

Sociological framework applied to a case report of diabetes in adolescence

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ABSTRACT

A case report concerning a 10 year old girl with Latent Autoimmune Diabetes in the Young is described. Diagnosis, prevalence in Malta, and patient support are described and followed by a discussion of how diabetes affects the family of similar cases. Research on a Sociological Paradigm describing Microsystems, Mesosystems, Exosystems, and Macrosystems is discussed with reference to the case report.

Keywords

Latent Autoimmune Diabetes in the Young, sociological model, family, psychologist

INTRODUCTION

Case report

The case report is about an adolescent girl with Latent Autoimmune Diabetes in the Young. This child presented at the age of 10 years with nocturnal polyuria. There was no family history of diabetes and the child was otherwise healthy. Repeated blood glucose tests were abnormally high during the night. Her urinalysis was negative. An oral glucose tolerance test was abnormal. Her C-peptide, anti-insulin, anti-islet and anti-GAD antibodies were normal initially, and then two years later, anti-insulin antibodies were positive. The child was managed with exercise and diet initially. Metformin was later introduced and later she also required glargine and short acting insulin.

The incidence of Latent Autoimmune Diabetes in the Young in Malta is increasing. Initially, there is an insulin independent period. This is similar to Latent autoimmune diabetes in adults which is often, wrongly, diagnosed as type 2 diabetes. Screening and early detection of these patients can lead to a significant reduction in the severity of onset and a better clinical outlook.

To make the diagnosis according to the American Diabetes Association, the fasting plasma glucose level needs to be more than 126mg/dl (7mmol/L) or a 2 hour plasma glucose level of more than 200mg/dl

(11.1mmol/L) during 75g oral glucose tolerance test (OGTT) or a random plasma glucose more than 200mg/dl (11.1mmol/l) in a patient with classic symptoms of hyperglycaemia or hyperglycaemic crisis.

The American Diabetes Association states that treatment for type 1 diabetes mellitus (IDDM) involves careful control of blood glucose levels and regular blood monitoring is recommended. This also helps to adjust the dose of insulin accordingly. For the adolescent in the case report, care should be taken so that insulin levels are balanced with meals, activities, stresses, and illnesses as these can affect blood glucose levels. Treatment also includes following an appropriate diet and getting the right amount of exercise. Caution is also taken that she does not become hypoglycaemic as this can be life threatening. It is vital that any hypoglycaemia is managed quickly and properly if it happens.

All the people involved with the adolescent's treatment in this case report are continuously updated on the condition.

Impact of IDDM on the adolescent and family members.

Parents of the adolescent suffering from type 1 diabetes mellitus need to be aware that adolescents are faced with a number of challenges due to the chronic condition they have (Davidson *et al.*, 2004). Treatment of IDDM involves several injections of insulin daily, self-monitoring of blood glucose, a prescribed meal plan, regular exercise and problem solving tactics to regulate blood glucose. This can cause psychological problems to the adolescent (Suhel *et al.*, 2013). Therefore, it is important to make everyone involved in the treatment of this adolescent, aware of the psychological impact of the condition and give the most significant emphasis to the strict maintenance of blood glucose.

Family behaviour and support are of the utmost importance. Hauser *et al.* (1990) mention that the parent and adolescent can be both to blame for family

problems, therefore it might be reasonable to address communication issues among family members to help in diabetes control and compliance. This has also been confirmed by the case report where during a period where family communication and conflict resolution were deteriorating, the adolescent found it difficult to adapt to the diabetes regimen.

It was also admitted by the family mentioned in the case report, that the burden of treatment affects their daily life and the regimen is often the reason of big conflicts between the parents themselves as well as between the parents and the adolescent. Conflict between the other siblings is also an issue, as the other siblings might see themselves less cared for, as the majority of the attention is given to the adolescent with diabetes.

As mentioned by the parents themselves, they are petrified at the consequences of managing their daughter's condition poorly. They believe that poor control can affect their daughter's personality, physical wellbeing, and the way she performs at school. This recalls the findings made by Anderson *et al.* (1981), where it was concluded that parents of children that do not have their diabetes well controlled are also concerned with the possibility that their child might develop personality problems. The adolescent in the case report stated that she felt under a lot of pressure due to the strict treatment regimen. She said that daily self-care behaviours can be tiring and difficult to adhere to.

Although a number of studies are available regarding the impact of IDDM on family and friends, large studies are limited, with very few being randomized, which might lead to bias in the conclusions. Also very few studies are qualitative with the majority being quantitative.

SOCIOLOGICAL PARADIGM

Diabetes is a difficult condition to live with and it requires a lot of self-discipline to keep the condition under control (Dovey-Pearce *et al.*, 2007). Adding to this is the constant worry and anxiety that affects the child, parents and people interacting constantly with the child.

The adolescent mentioned in this case report is like every adolescent who wants to live a happy and independent life. As Delamater (2007) mentioned, children in their teens underestimate the risks that neglected diabetes can cause to their health. Due to this attitude and combined with wanting to be independent the diabetes control of an adolescent can deteriorate.

The sociological paradigm that will be described, also involves psychologists that can include the family (Thompson *et al.*, 2001).

In Thompson *et al.* (2001) one can notice that only mothers or female caregivers were included in the study while fathers or male caregivers were not. Furthermore no low income families were included in the study, which can make a significant difference in the results obtained. Adolescents that did not attend any clinic were not included. The sample used was relatively small especially for a condition like diabetes which is very common. Another point is that the children recruited had to be diagnosed for at least a year. Although a cut-off point needs to be done it could be argued that one year is too short a time. As these families would be at the beginning of the disease management, they could still be under shock resulting in either being very motivated to manage the condition well or the complete opposite as they might be in denial.

The family doctor and also a diabetes specialist need to be involved even more during the adolescent period supporting the even greater need for a sociological paradigm. Amiel *et al.* (2005) mentioned that, during adolescence, the changes that happen with the hormones can result in a lack of insulin sensitivity resulting in poor diabetes control.

Wysocki and Greco (2006) concluded that, for adolescents, the support that parents and extended family members can give is of utmost importance. Unfortunately, the older the child gets the less support she will get from the family. If the adolescent is not psychologically prepared for this independence their diabetes control can suffer (Hsin *et al.*, 2010). The independence that is gained by adolescents is quickly filled by the influence of their friends. This influence can have a positive effect on diabetes control as concluded by Bearman and La Greca (2002) or a negative effect as an adolescent with diabetes might not want to reveal to her friends that she suffers from diabetes resulting in lack of adherence to treatment and diet especially when in her friends' company.

Psychological support should not only be given to the adolescent but also to the parents. This can result in better diabetes management as the parents will be more prepared to deal with the child as they will be in a position to better understand her and adapt accordingly. Medical professionals can also offer support in the form of positive reinforcement and empathy and also by recommending the best treatments and monitoring available.

The adolescent in the case report can benefit from a sociological model. The ecological model gives the adolescent a structured support system. She knows where she can find the right support at the right time. The model can also help parents and other persons involved to know

who to rely on when they themselves need support. Ultimately, it is important to see the problems from the adolescent's point of view (Auslander *et al.*, 1993).

Types of Support

To better understand what is meant by support, it is first necessary to identify the different types of support that are mentioned in the studies. The literature emphasises mainly the social structure, tangible and perceived support.

According to Thomas *et al.* (2001) social structure can refer to the family structure and asks whether both parents are present, assuming that if both parents are present this can have a positive impact on the management of Type 1 Diabetes for the adolescent.

Social support can vary depending on the provider. For the support to have a positive outcome the adolescent needs to feel that she is receiving the support. Also the support needs to come from an entity that the adolescent respects otherwise it can have the opposite effect.

SOCIAL ECOLOGICAL MODELS

Human beings are influenced by their surroundings, the interactions and relationships that they experience throughout their lives.

According to Bronfenbrenner (2008) an individual develops thanks to the relationships that he or she builds along the years. He also adds that, for their relationships to have an influence, these interactions need to happen serially throughout the years and not as isolated events.

However, Bronfenbrenner (2008) also states that two persons who share the same environment and relationships might still have completely different characters. Therefore, another theory could suggest that every person has his own character and relationships and influences form his/her own perspectives which can be different from a person that is experiencing the same influences, leading to two completely different individuals although they were influenced by the same environment.

Microsystem

Microsystems involve the close relationships that adolescents have with their family, friends, etc. The adolescent is placed in the centre with every other person interacting with them. These relationships are not static and can change accordingly.

This adolescent, like the majority of her age, lives with her parents so it can be stated that primary support will be coming from them. This point has also been

agreed by Hanna (2006). Anderson *et al.* (1997) showed how the parents' role to administer insulin and check the blood glucose is reduced significantly during adolescence. Wysocki and Greco (2006) stated that, during adolescence, the child will be learning how to administer insulin and take responsibility for the blood glucose monitoring herself. This is the case in this report. In contrast, this is not the case for diet where the parents, mainly the mother, still have control over what the adolescent eats.

Studies such as by Helgeson *et al.* (2009) strongly suggest that the higher the parental support the better the control of the child's condition. Therefore, having a decline in parental involvement with the control of their child's diabetes is not the ideal scenario. This can be the reason where mesosystems can be very useful, as described further down below. Professionals such as psychologists can offer the support to parents, so they can understand their child, as well as supporting the adolescent herself. This can result in a better diabetes control.

Parents need to continue giving emotional support to their adolescents as is also the case in this report. This social support is of utmost importance if the parents want that their child's disease to remain under control. Studies such as those by Hsin *et al.* (2010) show that the control of the disease can diminish even if the adolescent takes proper care of their condition but is neglected by their parents.

In a number of studies the measurement of the support structure was not properly done as was the case in Anderson *et al.* (1999). In this study it was not the social support that was measured but the responsibility of every family member.

Friends play an important role during adolescence. However, to be able to give the best support the adolescent that suffers with diabetes needs to tell friends, a choice which is not preferred by the adolescent as concluded by Wysocki and Greco (2006). This is understandable as the adolescent thinks that she will not be understood by her friends, ending up with her being excluded. If this happens, according to La Greca *et al.* (2002), this can have a negative repercussion on diabetes control. The adolescent has to choose carefully who to tell.

To have good diabetes control it is important that at least someone in the group of friends knows about the condition and is willing to give emotional support. La Greca *et al.* (2002) stated that an adolescent with diabetes can become non-adherent when in the presence of her friends as she might not want to take insulin in their presence. In the case under discussion she has a greater chance of social support from her friends as, according to Helgeson *et al.* (2009), female friends are more inclined to offer emotional

support. In the same study it was concluded that females have a greater chance of developing psychiatric problems if conflict develops, leading to a reduction in diabetes care.

Greco *et al.* (2001) concluded that if adolescents with diabetes and their best peers were involved in training with the aim to improve the knowledge on diabetes and the social support that needs to come during diabetes care, the adolescent may have more positive support from friends for diabetes monitoring.

La Greca *et al.* (1995) concluded that the management of the condition had nothing to do with the support that friends give to the adolescent with diabetes. On the other hand, Skinner and Hampson (1998) concluded that greater support from friends can improve insulin administration.

During the study done by Helgeson *et al.* (2009) it is important to note that the measures used related to general support and not to support linked to the condition itself. Also, in La Greca *et al.* (1995), the study addressed the attitude towards the condition's management and failed to address the health status. Leaving key points out can be misleading when it comes to interpretation of the results in relation to the management of the condition and the health status specifically for diabetes.

Greco *et al.* (2001) used a limited number of adolescents in the study. Also, since the peers accepted to take part in the study, this already showed a high level of interest in the wellbeing of their friend suffering with diabetes. One cannot generalize that the same method can work on the other friends, as not everyone will have the same relationship with the adolescent suffering from diabetes.

Mesosystem

When more than one microsystem becomes related the system becomes a Mesosystem. This means that parents start interacting with the adolescent's friends, with the psychologists and even with their teachers. These relationships, as in the Microsystem, are not static.

Psychologists can play an important role in the management of diabetes during adolescence (Chawla *et al.*, 2009). Psychologists can also help parents by using specific therapies to help them adapt to pressures from society (Chawla *et al.*, 2009). However, it is still important to support the adolescent herself as psychological issues affecting the adolescent with diabetes can considerably affect glycemic control (Rose *et al.*, 2002).

If by this support the parents can better understand the adolescent, they might start to see the condition from her point of view and the adolescent can start to relate

much better with her parents and accept their support more willingly, resulting in an improved management of their diabetes.

A support group could optimise this support for the parents. Friends can also be involved if they are willing. As discussed previously, friends play an important role during the adolescent period. Research is limited regarding the outcome of having social support for the family and adolescent suffering from diabetes. Lewandowski and Drotar (2007) concluded that the adolescents' type 1 diabetes control improved significantly because the mother was getting needed support

Psychologists in Malta are rarely involved in the treatment of adolescents with diabetes. Fortunately this is changing, with more diabetologists becoming aware of the benefits of having specialized psychological care in their team of health care professionals as has also been concluded by Steven *et al.* (2004).

It has also been noted that the support does not need to come from outside of the family unit. As with this study, the support came from the mother's partner. Horton and Wallander (2001) have demonstrated that support also has a positive effect on the person looking after the adolescent by reducing their stress and anxiety.

It has been noted in Lewandowski and Drotar (2007) as well as in Horton and Wallander (2001) that only the mother is considered as being the care giver. There is no reference to the male partner who might give a significant support or even more support than the mothers assessed.

Exosystems

This system involves more than 2 relationships connected together but they do not need to be related to the adolescent. Decisions can be taken which can affect the adolescent but she is not involved in the decisions taken, such as decisions taken by neighbours, the community or even politicians.

For example, if in Malta, politicians decide to make the fight against diabetes a priority, this should positively affect the adolescent mentioned in the case report. Politicians also decide which medications are listed on the National Formulary. This decision affects both the adolescent and their parents, especially those who have to struggle financially when buying the medications and monitoring devices needed. Neighbours can also be supportive by taking care of the adolescent and her siblings when the parents need to have a break from everyday life or when an emergency occurs. Ideally, the neighbours need to be familiar with the diabetes treatment and monitoring especially to identify hypoglycaemia.

Macrosystems

Culture, values and principles play an important part. These are considered factors that influence the adolescent in an indirect way.

Family values in Malta are very strong, therefore, adolescents can be significantly influenced by their families even at an older age. This can be positive for adolescents suffering from diabetes as they have unconditional support available. Malta, being a small island, offers the advantage that families live close to each other and consequently support is always available at a few minutes' notice. Unfortunately, when it comes to the adolescent mentioned in this case report their immediate family members are either dead or abroad so they can only rely on their neighbours and close friends.

Being an island in the Mediterranean the diet that the Maltese eat can also be of benefit for the patients that suffer from diabetes. Unfortunately, like the majority of adolescents the girl mentioned in this case report prefers to eat fast food rather than fresh fish. Therefore, the Mediterranean diet does not really apply to her way of life, currently.

Culturally, the Maltese are not very physically active. Exercise is very important for patients suffering from diabetes. However, because the parents of the adolescent never regarded exercise as a priority for their child, with the reason they gave being that they were too busy with other issues, the adolescent is not involved in exercise.

Psychologists in Malta are normally associated with mental disease so the idea of going to a psychologist for support for diabetes care could be seen as a stigma for the Maltese parents of children suffering from diabetes.

CONCLUSIONS

The ecological framework raised awareness that, although it is normal that the parents come along with the child to the clinic, it is not only the parents that are affected by their child's chronic condition. This framework helped to understand that the social life of both the parents and siblings of the adolescents suffering with diabetes are shaped around the chronic condition that this child suffers from as discussed in Brown (2002). Apart from the parents, the older siblings in this case report are also asked to care for the adolescent; this is what usually happens as explained by Loos and Kelly (2006). Due to this, the adolescent with diabetes is seen as being preferred over her siblings thus creating conflict.

Economic problems are also an issue which affects the families of adolescents suffering from diabetes. The family in this case report is well off but they also complained

about the extra expenses. This raises the constant struggles that are experienced by families with a child with diabetes. Apart from the burden of the condition itself with all its physical, psychological and emotional problems these families also need to worry about the financial situation. This inevitably increases the stress level as also mentioned by Canning *et al.* (1996).

Friends and teachers also need to be involved. In this case report friends and teachers are mentioned briefly. It could be argued that more effort needs to be made to involve friends and especially teachers in the care of the adolescents' diabetes. As mentioned by La Greca *et al.* (2002), having peers involved can increase the chances of managing the condition. A suggestion could be to involve the adolescent with other diabetic children of the same age. This can help to share experiences from which the adolescent can learn. These adolescents and their families can also support each other. Teachers also need to be well educated about diabetes. Apart from helping the adolescent and her family cope with the management of the condition, a teacher that is well informed about the condition can save the adolescent's life in cases of hypoglycaemia.

The ecological frame work also indicates how important it is for a health care provider to give ample time, not only to the adolescent but also to the parents or anyone else interested in the wellbeing of the adolescent. This time is needed to encourage more communication so the health care provider can better understand the issues that the parents are going through and, therefore, be able to give more focused and relevant advice.

In this case report there is no mention of any psychological support. This is because it was never offered. As discussed during the ecological framework, having this kind of support is fundamental to increasing the chances of optimal diabetes control. These supports can also alleviate the stress that the family, as a whole, passes through day in, day out.

Another level of support that is missing is financial support. It is important that health care providers can facilitate this burden. A way that could be done is by trying to make the Health Department pay for the majority of the expenses or even involve charitable organisations to support those families in need.

Baumrind (1966) describes the Baumrind Theory where he mentions four parenting styles. Parenting style is something that should be looked into when treating adolescents with diabetes. However, considering the influences that the macrosystem can have on the child, parenting style is important to examine. The way that parents react with the adolescent can be a result of the

cultural environment and belief that they were brought up in. Taking this family as an example, the mother is very calm and allows the adolescent to manage her diabetes most of the time, while her father is constantly showing the adolescent how worried he is about her condition and is constantly monitoring her. The result seems to be that the adolescent reacts more to the treatment and monitoring when her mother is looking after her than when her father is, agreeing with what Ellis *et al.* (2007) concluded.

The mother uses the Authoritative style which is the best style for encouraging tighter diabetes control especially in adolescents, as can be confirmed by this

case report. Parents that adopt other styles such as the Authoritarian style should be referred to a psychologist so they can be guided to consider other styles as this one could lead an adolescent to be more rebellious which is counterproductive for diabetes monitoring and better outcomes.

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