that the teachers did not have the facilities required for the management of T1D and in case of emergencies, they would not be in a position to respond effectively and efficiently, thus, risking the lives of the diabetic students.

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Parents support to the teachers

The researcher sought to find out if the parents of the diabetic students offered support to the teachers to help them manage T1D in school. All the respondents reported that they did not receive any support from the parents to manage the diabetes mellitus in students while they were in school.

Medical professionals in schools

The researcher sought to know if the schools had full-time medical professionals in the school to respond to T1D emergencies. All the teachers reported that there were no full-time medical professionals in the schools, implying that in case of emergencies, the teachers had to handle the situation as they wait for the school nurses to arrive, or for the students to be taken to hospital for care, or the parents to arrive.

Ministry of education support on T1D management in primary schools

The researcher sought to find out if the ministry of education facilitated and supported teachers on the management of T1D in primary schools. All the 142 participants reported that the ministry of education in Hafr Al Batin did not support them in the management of T1D in their students in schools. The results indicated there were no programs organized by the ministry of education to empower the teachers with the skills of managing diabetes mellitus in schools.

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School management support on the management of T1D in primary schools

The researcher sought to find out if the schools' top management provided leadership and supported the teachers in managing diabetes mellitus in the students in their schools. All the teachers reported that the top management did not provide leadership and support to the teachers on the management of T1D in the school.

Facilitation of training by the ministry of education and school management

The researcher sought to find out if the teachers felt they should be trained to be able to manage T1D in schools. Surprisingly, all the teachers reported that they did not feel the need for training to create T1D awareness and to equip them with the skills required to manage T1D in schools.

Discussion

The primary findings indicate that of the 28545 children in the 142 primary schools, 590 children had diabetes mellitus. This is equivalent to 2% of the total population. The secondary data indicated that 26% of children in Saudi Arabia are diabetic. About 2% of this is from Hafr Al-Batin province, which indicates the need for addressing the management of T1D in the primary schools in the region. The T1D incidence rate in Saudi Arabia has grown consistently by 3% every year in the past three decades (Robert et al., 2018, p.45). In a study conducted in Hafr Al-Batin between 1990 and 2007 showed that the incidence of diabetes mellitus in children below 14 years old had doubled) (Robert et al., 2018, p.47).

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The incidence is very high compared to other regions in the world, thus there is a need for management practices to be implemented in the schools where children spend most of the time, to delay the onset of life-threatening complications.

Teachers have direct contact with the students in school most of the time than the management or medical professionals in the school. However, the findings in the primary research indicated that the teachers were not trained to manage diabetes mellitus in the students in the school settings, did not have the facilities to manage the condition, and were not accorded support from the parents, school management, or the ministry of education. According to Rushforth, et al. (2016), lack of diabetes management knowledge amongst the teachers was the greatest barrier for the management of T1D in primary schools. The teachers did not receive knowledge on how to measure the blood sugar in the students to know when the students were experiencing hypoglycemia, which would result in symptoms like headache, anxiety, irritability, severe hunger, sweating, dizziness and shaking, and in severe cases unconsciousness (Rushforth, et al., 2016, p.115). As a result, the teachers did not have the knowledge of when to allow the students to measure their blood sugar levels, take snacks or engage in physical exercise.

Teachers in Hafr Al Batin city are always reluctant to help the young kids in areas such as glucagon administration, insulin pump boluses, and insulin injection since they did not have adequate diabetes care knowledge (Al Duraywish and Abdelsalam, 2017, p.33-45). In the questionnaires, all the teachers reported that they were not trained on the management of T1D, they never received support and most schools were not equipped.

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In addition, the teachers showed no interest in being trained as they all responded that they did not feel the need for the ministry of education and school management organizing for training sessions. According to Al-Duraywish and Abdelsalam (2017), the teachers felt that it was the role of medical practitioners to support the children in adhering to the treatment, which explains why the teachers were reluctant to the training and to support the children in managing diabetes mellitus. However, even if the teachers were trained and not provided with facilities to handle diabetes emergencies, they would not be able to help the patient normalize blood glucose levels. Furthermore, lack of effective communication between parents/guardians and the teachers hinders T1D management as the teachers may not be aware of how to handle a particular child when the symptoms for the disease emerge (Wilson and Crisp, 2014). The ministry of education does not have clear policies to guide the teacher on how to manage T1D emergencies, which makes the teachers reluctant to remain safe in case of fatalities (Al Duraywish and Abdelsalam, 2017, p.33-45).

Conclusion and Recommendations

The researcher sought to understand the role of primary teachers in Hafr-Al-Batin in managing T1D in a school setting. Additionally, the research was geared towards determining whether the teachers have been trained on how to manage T1D in students in their schools and if the teachers are receiving adequate support from the schools, parents, and government. According to the research findings, the schools do not have adequate medical staff to handle emergencies in schools and to monitor if the students are complying with T1D medications and interventions. Another barrier to the effective management of diabetes in school is that the teachers do not have

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the skill and knowledge on how to help the students manage the disease while in school. Therefore, there is a gap in the T1D management which will lead to increased risk of the T1D student developing complications that would affect the quality of lives, their education and, may eventually lead to death.

It was also noted that most schools do not have a flexible school routine to accommodate diabetic students. The teachers do not receive support from the parents and the schools on how to manage the disease while the parents are away. The schools and the government do not provide the teachers with a guideline and regulations on how to manage the students. As such, the teachers have no clear directions on how to handle TID related cases. Thus, the research recommends training and education to the teachers in every school to equip them with the skill. In addition, parents, government, and schools should support the teachers in helping the children manage the condition. The research implies that there is a need for intervention from the government to help in the management of T1D in school-going children. The intervention can be done by empowering teachers through training and providing guidelines on how to manage the condition. As a result, diabetic students will comply with their medication and other interventions, thus reducing the risk of complications and death from diabetes.

Based on the above, the researcher recommends a set of recommendations, the most important of which are the following:

- There should be training for the teachers and principals on how to deal with diabetes students.

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- The Ministry of Education should provide schools with a special nursing room for each school and well equipped.
- The school Administration should provide the teachers with a health record for each student in order to know them.
- The current research dwelt on a specific city and the results obtained
- are for Hafer Al-Batin. There is a need to replicate this study in other cities so as to
- determine whether the same results apply. Secondly, these results generated might not be conclusive as there is no comparative analysis with another city in Saudi Arabia In

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